



Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 12:18 pm GMT

PDB ID : 6Q6G
EMDB ID : EMD-4465
Title : Cryo-EM structure of the APC/C-Cdc20-Cdk2-cyclinA2-Cks2 complex, the D1 box class
Authors : Zhang, S.; Barford, D.
Deposited on : 2018-12-11
Resolution : 3.20 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:

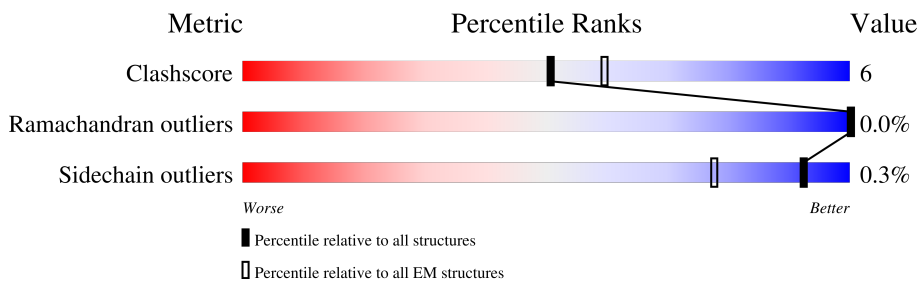
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.20 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.






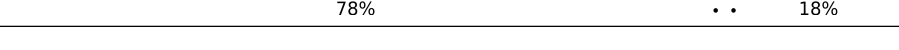
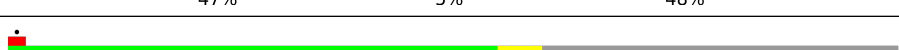



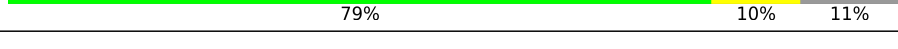

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	R	499	
2	S	400	
3	L	185	
4	D	121	
5	A	1855	
6	N	822	
7	I	808	
8	O	755	

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Mol	Chain	Length	Quality of chain
9	K	620	 72% 12% 16%
9	Q	620	 73% 8% 19%
10	C	84	 100% 89% 11%
11	G	85	 29% 68%
11	W	85	 25% 6% 69%
12	M	74	 5% 78% 18%
13	H	110	 47% 5% 48%
14	J	824	 55% 5% 40%
14	P	824	 54% 5% 41%
15	Y	599	 70% 13% 17%
15	Z	599	 8% 65% 16% 19%
16	U	597	 10% 76% 10% 14%
16	V	597	 10% 79% 10% 11%

2 Entry composition i

There are 16 unique types of molecules in this entry. The entry contains 68133 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 Cell division cycle protein 20 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	R	382	2957	1856	539	549	13	2	0

- Molecule 2 is a protein called Cyclin-A2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	S	31	216	133	38	45	0	0

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	?	-	ARG	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248
S	?	-	LYS	deletion	UNP P20248
S	?	-	THR	deletion	UNP P20248
S	?	-	ARG	deletion	UNP P20248
S	?	-	ARG	deletion	UNP P20248
S	?	-	VAL	deletion	UNP P20248
S	?	-	ALA	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248
S	?	-	LEU	deletion	UNP P20248
S	?	-	LYS	deletion	UNP P20248
S	?	-	ASP	deletion	UNP P20248
S	?	-	LEU	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248
S	?	-	VAL	deletion	UNP P20248
S	?	-	ASN	deletion	UNP P20248
S	?	-	ASP	deletion	UNP P20248
S	?	-	GLU	deletion	UNP P20248
S	?	-	HIS	deletion	UNP P20248
S	?	-	VAL	deletion	UNP P20248
S	?	-	THR	deletion	UNP P20248

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Chain	Residue	Modelled	Actual	Comment	Reference
S	?	-	VAL	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248
S	?	-	TRP	deletion	UNP P20248
S	?	-	LYS	deletion	UNP P20248
S	?	-	ALA	deletion	UNP P20248
S	?	-	ASN	deletion	UNP P20248
S	?	-	SER	deletion	UNP P20248
S	?	-	LYS	deletion	UNP P20248
S	?	-	GLN	deletion	UNP P20248
S	?	-	PRO	deletion	UNP P20248

- Molecule 3 is a protein called Anaphase-promoting complex subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	L	179	1446	906	263	270	7	0	0

- Molecule 4 is a protein called Anaphase-promoting complex subunit 15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	56	470	299	81	89	1	1	0

- Molecule 5 is a protein called Anaphase-promoting complex subunit 1, Anaphase-promoting complex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	A	1553	12152	7798	2044	2227	83	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	396	LEU	-	linker	UNP Q9H1A4

- Molecule 6 is a protein called Anaphase-promoting complex subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	N	656	5260	3350	935	950	25	0	0

- Molecule 7 is a protein called Anaphase-promoting complex subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	I	729	5752	3685	956	1077	34	0	0

- Molecule 8 is a protein called Anaphase-promoting complex subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	O	703	5532	3529	963	1011	29	0	0

- Molecule 9 is a protein called Cell division cycle protein 16 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	K	518	4187	2694	704	764	25	0	0
9	Q	504	4059	2608	684	743	24	0	0

- Molecule 10 is a protein called Anaphase-promoting complex subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	C	84	657	418	120	103	16	0	0

- Molecule 11 is a protein called Anaphase-promoting complex subunit CDC26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	G	27	226	142	42	41	1	0	0
11	W	26	225	142	42	40	1	0	0

- Molecule 12 is a protein called Anaphase-promoting complex subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	M	61	499	314	81	102	2	0	0

- Molecule 13 is a protein called Anaphase-promoting complex subunit 16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	H	57	459	296	75	86	2	0	0

- Molecule 14 is a protein called Cell division cycle protein 27 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	J	496	3964	2547	668	723	26	0	0
14	P	484	3883	2497	653	707	26	0	0

- Molecule 15 is a protein called Anaphase-promoting complex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Y	499	3911	2474	682	728	27	1	0
15	Z	486	3807	2413	664	705	25	1	0

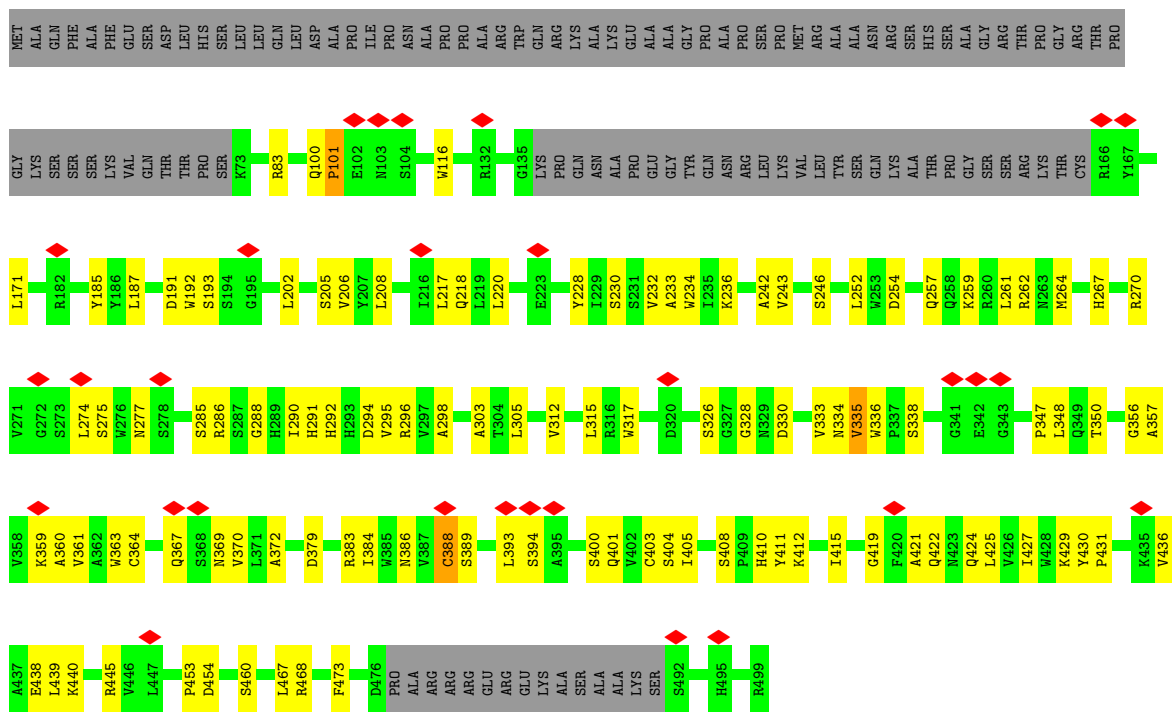
- Molecule 16 is a protein called Cell division cycle protein 23 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	U	515	4160	2678	700	758	24	0	0
16	V	530	4311	2778	720	789	24	0	0

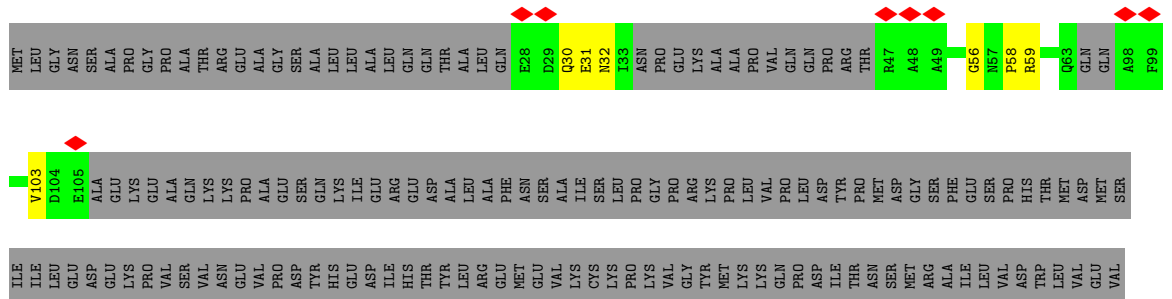
3 Residue-property plots

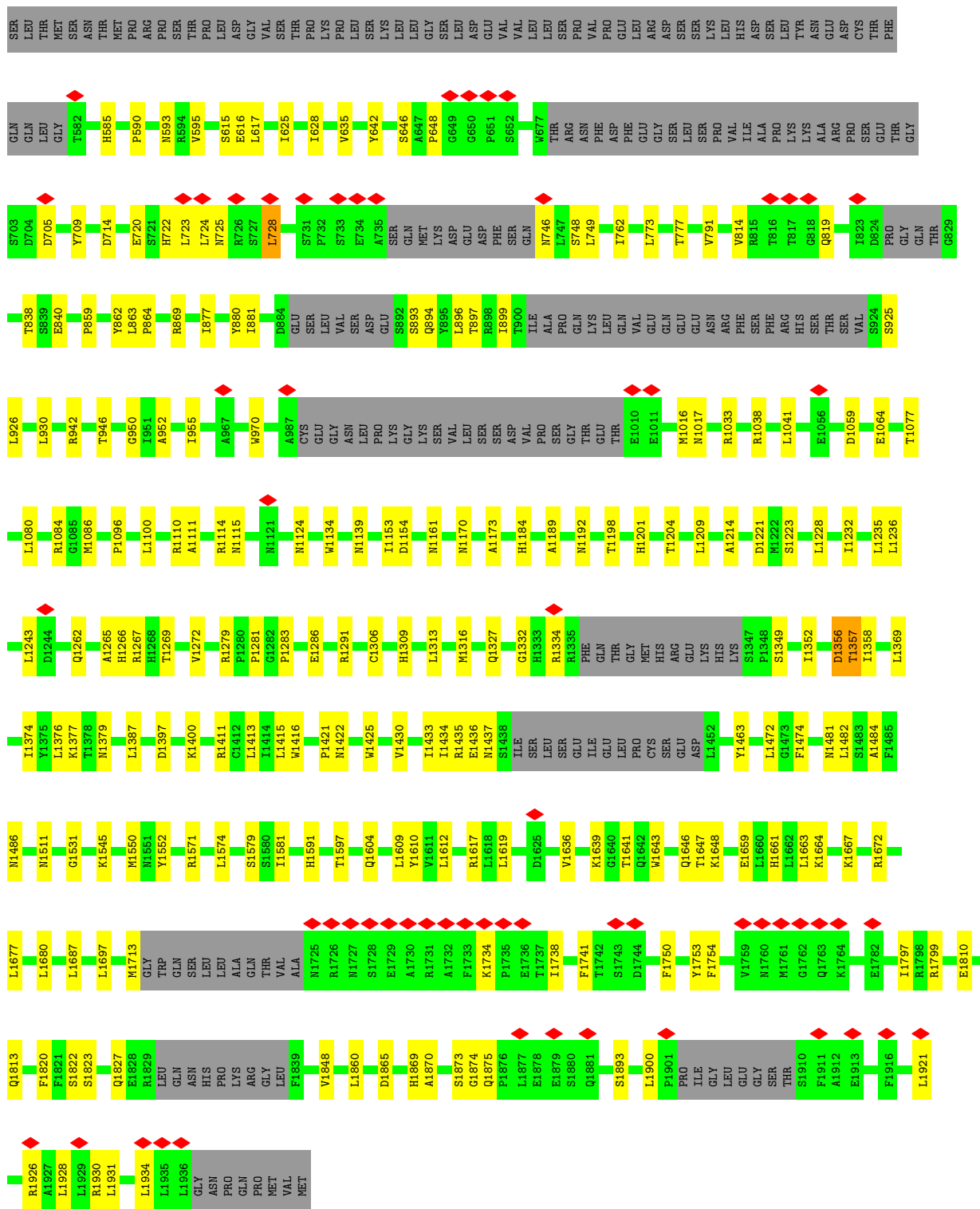
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Cell division cycle protein 20 homolog

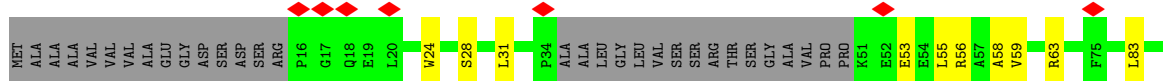
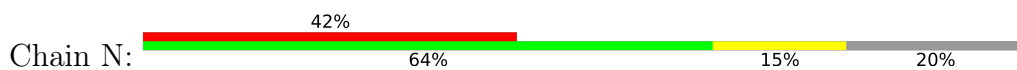


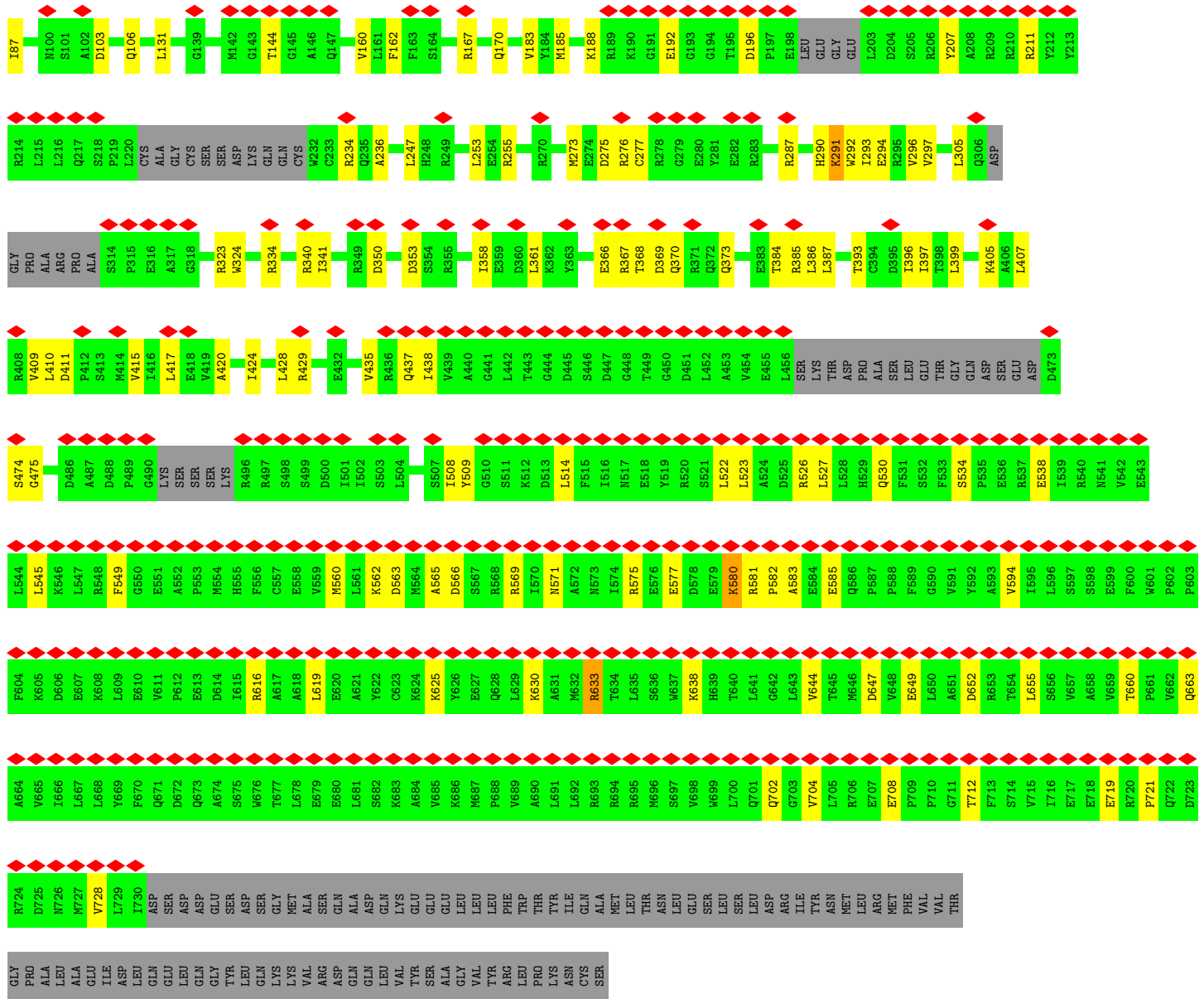
- Molecule 2: Cyclin-A2



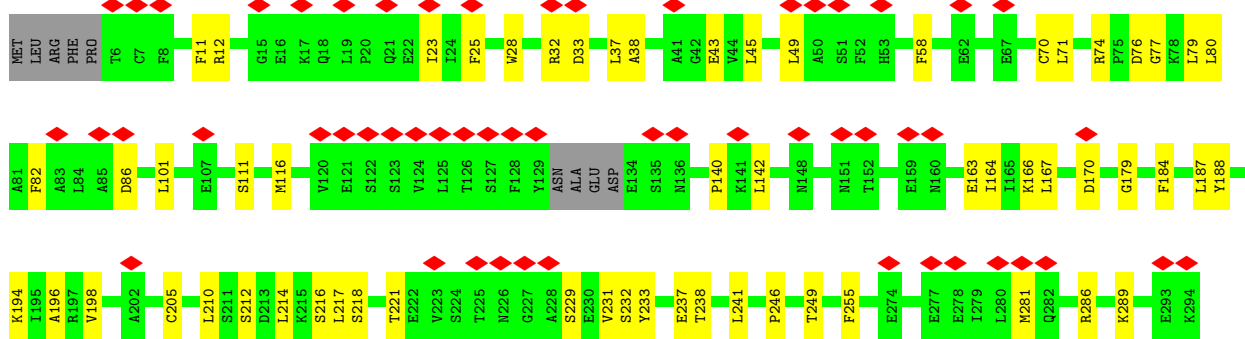


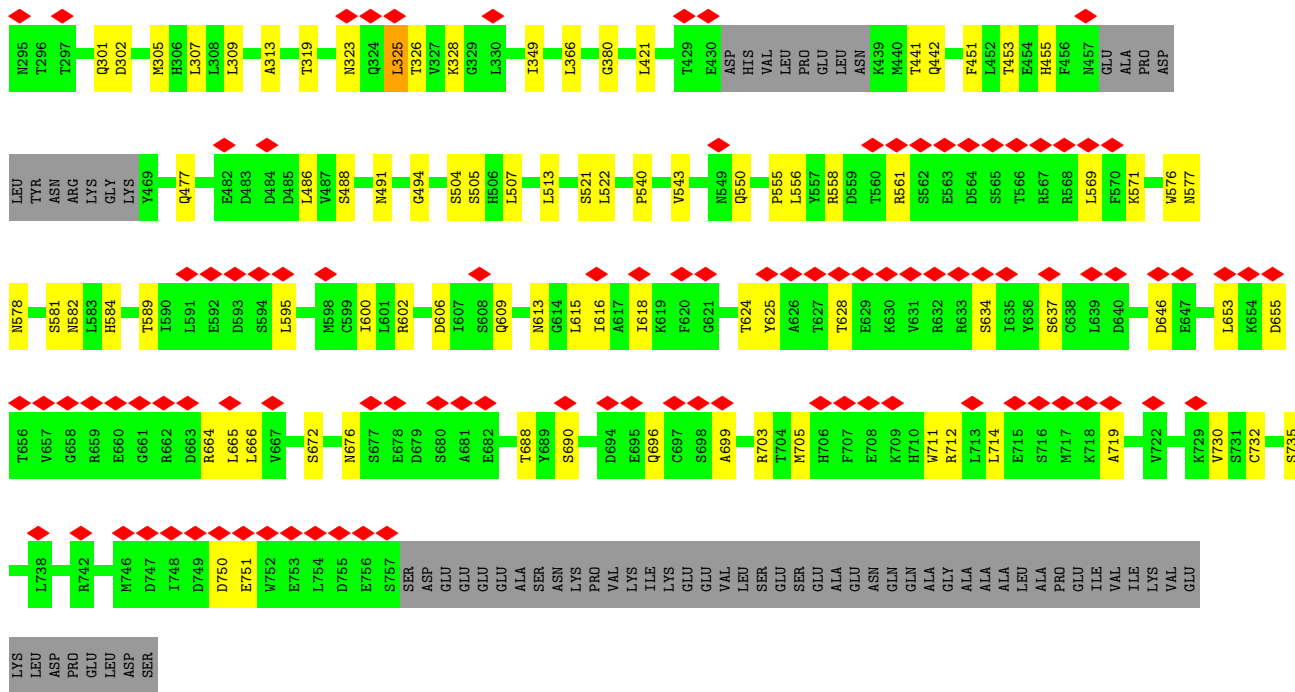
• Molecule 6: Anaphase-promoting complex subunit 2



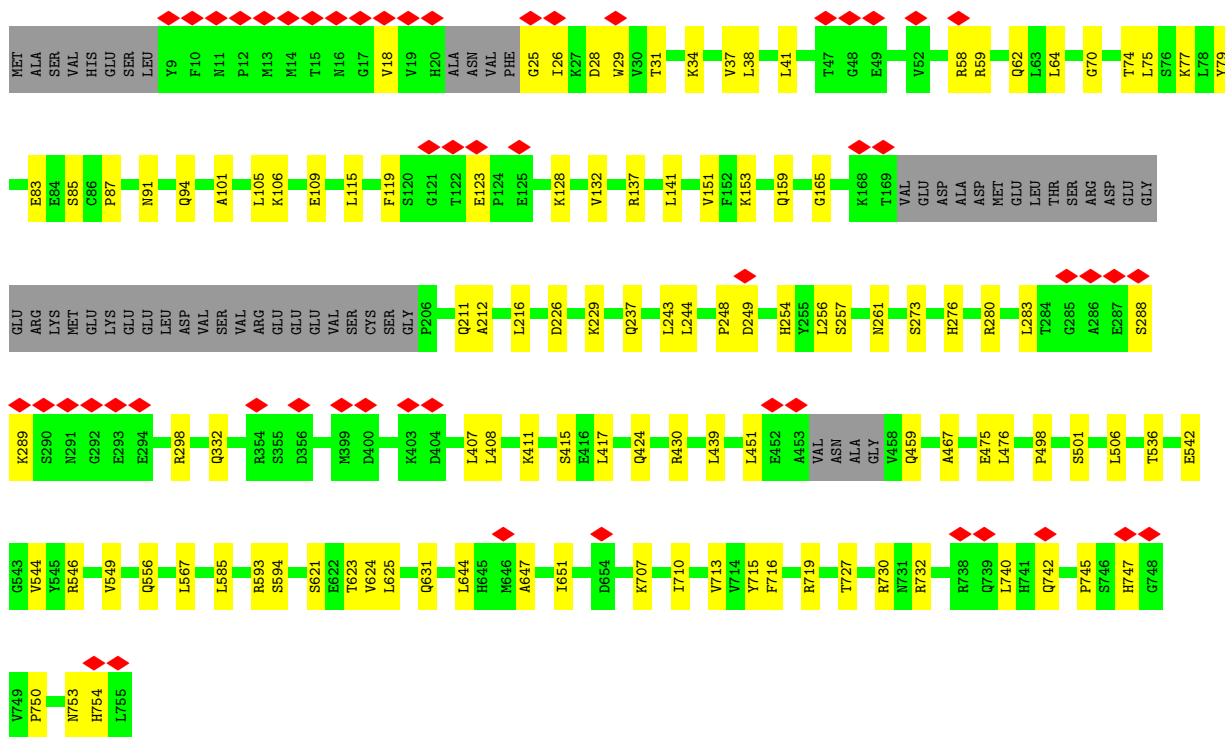
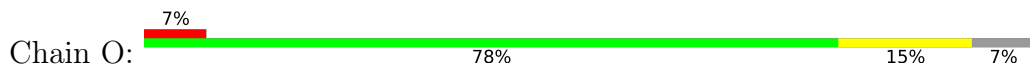


• Molecule 7: Anaphase-promoting complex subunit 4



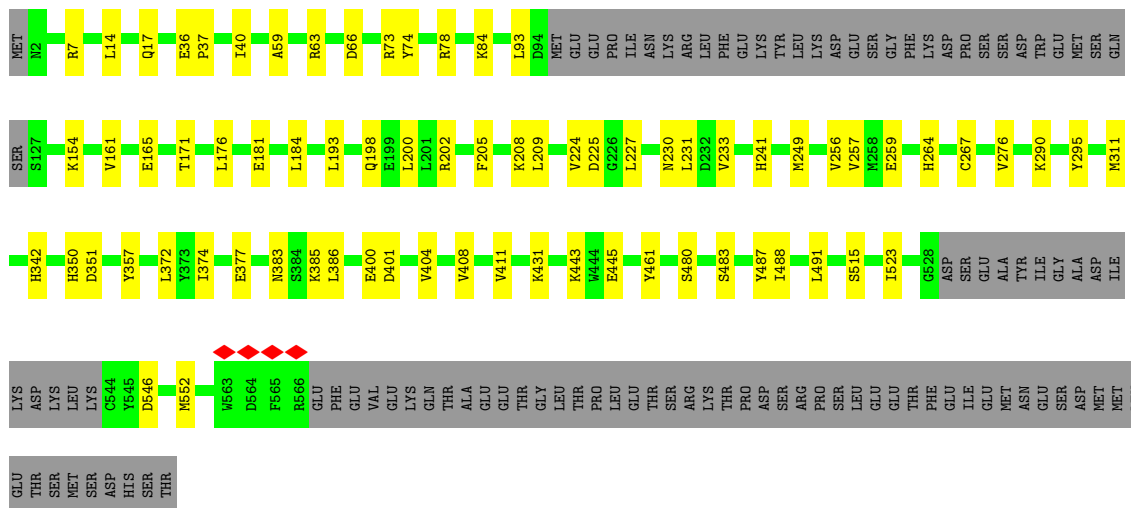


- Molecule 8: Anaphase-promoting complex subunit 5

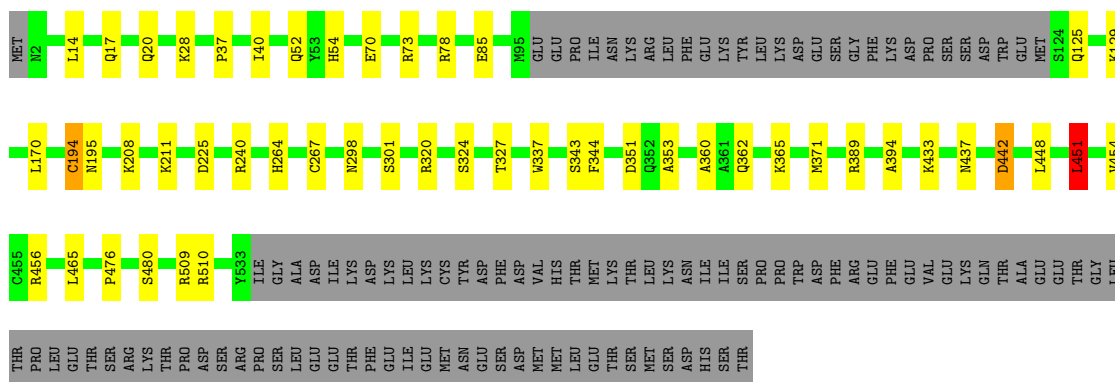


- Molecule 9: Cell division cycle protein 16 homolog

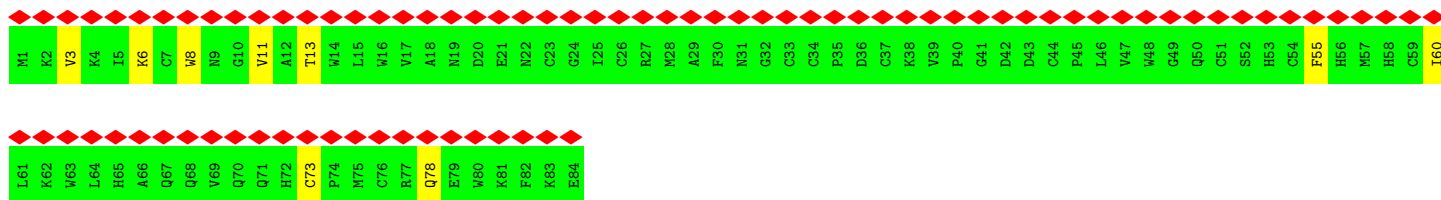
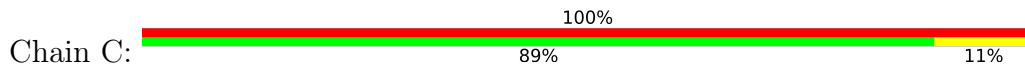




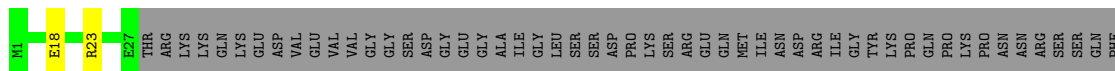
• Molecule 9: Cell division cycle protein 16 homolog

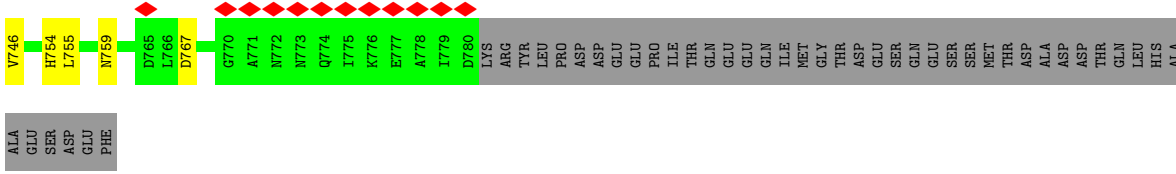


• Molecule 10: Anaphase-promoting complex subunit 11

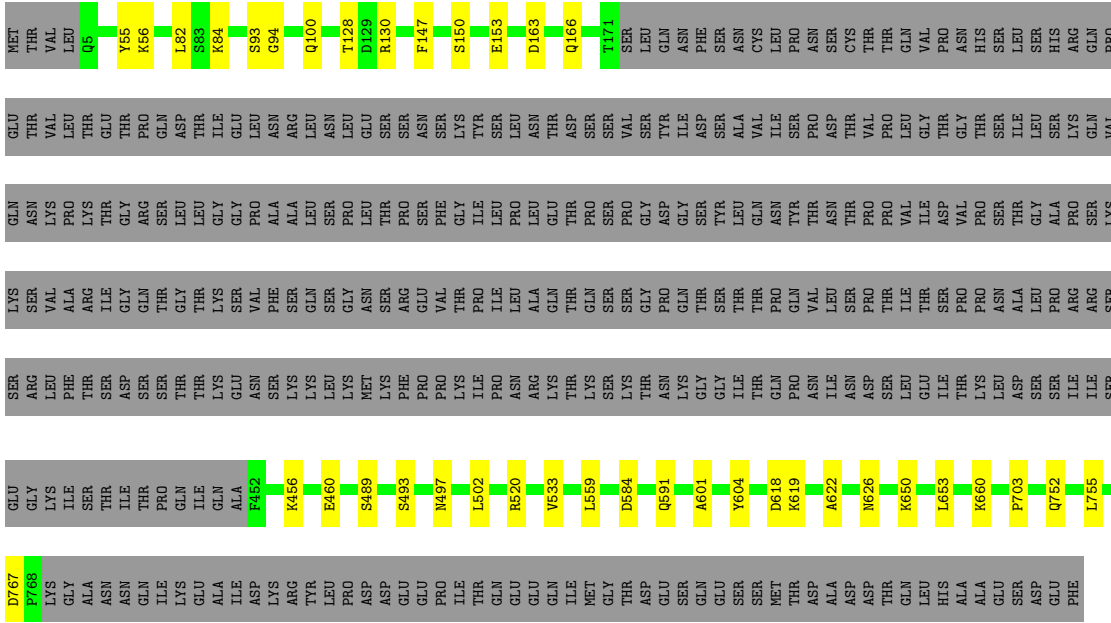


• Molecule 11: Anaphase-promoting complex subunit CDC26

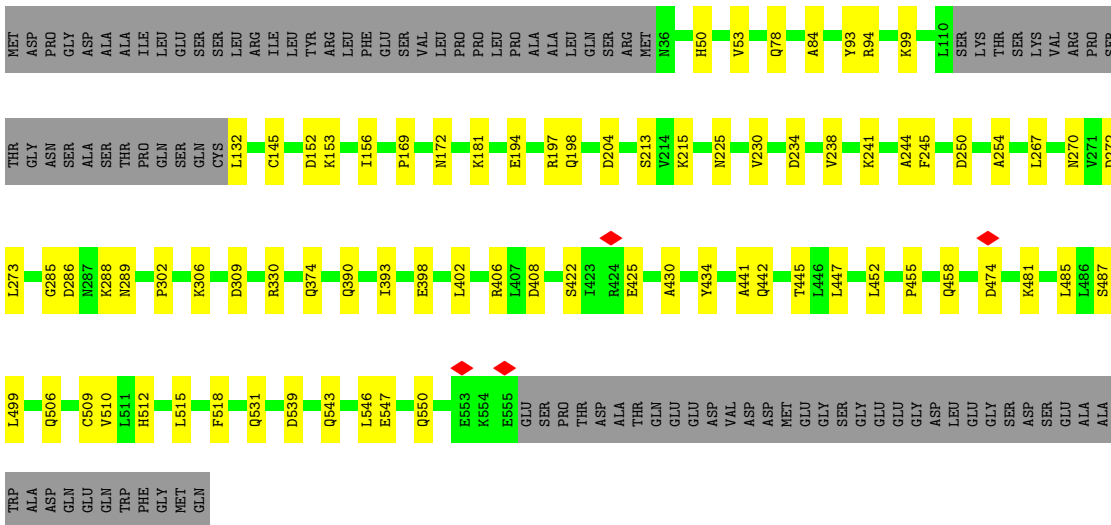




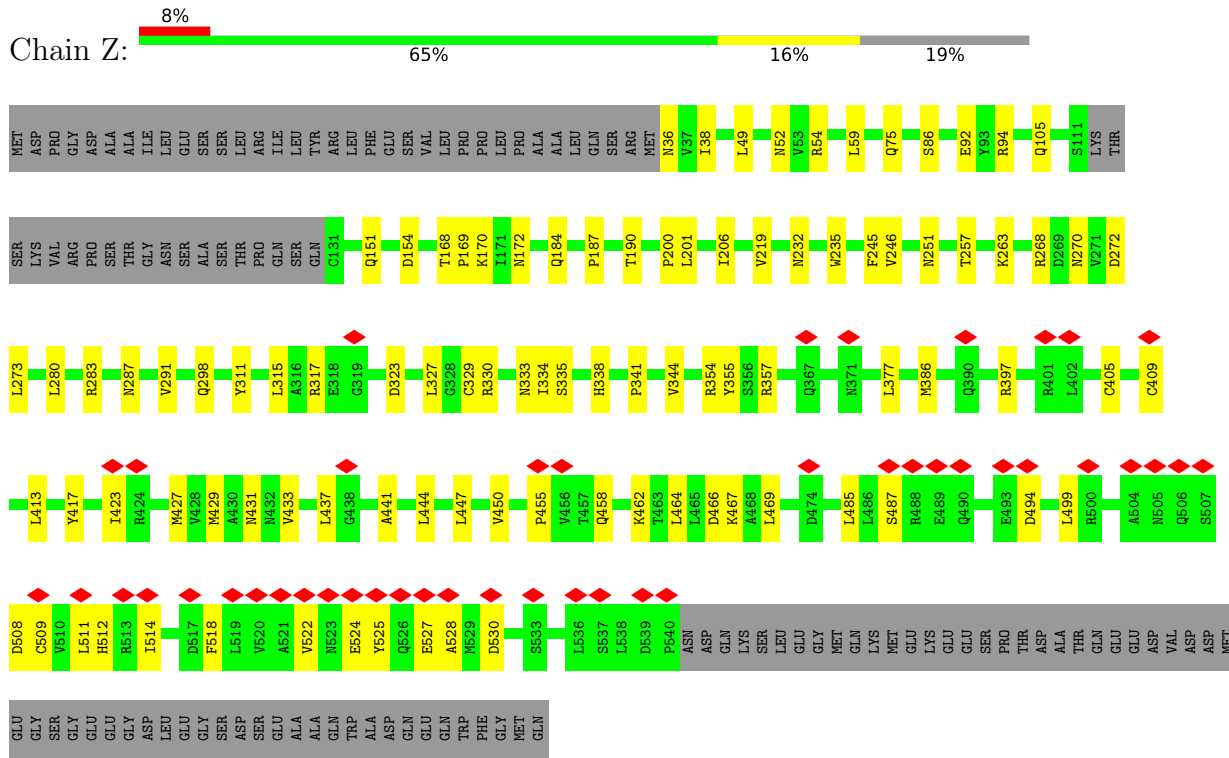
• Molecule 14: Cell division cycle protein 27 homolog



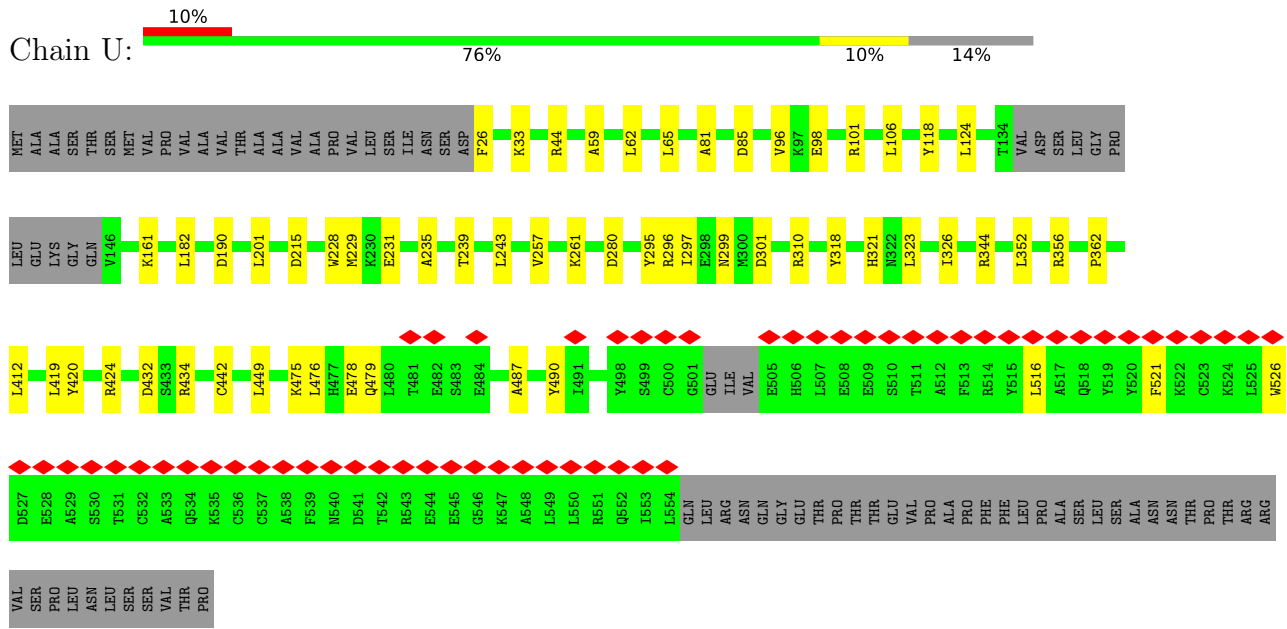
• Molecule 15: Anaphase-promoting complex subunit 7



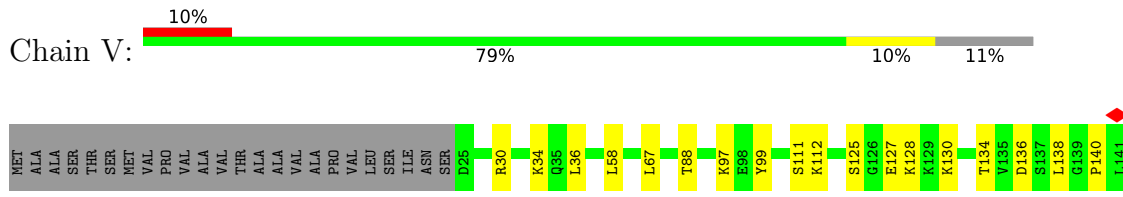
• Molecule 15: Anaphase-promoting complex subunit 7

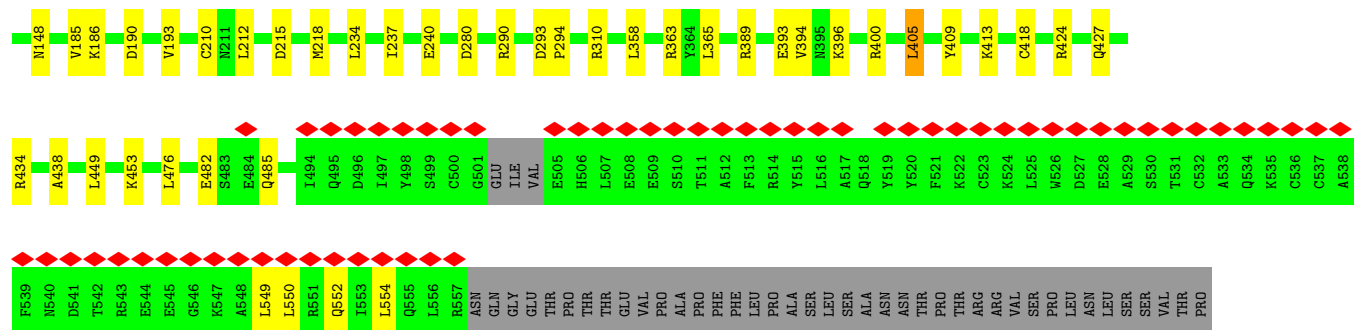


● Molecule 16: Cell division cycle protein 23 homolog



● Molecule 16: Cell division cycle protein 23 homolog





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	176826	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	28	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.037	Depositor
Minimum map value	-0.013	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0085	Depositor
Map size (Å)	418.80002, 418.80002, 418.80002	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.047, 1.047, 1.047	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	R	0.32	0/3030	0.56	2/4120 (0.0%)
2	S	0.27	0/216	0.51	0/291
3	L	0.40	0/1480	0.55	0/2005
4	D	0.32	0/485	0.51	0/662
5	A	0.38	1/12432 (0.0%)	0.54	4/16904 (0.0%)
6	N	0.28	0/5365	0.57	2/7266 (0.0%)
7	I	0.31	0/5871	0.52	1/7954 (0.0%)
8	O	0.35	0/5634	0.48	0/7612
9	K	0.40	0/4291	0.49	0/5812
9	Q	0.42	0/4158	0.49	2/5632 (0.0%)
10	C	0.27	0/680	0.48	0/921
11	G	0.34	0/227	0.41	0/302
11	W	0.35	0/226	0.66	1/299 (0.3%)
12	M	0.39	0/508	0.50	0/689
13	H	0.40	0/468	0.45	0/631
14	J	0.42	0/4058	0.46	0/5485
14	P	0.45	0/3975	0.46	0/5371
15	Y	0.34	0/3974	0.51	1/5369 (0.0%)
15	Z	0.33	0/3870	0.51	0/5233
16	U	0.39	0/4255	0.47	1/5753 (0.0%)
16	V	0.41	0/4409	0.49	1/5958 (0.0%)
All	All	0.37	1/69612 (0.0%)	0.51	15/94269 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	R	0	1
8	O	0	1
All	All	0	2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1591	HIS	C-N	-7.28	1.17	1.34

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	728	LEU	CA-CB-CG	8.28	134.35	115.30
1	R	335	VAL	C-N-CA	8.04	141.81	121.70
5	A	120	ASP	CB-CG-OD1	7.60	125.14	118.30
7	I	325	LEU	CA-CB-CG	7.16	131.77	115.30
5	A	724	LEU	CA-CB-CG	7.12	131.69	115.30
6	N	305	LEU	CA-CB-CG	6.47	130.19	115.30
9	Q	442	ASP	CB-CG-OD2	6.42	124.08	118.30
5	A	1356	ASP	CB-CG-OD2	6.41	124.07	118.30
1	R	101	PRO	N-CA-CB	6.27	110.82	103.30
9	Q	451	LEU	CA-CB-CG	6.11	129.35	115.30
16	U	243	LEU	CA-CB-CG	5.52	127.99	115.30
11	W	14	ASP	CB-CG-OD1	5.46	123.21	118.30
15	Y	204	ASP	CB-CG-OD1	5.11	122.90	118.30
6	N	522	LEU	CA-CB-CG	5.11	127.05	115.30
16	V	405	LEU	CB-CG-CD2	-5.07	102.38	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
8	O	123	GLU	Peptide
1	R	202	LEU	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	2957	0	2833	77	0
2	S	216	0	188	8	0
3	L	1446	0	1423	27	0
4	D	470	0	458	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	12152	0	12082	169	0
6	N	5260	0	5240	77	0
7	I	5752	0	5680	90	0
8	O	5532	0	5570	75	0
9	K	4187	0	4099	55	0
9	Q	4059	0	3963	35	0
10	C	657	0	611	8	0
11	G	226	0	233	2	0
11	W	225	0	242	5	0
12	M	499	0	469	3	0
13	H	459	0	449	5	0
14	J	3964	0	3903	25	0
14	P	3883	0	3836	26	0
15	Y	3911	0	3986	49	0
15	Z	3807	0	3885	60	0
16	U	4160	0	4038	39	0
16	V	4311	0	4237	43	0
All	All	68133	0	67425	802	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 (802) 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)
6:N:523:LEU:O	6:N:527:LEU:HB2	1.81	0.81
5:A:1111:ALA:O	5:A:1115:ASN:HA	1.85	0.76
8:O:707:LYS:HB2	8:O:740:LEU:HD11	1.75	0.69
5:A:248:PHE:HB3	5:A:257:MET:HB3	1.75	0.66
15:Z:287:ASN:HB3	15:Z:317:ARG:HH22	1.61	0.66
1:R:360:ALA:HB1	1:R:405:ILE:HG12	1.78	0.65
7:I:187:LEU:HB2	7:I:196:ALA:HB3	1.78	0.64
5:A:1100:LEU:H	5:A:1161:ASN:HD21	1.43	0.64
1:R:425:LEU:HB3	1:R:439:LEU:HB2	1.80	0.64
6:N:273:MET:O	6:N:277:CYS:HB2	1.98	0.64
7:I:380:GLY:HA3	7:I:543:VAL:HG11	1.81	0.63
15:Y:245:PHE:HB3	15:Y:250:ASP:HB3	1.80	0.63
5:A:1636:VAL:HB	5:A:1663:LEU:HD11	1.80	0.63
5:A:1283:PRO:HG2	5:A:1286:GLU:HB2	1.81	0.63
7:I:653:LEU:HB3	7:I:665:LEU:HB3	1.79	0.63
7:I:214:LEU:HD23	7:I:241:LEU:HB3	1.79	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:N:387:LEU:HD21	6:N:424:ILE:HG22	1.82	0.62
14:J:170:PHE:HB3	14:J:456:LYS:HE3	1.82	0.62
7:I:37:LEU:HB2	7:I:45:LEU:HB2	1.82	0.62
8:O:542:GLU:OE2	8:O:546:ARG:NH1	2.33	0.62
9:K:78:ARG:HH12	9:Q:17:GLN:HB2	1.64	0.62
9:K:205:PHE:O	9:K:209:LEU:HB2	2.01	0.61
15:Y:245:PHE:HB2	15:Y:254:ALA:HB2	1.82	0.61
5:A:1574:LEU:O	5:A:1617:ARG:NH2	2.34	0.61
7:I:116:MET:HG2	7:I:210:LEU:HB3	1.83	0.60
1:R:403:CYS:SG	1:R:404:SER:N	2.74	0.60
15:Y:474:ASP:HB2	15:Y:506:GLN:HE21	1.67	0.60
15:Z:270:ASN:HD22	15:Z:273:LEU:HB2	1.66	0.60
15:Z:287:ASN:HD22	15:Z:317:ARG:HH12	1.49	0.60
5:A:1750:PHE:O	5:A:1754:PHE:HB2	2.02	0.60
1:R:364:CYS:SG	1:R:367:GLN:NE2	2.75	0.60
9:K:342:HIS:HD2	11:W:2:LEU:HD23	1.67	0.60
3:L:39:GLY:O	3:L:44:GLN:NE2	2.35	0.59
5:A:1084:ARG:NH2	5:A:1139:ASN:OD1	2.36	0.59
12:M:7:ARG:HH22	16:U:362:PRO:HD3	1.67	0.59
1:R:369:ASN:ND2	1:R:388[B]:CYS:SG	2.76	0.59
1:R:388[A]:CYS:SG	1:R:389:SER:N	2.75	0.59
7:I:307:LEU:HD13	7:I:313:ALA:HB2	1.84	0.59
15:Y:302:PRO:O	15:Y:330:ARG:NH1	2.35	0.59
7:I:28:TRP:HE1	7:I:732:CYS:HG	1.49	0.58
5:A:90:ASP:OD1	5:A:90:ASP:N	2.35	0.58
7:I:719:ALA:HA	7:I:735:SER:HA	1.84	0.58
14:P:584:ASP:OD1	14:P:584:ASP:N	2.35	0.58
1:R:228:TYR:OH	1:R:270:ARG:NH2	2.36	0.58
16:V:111:SER:OG	16:V:112:LYS:N	2.36	0.58
7:I:238:THR:HB	7:I:241:LEU:HB2	1.86	0.58
6:N:527:LEU:HD11	6:N:538:GLU:HG3	1.86	0.58
14:P:150:SER:HA	14:P:153:GLU:HG2	1.84	0.58
16:V:127:GLU:OE1	16:V:148:ASN:ND2	2.37	0.58
5:A:1096:PRO:O	8:O:332:GLN:NE2	2.37	0.58
16:V:449:LEU:HD22	16:V:476:LEU:HD11	1.84	0.58
15:Z:38:ILE:HG13	15:Z:75:GLN:HB3	1.86	0.58
5:A:720:GLU:OE2	8:O:719:ARG:NH1	2.37	0.58
1:R:408:SER:O	1:R:412:LYS:HA	2.04	0.57
5:A:1482:LEU:HD13	9:K:552:MET:HB3	1.85	0.57
5:A:1235:LEU:HG	5:A:1272:VAL:HG11	1.87	0.57
15:Z:335:SER:HB2	15:Z:338:HIS:HD2	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:290:ILE:HB	1:R:305:LEU:HB2	1.85	0.57
5:A:722:HIS:O	5:A:725:ASN:ND2	2.38	0.57
7:I:23:ILE:HD11	7:I:37:LEU:HB3	1.86	0.57
12:M:13:ASP:OD2	16:U:356:ARG:NH2	2.38	0.57
14:P:493:SER:O	14:P:497:ASN:ND2	2.38	0.57
5:A:720:GLU:O	5:A:725:ASN:ND2	2.38	0.57
5:A:615:SER:OG	5:A:616:GLU:N	2.38	0.57
5:A:1033:ARG:NH1	5:A:1531:GLY:O	2.38	0.57
15:Z:184:GLN:HB3	15:Z:187:PRO:HD2	1.87	0.57
5:A:42:LEU:HD22	16:V:363:ARG:HG2	1.87	0.56
6:N:386:LEU:HD13	6:N:399:LEU:HD23	1.86	0.56
14:P:533:VAL:HG23	14:P:559:LEU:HD22	1.87	0.56
1:R:401:GLN:HE21	1:R:419:GLY:HA3	1.70	0.56
3:L:71:LYS:HB3	5:A:1397:ASP:HB2	1.87	0.56
5:A:411:HIS:NE2	5:A:414:THR:OG1	2.36	0.56
8:O:18:VAL:HB	16:U:352:LEU:HD11	1.87	0.56
8:O:715:TYR:OH	8:O:719:ARG:NH2	2.38	0.56
13:H:99:ILE:HG12	14:P:591:GLN:HG2	1.87	0.56
15:Y:309:ASP:OD1	15:Y:309:ASP:N	2.39	0.56
16:U:301:ASP:OD1	16:U:301:ASP:N	2.38	0.56
5:A:1077:THR:HA	5:A:1080:LEU:HD12	1.88	0.56
7:I:664:ARG:HG3	7:I:719:ALA:H	1.70	0.56
14:J:617:LEU:HD23	14:J:644:ILE:HG23	1.87	0.56
5:A:25:ARG:NH1	5:A:72:GLU:OE2	2.38	0.56
1:R:208:LEU:HB2	1:R:217:LEU:HB3	1.87	0.56
7:I:281:MET:SD	7:I:281:MET:N	2.75	0.56
1:R:192:TRP:HE1	1:R:453:PRO:HG3	1.71	0.56
3:L:75:LYS:HD2	3:L:161:PRO:HG3	1.88	0.56
8:O:624:VAL:HG11	8:O:647:ALA:HB3	1.88	0.56
1:R:187:LEU:HD22	1:R:230:SER:HB2	1.87	0.55
5:A:862:TYR:HB2	5:A:896:LEU:HD22	1.86	0.55
5:A:1753:TYR:O	8:O:631:GLN:NE2	2.39	0.55
15:Z:270:ASN:ND2	15:Z:272:ASP:OD1	2.40	0.55
1:R:454:ASP:N	1:R:454:ASP:OD1	2.39	0.55
15:Z:499:LEU:HD11	15:Z:514:ILE:HG23	1.87	0.55
5:A:1266:HIS:HD2	5:A:1269:THR:HG23	1.71	0.55
5:A:1926:ARG:O	5:A:1930:ARG:NH1	2.39	0.55
9:K:445:GLU:OE1	11:W:8:ARG:NH1	2.37	0.55
5:A:34:ALA:O	8:O:237:GLN:NE2	2.38	0.55
15:Z:287:ASN:OD1	15:Z:287:ASN:N	2.39	0.55
15:Z:397:ARG:NH2	15:Z:417:TYR:OH	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:O:38:LEU:HD22	8:O:115:LEU:HD21	1.89	0.55
9:K:200:LEU:HD13	9:K:224:VAL:HG11	1.89	0.55
16:U:44:ARG:HH12	16:V:88:THR:HG23	1.72	0.55
7:I:71:LEU:HD11	7:I:80:LEU:HD12	1.87	0.55
14:J:618:ASP:N	14:J:618:ASP:OD1	2.39	0.55
5:A:1306:CYS:HB2	5:A:1374:ILE:HG12	1.89	0.55
9:Q:125:GLN:O	9:Q:129:LYS:NZ	2.40	0.55
5:A:415:GLU:OE2	5:A:453:ARG:NH2	2.40	0.54
15:Y:152:ASP:OD1	15:Y:152:ASP:N	2.39	0.54
5:A:451:GLN:NE2	5:A:473:ASN:OD1	2.40	0.54
6:N:562:LYS:O	6:N:565:ALA:HB3	2.07	0.54
8:O:59:ARG:NH1	8:O:85:SER:O	2.41	0.54
14:J:493:SER:O	14:J:497:ASN:ND2	2.40	0.54
14:P:520:ARG:NH2	15:Z:154:ASP:OD1	2.40	0.54
15:Z:466:ASP:OD2	15:Z:466:ASP:N	2.39	0.54
1:R:335:VAL:O	1:R:348:LEU:N	2.40	0.54
6:N:287:ARG:HA	6:N:290:HIS:HB2	1.88	0.54
7:I:569:LEU:HD21	7:I:571:LYS:HE2	1.89	0.54
5:A:183:THR:OG1	5:A:186:GLY:N	2.38	0.54
11:G:18:GLU:OE1	9:Q:456:ARG:NH1	2.40	0.54
15:Y:78:GLN:HE21	15:Y:132:LEU:HD23	1.73	0.54
15:Z:232:ASN:O	15:Z:235:TRP:NE1	2.38	0.54
8:O:249:ASP:OD2	8:O:280:ARG:NH2	2.40	0.54
9:K:17:GLN:OE1	9:Q:78:ARG:NH1	2.40	0.54
14:J:540:SER:OG	14:J:575:ASN:ND2	2.40	0.54
15:Y:499:LEU:HB3	15:Y:515:LEU:HD12	1.89	0.54
16:U:96:VAL:HG23	16:U:98:GLU:HG3	1.90	0.54
16:U:215:ASP:N	16:U:215:ASP:OD1	2.40	0.54
1:R:333:VAL:O	1:R:350:THR:HA	2.07	0.54
5:A:1154:ASP:N	5:A:1154:ASP:OD1	2.41	0.54
14:J:517:GLN:OE1	14:J:520:ARG:NH2	2.38	0.54
9:Q:433:LYS:NZ	9:Q:437:ASN:O	2.39	0.54
7:I:229:SER:O	7:I:558:ARG:HA	2.08	0.54
8:O:87:PRO:O	8:O:91:ASN:ND2	2.41	0.54
15:Z:464:LEU:HA	15:Z:467:LYS:HB2	1.90	0.54
15:Z:466:ASP:HA	15:Z:469:LEU:HB2	1.88	0.54
1:R:384:ILE:HG23	1:R:393:LEU:HB2	1.90	0.54
5:A:267:SER:HG	5:A:269:TRP:HE1	1.56	0.54
6:N:196:ASP:OD2	6:N:291:LYS:NZ	2.41	0.54
6:N:526:ARG:NH2	6:N:538:GLU:OE1	2.41	0.54
1:R:411:TYR:O	1:R:429:LYS:NZ	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:616:GLU:HB2	8:O:556:GLN:HA	1.90	0.54
6:N:162:PHE:O	6:N:255:ARG:NH2	2.40	0.54
7:I:301:GLN:HE21	8:O:58:ARG:HE	1.55	0.54
8:O:26:ILE:HG13	8:O:28:ASP:H	1.72	0.54
15:Z:427:MET:O	15:Z:431:ASN:ND2	2.41	0.54
8:O:593:ARG:HG2	8:O:753:ASN:HB3	1.89	0.53
15:Z:354:ARG:HH11	15:Z:357:ARG:HG2	1.73	0.53
3:L:50:LEU:O	3:L:154:ARG:NH1	2.42	0.53
5:A:270:THR:O	5:A:409:ILE:HA	2.07	0.53
7:I:32:ARG:NH1	7:I:77:GLY:O	2.41	0.53
9:K:487:TYR:OH	11:W:15:ASP:O	2.22	0.53
6:N:527:LEU:O	6:N:530:GLN:NE2	2.41	0.53
7:I:237:GLU:OE1	7:I:550:GLN:NE2	2.41	0.53
7:I:561:ARG:NH1	7:I:589:THR:OG1	2.41	0.53
16:U:33:LYS:NZ	16:U:59:ALA:O	2.42	0.53
16:U:190:ASP:OD1	16:U:190:ASP:N	2.36	0.53
16:U:475:LYS:O	16:U:479:GLN:NE2	2.40	0.53
15:Z:511:LEU:HA	15:Z:514:ILE:HG22	1.88	0.53
1:R:83:ARG:HH12	16:V:438:ALA:HA	1.73	0.53
3:L:79:ILE:HG22	3:L:120:ILE:HB	1.90	0.53
9:K:7:ARG:NH2	9:K:36:GLU:OE1	2.42	0.53
9:K:171:THR:O	9:K:208:LYS:NZ	2.41	0.53
1:R:379:ASP:OD1	1:R:383:ARG:NH1	2.38	0.53
5:A:435:ASP:OD1	5:A:439:GLN:N	2.40	0.53
5:A:859:PRO:HB2	5:A:897:THR:HG23	1.90	0.53
5:A:1799:ARG:NH1	5:A:1810:GLU:OE2	2.42	0.53
6:N:474:SER:OG	6:N:475:GLY:N	2.41	0.53
9:Q:70:GLU:OE2	9:Q:73:ARG:NH2	2.38	0.53
16:U:449:LEU:HD12	16:U:476:LEU:HD11	1.90	0.53
15:Z:377:LEU:HD11	15:Z:409:CYS:HB3	1.91	0.53
1:R:361:VAL:HA	1:R:372:ALA:O	2.09	0.53
7:I:286:ARG:HA	7:I:289:LYS:HE3	1.90	0.53
5:A:38:GLN:HE21	16:V:396:LYS:HG2	1.74	0.53
5:A:1482:LEU:O	5:A:1486:ASN:ND2	2.41	0.53
7:I:676:ASN:HB2	7:I:703:ARG:HH22	1.73	0.53
14:J:456:LYS:O	14:J:460:GLU:HB2	2.09	0.53
16:U:432:ASP:OD2	16:U:434:ARG:NH2	2.41	0.53
16:V:30:ARG:HH11	16:V:34:LYS:HE3	1.74	0.53
8:O:430:ARG:NH2	8:O:475:GLU:OE1	2.41	0.53
9:K:198:GLN:OE1	9:K:202:ARG:NH2	2.42	0.53
8:O:79:TYR:O	8:O:83:GLU:HB2	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:Z:315:LEU:HD13	15:Z:323:ASP:HB3	1.91	0.52
3:L:79:ILE:HG13	3:L:156:ILE:HG12	1.92	0.52
15:Z:283:ARG:NH1	15:Z:405:CYS:O	2.42	0.52
5:A:89:TYR:HB3	8:O:536:THR:HG23	1.90	0.52
5:A:125:GLN:NE2	5:A:179:ASN:OD1	2.42	0.52
14:P:622:ALA:O	14:P:626:ASN:ND2	2.42	0.52
9:Q:351:ASP:OD1	9:Q:351:ASP:N	2.39	0.52
15:Y:267:LEU:HD22	15:Z:59:LEU:HD12	1.89	0.52
15:Y:452:LEU:HD13	15:Y:458:GLN:HE22	1.74	0.52
3:L:45:LEU:HD11	3:L:153:MET:HG3	1.91	0.52
1:R:171:LEU:HD11	3:L:149:ARG:HD3	1.90	0.52
4:D:8:LEU:HD11	8:O:424:GLN:HE22	1.73	0.52
4:D:33:GLN:NE2	8:O:25:GLY:O	2.40	0.52
5:A:1349:SER:OG	5:A:1352:ILE:O	2.27	0.52
1:R:424:GLN:NE2	1:R:438:GLU:OE1	2.42	0.52
9:K:372:LEU:HD13	9:K:404:VAL:HG12	1.91	0.52
15:Y:169:PRO:HA	15:Y:172:ASN:HD22	1.75	0.52
5:A:1334:ARG:HH21	5:A:1358:ILE:HD12	1.72	0.52
6:N:370:GLN:NE2	6:N:373:GLN:OE1	2.43	0.52
7:I:672:SER:O	7:I:676:ASN:ND2	2.43	0.52
1:R:312:VAL:HA	1:R:328:GLY:HA2	1.91	0.52
7:I:540:PRO:HA	7:I:543:VAL:HG12	1.91	0.52
7:I:696:GLN:HB2	7:I:699:ALA:HB3	1.92	0.51
14:J:754:HIS:HD2	9:Q:389:ARG:HE	1.57	0.51
15:Y:374:GLN:OE1	15:Y:406:ARG:NH2	2.42	0.51
6:N:340:ARG:HB3	6:N:361:LEU:HD12	1.93	0.51
9:K:480:SER:OG	11:W:8:ARG:NH2	2.43	0.51
16:U:101:ARG:NH1	16:V:293:ASP:OD2	2.42	0.51
15:Z:329:CYS:SG	15:Z:330:ARG:N	2.83	0.51
5:A:129:CYS:SG	5:A:130:ASP:N	2.83	0.51
5:A:477:LYS:NZ	5:A:585:HIS:O	2.42	0.51
6:N:55:LEU:O	6:N:58:ALA:HB3	2.10	0.51
7:I:74:ARG:NH1	7:I:167:LEU:O	2.42	0.51
16:V:97:LYS:O	16:V:128:LYS:NZ	2.43	0.51
1:R:262:ARG:NH2	1:R:298:ALA:O	2.44	0.51
5:A:262:VAL:HG13	5:A:263:GLN:HG3	1.93	0.51
5:A:864:PRO:HD3	5:A:899:ILE:HG22	1.93	0.51
7:I:613:ASN:HB3	7:I:616:ILE:HD11	1.93	0.51
8:O:750:PRO:O	8:O:754:HIS:ND1	2.42	0.51
16:V:424:ARG:NH1	16:V:427:GLN:OE1	2.44	0.51
1:R:294:ASP:OD2	1:R:296:ARG:NH1	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:422:GLN:O	1:R:440:LYS:NZ	2.36	0.51
5:A:748:SER:OG	5:A:749:LEU:N	2.43	0.51
6:N:334:ARG:HA	6:N:368:THR:HG21	1.93	0.51
6:N:560:MET:O	6:N:563:ASP:HB3	2.11	0.51
14:J:68:THR:HG1	14:J:71:CYS:HG	1.54	0.51
16:U:280:ASP:OD1	16:U:310:ARG:NH2	2.43	0.51
5:A:925:SER:OG	5:A:926:LEU:N	2.44	0.51
6:N:545:LEU:O	6:N:549:PHE:HB3	2.09	0.51
1:R:191:ASP:OD1	1:R:191:ASP:N	2.43	0.51
8:O:70:GLY:O	8:O:211:GLN:NE2	2.44	0.51
8:O:128:LYS:O	8:O:137:ARG:NH1	2.42	0.51
1:R:386:ASN:HB2	1:R:393:LEU:HD21	1.93	0.51
3:L:82:ASP:OD2	3:L:85:SER:N	2.42	0.51
5:A:1430:VAL:O	5:A:1435:ARG:NH2	2.42	0.51
7:I:319:THR:HA	7:I:323:ASN:HD22	1.76	0.51
9:K:400:GLU:HB2	9:K:431:LYS:HE2	1.93	0.51
16:U:228:TRP:O	16:U:231:GLU:HB2	2.10	0.51
15:Z:291:VAL:HG23	15:Z:311:TYR:HE1	1.76	0.51
1:R:232:VAL:HA	1:R:243:VAL:HA	1.92	0.51
7:I:231:VAL:HG13	7:I:556:LEU:HB2	1.93	0.51
15:Y:270:ASN:HD22	15:Y:273:LEU:H	1.57	0.51
15:Z:508:ASP:OD1	15:Z:508:ASP:N	2.42	0.51
3:L:46:ARG:NH1	3:L:156:ILE:O	2.44	0.50
7:I:624:THR:O	7:I:711:TRP:NE1	2.40	0.50
1:R:410:HIS:HB2	1:R:473:PHE:HB3	1.93	0.50
3:L:73:THR:OG1	3:L:133:ARG:NH1	2.43	0.50
5:A:705:ASP:N	5:A:705:ASP:OD1	2.44	0.50
8:O:257:SER:O	8:O:261:ASN:ND2	2.44	0.50
15:Y:285:GLY:HA3	15:Y:442:GLN:HE22	1.77	0.50
5:A:869:ARG:NH2	5:A:946:THR:OG1	2.42	0.50
6:N:630:LYS:O	6:N:633:ARG:NH1	2.41	0.50
7:I:218:SER:HB3	7:I:233:TYR:HE1	1.77	0.50
8:O:58:ARG:O	8:O:62:GLN:NE2	2.44	0.50
5:A:838:THR:OG1	5:A:840:GLU:O	2.30	0.50
5:A:1016:MET:O	5:A:1038:ARG:NH1	2.44	0.50
6:N:594:VAL:HB	10:C:11:VAL:HG23	1.92	0.50
6:N:638:LYS:NZ	10:C:13:THR:OG1	2.43	0.50
7:I:71:LEU:HD13	7:I:82:PHE:HB3	1.92	0.50
7:I:578:ASN:O	7:I:582:ASN:N	2.44	0.50
9:K:181:GLU:HG2	9:K:209:LEU:HD11	1.94	0.50
15:Y:213:SER:O	15:Y:215:LYS:NZ	2.42	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:V:280:ASP:OD1	16:V:310:ARG:NH2	2.39	0.50
1:R:460:SER:O	1:R:467:LEU:HA	2.12	0.50
6:N:323:ARG:HH11	6:N:324:TRP:HE1	1.58	0.50
1:R:246:SER:HA	1:R:270:ARG:HB2	1.92	0.50
15:Z:433:VAL:O	15:Z:437:LEU:HB2	2.11	0.50
15:Z:455:PRO:HA	15:Z:458:GLN:HB2	1.93	0.50
6:N:652:ASP:N	6:N:652:ASP:OD1	2.44	0.50
9:K:193:LEU:O	9:K:198:GLN:NE2	2.44	0.50
15:Y:230:VAL:HG13	15:Z:36:ASN:HB3	1.94	0.50
16:V:215:ASP:H	16:V:218:MET:HE3	1.76	0.50
9:K:383:ASN:HB3	9:K:386:LEU:HB2	1.94	0.50
14:J:27:LEU:HD11	14:P:147:PHE:HB3	1.94	0.50
6:N:429:ARG:NH2	6:N:508:ILE:O	2.45	0.50
6:N:581:ARG:HG2	6:N:585:GLU:H	1.77	0.50
8:O:31:THR:HG23	8:O:34:LYS:H	1.76	0.50
9:K:66:ASP:OD1	9:K:66:ASP:N	2.39	0.50
9:K:401:ASP:HB3	9:K:404:VAL:HG22	1.92	0.50
9:Q:225:ASP:OD1	9:Q:225:ASP:N	2.41	0.50
5:A:23:PHE:HB2	5:A:111:LEU:HD22	1.94	0.49
6:N:369:ASP:OD1	6:N:369:ASP:N	2.45	0.49
6:N:566:ASP:OD1	6:N:569:ARG:NH1	2.45	0.49
9:K:276:VAL:HG23	9:K:311:MET:HB2	1.94	0.49
5:A:1279:ARG:O	5:A:1291:ARG:NH2	2.44	0.49
4:D:46:GLU:OE1	4:D:49:ASN:ND2	2.44	0.49
5:A:78:LYS:HZ1	5:A:88:ASP:HA	1.77	0.49
5:A:1641:THR:HG23	5:A:1643:TRP:H	1.77	0.49
8:O:498:PRO:HG2	8:O:501:SER:HB3	1.94	0.49
14:P:489:SER:O	15:Z:105:GLN:NE2	2.45	0.49
15:Z:272:ASP:OD1	15:Z:272:ASP:N	2.40	0.49
5:A:893:SER:OG	5:A:894:GLN:N	2.45	0.49
5:A:1201:HIS:ND1	5:A:1204:THR:OG1	2.42	0.49
5:A:1387:LEU:HB3	5:A:1411:ARG:HB2	1.94	0.49
5:A:1639:LYS:HA	5:A:1646:GLN:HG3	1.93	0.49
10:C:73:CYS:HB3	10:C:78:GLN:H	1.77	0.49
5:A:1153:ILE:HD11	5:A:1184:HIS:HB3	1.95	0.49
7:I:232:SER:HA	7:I:555:PRO:HA	1.94	0.49
16:V:36:LEU:HD21	16:V:58:LEU:HB3	1.95	0.49
3:L:97:ARG:HB3	3:L:107:GLU:HA	1.95	0.49
6:N:708:GLU:H	6:N:712:THR:HB	1.78	0.49
7:I:246:PRO:HA	7:I:249:THR:HG22	1.94	0.49
8:O:283:LEU:HD23	8:O:298:ARG:HB2	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:K:351:ASP:N	9:K:351:ASP:OD1	2.45	0.49
15:Y:408:ASP:OD1	15:Y:408:ASP:N	2.45	0.49
5:A:1041:LEU:HA	5:A:1080:LEU:HD22	1.95	0.49
5:A:1869:HIS:HB2	5:A:1934:LEU:HD12	1.95	0.49
7:I:625:TYR:OH	7:I:711:TRP:O	2.23	0.49
9:K:230:ASN:HD22	9:K:233:VAL:HG13	1.78	0.49
14:J:570:TRP:HB2	14:J:593:ALA:HB2	1.95	0.49
16:V:234:LEU:HA	16:V:237:ILE:HG22	1.94	0.49
8:O:75:LEU:HB3	8:O:165:GLY:HA3	1.95	0.49
16:V:290:ARG:NH1	16:V:294:PRO:O	2.46	0.49
1:R:410:HIS:NE2	1:R:454:ASP:O	2.39	0.49
3:L:57:ASP:OD1	3:L:57:ASP:N	2.46	0.49
5:A:1236:LEU:HD13	5:A:1243:LEU:HD11	1.95	0.49
9:K:165:GLU:HG2	9:Q:20:GLN:HB2	1.95	0.49
6:N:647:ASP:H	10:C:6:LYS:HZ1	1.61	0.48
7:I:618:ILE:HD12	7:I:705:MET:HE1	1.94	0.48
15:Z:413:LEU:HD11	15:Z:429:MET:HG2	1.95	0.48
1:R:206:VAL:HG12	1:R:220:LEU:HG	1.95	0.48
5:A:13:ALA:HB2	5:A:648:PRO:HB3	1.95	0.48
5:A:249:LEU:HD13	5:A:256:VAL:HG22	1.96	0.48
5:A:746:ASN:OD1	5:A:819:GLN:NE2	2.46	0.48
15:Z:94:ARG:HH12	15:Z:151:GLN:HE22	1.61	0.48
3:L:91:PRO:HA	3:L:144:ASN:HA	1.94	0.48
16:U:420:TYR:OH	16:U:424:ARG:NH1	2.46	0.48
16:V:549:LEU:HG	16:V:552:GLN:HE21	1.78	0.48
5:A:1265:ALA:HB2	5:A:1309:HIS:HD2	1.79	0.48
15:Z:263:LYS:O	15:Z:268:ARG:NH2	2.42	0.48
5:A:35:LEU:HD12	5:A:120:ASP:HB3	1.94	0.48
5:A:183:THR:HG22	5:A:249:LEU:HD21	1.95	0.48
15:Y:84:ALA:HB2	15:Y:99:LYS:HB2	1.94	0.48
1:R:261:LEU:HB3	2:S:103:VAL:HG12	1.95	0.48
3:L:86:ASP:O	3:L:90:THR:OG1	2.24	0.48
5:A:1481:ASN:HB3	5:A:1484:ALA:HB3	1.95	0.48
5:A:1928:LEU:HA	5:A:1931:LEU:HB2	1.95	0.48
7:I:111:SER:N	7:I:179:GLY:O	2.44	0.48
14:J:533:VAL:HG23	14:J:559:LEU:HD22	1.95	0.48
1:R:262:ARG:HG2	1:R:264:MET:HG3	1.96	0.48
8:O:216:LEU:HD22	8:O:256:LEU:HG	1.95	0.48
8:O:288:SER:OG	8:O:289:LYS:N	2.46	0.48
9:K:225:ASP:OD1	9:K:225:ASP:N	2.47	0.48
14:J:566:SER:OG	14:J:568:GLU:OE1	2.32	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:V:237:ILE:HD12	16:V:240:GLU:HB3	1.96	0.48
4:D:34:GLU:HG2	8:O:141:LEU:HD13	1.95	0.48
16:V:130:LYS:O	16:V:134:THR:OG1	2.29	0.48
15:Z:54:ARG:NH2	15:Z:92:GLU:OE2	2.42	0.48
5:A:1552:TYR:OH	5:A:1604:GLN:NE2	2.47	0.48
6:N:53:GLU:O	6:N:56:ARG:HB2	2.14	0.48
6:N:407:LEU:HB2	6:N:417:LEU:HB3	1.96	0.48
7:I:688:THR:HG22	7:I:690:SER:H	1.79	0.48
8:O:249:ASP:HA	8:O:280:ARG:HH21	1.78	0.48
5:A:1334:ARG:NH2	5:A:1357:THR:O	2.40	0.47
15:Z:494:ASP:OD1	15:Z:494:ASP:N	2.44	0.47
1:R:233:ALA:HB3	1:R:242:ALA:HB3	1.95	0.47
15:Y:390:GLN:HA	15:Y:393:ILE:HD12	1.96	0.47
15:Y:487:SER:HB3	15:Y:518:PHE:HE1	1.79	0.47
5:A:1059:ASP:OD1	5:A:1059:ASP:N	2.46	0.47
9:K:546:ASP:N	9:K:546:ASP:OD1	2.46	0.47
15:Y:512:HIS:ND1	15:Y:531:GLN:OE1	2.44	0.47
5:A:1422:ASN:OD1	5:A:1425:TRP:N	2.47	0.47
6:N:293:ILE:HA	6:N:296:VAL:HG22	1.97	0.47
6:N:509:TYR:HB3	6:N:514:LEU:HD21	1.96	0.47
15:Y:539:ASP:OD1	15:Y:539:ASP:N	2.46	0.47
16:U:296:ARG:HH22	16:U:299:ASN:HD22	1.62	0.47
1:R:330:ASP:OD1	1:R:330:ASP:N	2.42	0.47
7:I:163:GLU:HA	7:I:166:LYS:HB2	1.95	0.47
9:K:461:TYR:HD1	9:K:488:ILE:HG23	1.79	0.47
16:U:297:ILE:HD12	16:U:323:LEU:HD22	1.95	0.47
5:A:1659:GLU:OE1	5:A:1661:HIS:NE2	2.45	0.47
2:S:30:GLN:HG3	2:S:31:GLU:HG2	1.96	0.47
5:A:32:PRO:HB3	8:O:237:GLN:HG3	1.97	0.47
5:A:709:TYR:OH	8:O:742:GLN:NE2	2.42	0.47
6:N:183:VAL:HG11	6:N:236:ALA:HB3	1.95	0.47
7:I:170:ASP:N	7:I:170:ASP:OD1	2.43	0.47
1:R:254:ASP:HB3	1:R:257:GLN:HG2	1.95	0.47
5:A:728:LEU:HD13	8:O:716:PHE:HE1	1.79	0.47
5:A:1463:TYR:HE2	5:A:1511:ASN:HB3	1.80	0.47
7:I:188:TYR:HA	7:I:194:LYS:HA	1.97	0.47
7:I:521:SER:OG	7:I:522:LEU:N	2.47	0.47
7:I:712:ARG:NH2	7:I:750:ASP:OD2	2.47	0.47
1:R:193:SER:HB3	1:R:234:TRP:CD2	2.50	0.47
5:A:275:LYS:NZ	5:A:278:GLU:OE2	2.42	0.47
9:Q:194:CYS:SG	9:Q:195:ASN:N	2.88	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:V:453:LYS:HG3	16:V:476:LEU:HD23	1.96	0.47
15:Z:441:ALA:HA	15:Z:444:LEU:HD12	1.96	0.47
1:R:171:LEU:HD22	2:S:58:PRO:HB3	1.96	0.47
1:R:205:SER:OG	1:R:218:GLN:NE2	2.48	0.47
3:L:100:ASN:O	5:A:1400:LYS:NZ	2.41	0.47
6:N:294:GLU:HA	6:N:297:VAL:HG12	1.97	0.47
6:N:384:THR:HG23	6:N:385:ARG:HG3	1.96	0.47
6:N:393:THR:OG1	6:N:437:GLN:OE1	2.32	0.47
6:N:405:LYS:HA	6:N:405:LYS:HD3	1.75	0.47
7:I:216:SER:OG	7:I:217:LEU:N	2.48	0.47
15:Z:168:THR:HG22	15:Z:170:LYS:H	1.80	0.47
5:A:40:ARG:NE	16:V:393:GLU:OE1	2.41	0.46
5:A:1086:MET:HG2	5:A:1610:TYR:CZ	2.50	0.46
5:A:1111:ALA:O	5:A:1115:ASN:CA	2.61	0.46
5:A:1281:PRO:HB2	5:A:1349:SER:HB3	1.97	0.46
13:H:105:PHE:HZ	14:P:619:LYS:HG3	1.80	0.46
14:P:82:LEU:HD23	14:P:84:LYS:HE3	1.97	0.46
15:Y:94:ARG:HD2	15:Z:334:ILE:HG23	1.96	0.46
15:Y:238:VAL:O	15:Y:241:LYS:HB2	2.15	0.46
1:R:356:GLY:H	1:R:379:ASP:HB2	1.79	0.46
3:L:16:LEU:O	3:L:19:THR:OG1	2.34	0.46
6:N:571:ASN:HA	6:N:575:ARG:HD3	1.96	0.46
7:I:11:PHE:O	7:I:712:ARG:NH1	2.48	0.46
7:I:325:LEU:HG	7:I:326:THR:HG22	1.98	0.46
9:Q:480:SER:HB3	9:Q:509:ARG:HH22	1.79	0.46
15:Y:153:LYS:HA	15:Y:156:ILE:HD12	1.96	0.46
1:R:468:ARG:NH1	2:S:56:GLY:O	2.46	0.46
5:A:1209:LEU:HD22	5:A:1228:LEU:HD23	1.97	0.46
7:I:600:ILE:O	7:I:615:LEU:HA	2.15	0.46
14:P:93:SER:OG	14:P:93:SER:O	2.30	0.46
5:A:93:LEU:HD12	5:A:93:LEU:HA	1.79	0.46
5:A:1822:SER:O	5:A:1822:SER:OG	2.32	0.46
6:N:211:ARG:NH2	6:N:275:ASP:O	2.49	0.46
7:I:70:CYS:SG	7:I:71:LEU:N	2.89	0.46
7:I:237:GLU:HB3	7:I:550:GLN:HE21	1.80	0.46
9:K:401:ASP:OD1	11:W:3:ARG:NH2	2.48	0.46
15:Y:509:CYS:SG	15:Y:510:VAL:N	2.88	0.46
1:R:185:TYR:O	1:R:359:LYS:NZ	2.43	0.46
5:A:159:ILE:HD11	5:A:173:LEU:HD21	1.98	0.46
5:A:1667:LYS:HD3	5:A:1677:LEU:HD12	1.98	0.46
7:I:606:ASP:HB3	7:I:609:GLN:HB2	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:161:MET:HE3	5:A:216:PRO:HB3	1.98	0.46
6:N:83:LEU:HG	6:N:160:VAL:HG11	1.98	0.46
7:I:451:PHE:O	7:I:455:HIS:HB2	2.16	0.46
1:R:408:SER:HB3	1:R:415:ILE:HD11	1.96	0.46
5:A:1214:ALA:HB1	5:A:1612:LEU:HD11	1.98	0.46
6:N:644:VAL:HG23	10:C:8:TRP:HA	1.97	0.46
8:O:248:PRO:HD2	16:V:140:PRO:HB3	1.98	0.46
9:Q:54:HIS:NE2	9:Q:85:GLU:OE2	2.49	0.46
15:Y:93:TYR:HB3	15:Y:145:CYS:HB2	1.98	0.46
1:R:171:LEU:HD13	2:S:59:ARG:H	1.81	0.46
5:A:1376:LEU:HG	5:A:1377:LYS:HG3	1.98	0.46
6:N:59:VAL:O	6:N:63:ARG:N	2.47	0.46
6:N:534:SER:O	6:N:534:SER:OG	2.32	0.46
15:Z:462:LYS:HD3	15:Z:485:LEU:HD21	1.98	0.46
1:R:384:ILE:O	1:R:393:LEU:N	2.47	0.46
5:A:40:ARG:NH2	8:O:249:ASP:OD2	2.42	0.46
5:A:714:ASP:N	5:A:714:ASP:OD1	2.48	0.46
5:A:1827:GLN:NE2	6:N:144:THR:O	2.49	0.46
8:O:212:ALA:HB1	8:O:243:LEU:HD21	1.98	0.46
13:H:95:ARG:HH12	14:J:565:ASN:HB3	1.80	0.46
15:Y:225:ASN:OD1	15:Y:225:ASN:N	2.49	0.46
14:J:543:LEU:HB2	14:J:552:LEU:HD13	1.98	0.46
9:Q:448:LEU:HA	9:Q:451:LEU:HD23	1.98	0.46
15:Y:306:LYS:HE3	15:Y:306:LYS:HB2	1.74	0.46
16:V:185:VAL:HG13	16:V:186:LYS:HD2	1.98	0.46
5:A:791:VAL:HG11	5:A:814:VAL:HG22	1.98	0.45
5:A:880:TYR:HB2	5:A:930:LEU:HD22	1.98	0.45
6:N:655:LEU:HD22	6:N:721:PRO:HG3	1.98	0.45
7:I:212:SER:OG	7:I:577:ASN:ND2	2.49	0.45
1:R:336:TRP:HA	1:R:347:PRO:HA	1.98	0.45
5:A:625:ILE:HG12	5:A:762:ILE:HD12	1.97	0.45
7:I:634:SER:OG	7:I:655:ASP:OD2	2.33	0.45
9:K:264:HIS:HB3	9:K:267:CYS:HB3	1.97	0.45
9:Q:451:LEU:HA	9:Q:454:VAL:HG22	1.97	0.45
5:A:1870:ALA:HB1	5:A:1875:GLN:HB2	1.98	0.45
1:R:383:ARG:HA	1:R:394:SER:O	2.16	0.45
3:L:37:LYS:HB3	3:L:40:PHE:HD2	1.81	0.45
8:O:91:ASN:HA	8:O:94:GLN:HB3	1.98	0.45
8:O:109:GLU:HG2	16:U:344:ARG:HD3	1.99	0.45
9:K:37:PRO:HA	9:K:40:ILE:HD12	1.99	0.45
9:K:176:LEU:HD12	9:K:181:GLU:HG3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:K:231:LEU:HD12	9:K:257:VAL:HG13	1.97	0.45
1:R:388[A]:CYS:O	1:R:389:SER:N	2.49	0.45
1:R:400:SER:HB2	1:R:421:ALA:HB3	1.99	0.45
6:N:702:GLN:HB3	6:N:728:VAL:HG11	1.99	0.45
7:I:184:PHE:HA	7:I:198:VAL:O	2.16	0.45
8:O:254:HIS:O	8:O:273:SER:OG	2.34	0.45
9:K:59:ALA:O	9:K:63:ARG:NH1	2.50	0.45
5:A:1134:TRP:HD1	5:A:1597:THR:HG22	1.80	0.45
7:I:504:SER:OG	7:I:505:SER:N	2.50	0.45
15:Y:288:LYS:HA	15:Y:288:LYS:HD3	1.83	0.45
1:R:236:LYS:NZ	1:R:277:ASN:O	2.37	0.45
3:L:172:ARG:NH2	14:P:767:ASP:O	2.50	0.45
6:N:247:LEU:HD12	6:N:253:LEU:HA	1.99	0.45
6:N:649:GLU:H	10:C:3:VAL:HG22	1.82	0.45
9:K:181:GLU:HB3	9:K:209:LEU:HD21	1.98	0.45
9:K:408:VAL:HA	9:K:411:VAL:HG12	1.97	0.45
14:J:723:LEU:HG	14:J:746:VAL:HG11	1.98	0.45
16:V:482:GLU:HG2	16:V:485:GLN:HB2	1.99	0.45
15:Z:527:GLU:HA	15:Z:530:ASP:HB3	1.97	0.45
7:I:25:PHE:HB3	7:I:38:ALA:HB3	1.98	0.45
9:K:385:LYS:HB3	16:V:554:LEU:HD21	1.99	0.45
15:Y:270:ASN:HD21	15:Y:272:ASP:HB2	1.81	0.45
15:Z:341:PRO:HA	15:Z:344:VAL:HG12	1.99	0.45
5:A:412:LEU:HD21	5:A:466:LEU:HB2	1.99	0.45
5:A:1189:ALA:HB3	5:A:1192:ASN:HD22	1.82	0.45
5:A:1893:SER:O	5:A:1893:SER:OG	2.32	0.45
7:I:576:TRP:NE1	7:I:646:ASP:OD1	2.46	0.45
6:N:185:MET:SD	6:N:292:TRP:NE1	2.83	0.45
1:R:270:ARG:HG2	1:R:286:ARG:HB2	1.99	0.44
5:A:877:ILE:HG23	5:A:881:ILE:HD12	1.98	0.44
6:N:638:LYS:HG3	10:C:11:VAL:HG13	2.00	0.44
8:O:585:LEU:HD21	8:O:623:THR:HB	1.99	0.44
9:Q:324:SER:HA	9:Q:327:THR:HG22	1.99	0.44
16:V:99:TYR:HB2	16:V:125:SER:HB3	1.99	0.44
6:N:358:ILE:HG21	6:N:409:VAL:HG13	1.99	0.44
8:O:101:ALA:O	8:O:159:GLN:NE2	2.39	0.44
15:Y:234:ASP:OD1	15:Y:234:ASP:N	2.49	0.44
15:Z:487:SER:HB3	15:Z:518:PHE:HE1	1.82	0.44
1:R:233:ALA:HB2	1:R:274:LEU:HB2	1.99	0.44
1:R:315:LEU:HD23	1:R:326:SER:HA	2.00	0.44
5:A:1064:GLU:OE1	5:A:1124:ASN:ND2	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:1680:LEU:HD21	5:A:1687:LEU:HD23	1.99	0.44
7:I:305:MET:HE1	7:I:453:THR:HG23	1.99	0.44
7:I:309:LEU:HD13	8:O:64:LEU:HD21	1.98	0.44
9:K:161:VAL:HG21	9:K:193:LEU:HD11	2.00	0.44
14:J:726:LEU:HD22	14:J:739:VAL:HG23	1.99	0.44
14:P:456:LYS:O	14:P:460:GLU:HB2	2.18	0.44
14:P:660:LYS:HB2	14:P:660:LYS:HE3	1.78	0.44
9:Q:371:MET:HB2	9:Q:394:ALA:HB2	1.99	0.44
4:D:30:LEU:HD21	8:O:137:ARG:HB3	1.99	0.44
5:A:504:VAL:HG11	5:A:635:VAL:HG11	1.99	0.44
5:A:1170:ASN:O	5:A:1173:ALA:HB3	2.18	0.44
6:N:83:LEU:HA	6:N:87:ILE:HB	1.99	0.44
7:I:12:ARG:NH1	7:I:751:GLU:OE1	2.51	0.44
9:Q:510:ARG:O	9:Q:510:ARG:NE	2.41	0.44
1:R:252:LEU:HD22	1:R:295:VAL:HG21	1.99	0.44
1:R:430:TYR:HA	1:R:431:PRO:HA	1.85	0.44
5:A:1436:GLU:OE2	5:A:1437:ASN:ND2	2.50	0.44
6:N:167:ARG:HH21	6:N:170:GLN:HG2	1.82	0.44
7:I:664:ARG:HB2	7:I:714:LEU:HB2	2.00	0.44
12:M:16:ASP:OD1	12:M:16:ASP:N	2.45	0.44
14:P:650:LYS:HB3	14:P:653:LEU:HD13	1.99	0.44
15:Y:430:ALA:HB1	15:Y:447:LEU:HD23	2.00	0.44
1:R:317:TRP:HH2	1:R:338:SER:HA	1.83	0.44
5:A:1327:GLN:HE22	5:A:1332:GLY:HA3	1.83	0.44
5:A:1873:SER:OG	5:A:1874:GLY:N	2.50	0.44
6:N:583:ALA:HB2	6:N:625:LYS:HE2	2.00	0.44
15:Y:434:TYR:CG	15:Y:447:LEU:HD11	2.53	0.44
16:U:490:TYR:HB3	16:U:516:LEU:HD21	1.99	0.44
5:A:1734:LYS:HD3	5:A:1734:LYS:HA	1.74	0.44
7:I:477:GLN:HB2	7:I:486:LEU:HB2	1.99	0.44
7:I:486:LEU:HD23	7:I:521:SER:HA	2.00	0.44
8:O:417:LEU:HD23	8:O:417:LEU:HA	1.85	0.44
14:J:754:HIS:CD2	9:Q:389:ARG:HE	2.34	0.44
16:U:487:ALA:HA	16:U:490:TYR:HB2	1.99	0.44
5:A:168:ASP:OD1	5:A:168:ASP:N	2.51	0.43
6:N:24:TRP:O	6:N:28:SER:OG	2.32	0.43
6:N:435:VAL:HA	6:N:438:ILE:HG22	1.99	0.43
9:K:17:GLN:HB2	9:Q:78:ARG:HH12	1.83	0.43
9:Q:465:LEU:HD23	9:Q:465:LEU:HA	1.85	0.43
16:U:521:PHE:O	16:U:526:TRP:NE1	2.51	0.43
5:A:1221:ASP:OD2	5:A:1223:SER:OG	2.30	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:255:PHE:HE1	7:I:366:LEU:HD21	1.83	0.43
7:I:584:HIS:O	7:I:602:ARG:HA	2.18	0.43
8:O:415:SER:HB2	8:O:451:LEU:HD12	2.00	0.43
14:P:163:ASP:OD1	14:P:166:GLN:N	2.51	0.43
15:Z:355:TYR:HB2	15:Z:386:MET:HG2	1.99	0.43
5:A:1797:ILE:HG21	5:A:1848:VAL:HG13	1.99	0.43
5:A:1900:LEU:HA	5:A:1921:LEU:HD11	1.99	0.43
6:N:577:GLU:O	6:N:581:ARG:NH1	2.51	0.43
7:I:349:ILE:HD11	8:O:407:LEU:HD13	1.99	0.43
7:I:441:THR:OG1	7:I:442:GLN:N	2.51	0.43
8:O:119:PHE:HB3	8:O:128:LYS:HD2	2.01	0.43
8:O:745:PRO:HG2	8:O:747:HIS:HE1	1.83	0.43
13:H:94:TRP:HE1	14:J:595:GLN:NE2	2.16	0.43
5:A:215:HIS:CD2	5:A:217:LEU:H	2.37	0.43
5:A:253:PRO:HB2	5:A:255:ILE:HG23	2.01	0.43
9:Q:298:ASN:O	9:Q:301:SER:OG	2.34	0.43
15:Y:194:GLU:OE2	15:Y:197:ARG:NH2	2.51	0.43
16:U:124:LEU:HD23	16:U:124:LEU:HA	1.87	0.43
15:Z:522:VAL:HG13	15:Z:524:GLU:HG2	2.00	0.43
5:A:1413:LEU:HD23	5:A:1413:LEU:HA	1.88	0.43
5:A:1545:LYS:HG2	5:A:1550:MET:HE3	1.99	0.43
6:N:545:LEU:O	6:N:549:PHE:CB	2.66	0.43
7:I:74:ARG:HE	7:I:76:ASP:HB3	1.84	0.43
8:O:105:LEU:HD11	8:O:151:VAL:HG12	2.00	0.43
15:Y:441:ALA:O	15:Y:445:THR:OG1	2.33	0.43
15:Y:455:PRO:O	15:Y:458:GLN:HB2	2.19	0.43
5:A:214:LEU:HD23	5:A:214:LEU:HA	1.86	0.43
5:A:942:ARG:HD3	5:A:942:ARG:HA	1.80	0.43
13:H:58:VAL:HA	15:Z:357:ARG:HH22	1.84	0.43
15:Y:241:LYS:O	15:Y:244:ALA:HB3	2.19	0.43
16:U:62:LEU:HD23	16:U:62:LEU:HA	1.87	0.43
15:Z:251:ASN:OD1	15:Z:251:ASN:N	2.50	0.43
3:L:90:THR:O	3:L:145:HIS:ND1	2.48	0.43
4:D:56:LYS:HD3	16:U:412:LEU:HD22	2.00	0.43
8:O:544:VAL:HG23	8:O:567:LEU:HD22	1.99	0.43
9:K:241:HIS:NE2	9:K:249:MET:SD	2.91	0.43
9:Q:37:PRO:HA	9:Q:40:ILE:HD12	2.00	0.43
9:Q:362:GLN:O	9:Q:365:LYS:NZ	2.41	0.43
15:Y:398:GLU:O	15:Y:402:LEU:HB2	2.18	0.43
5:A:590:PRO:HA	5:A:595:VAL:HG22	1.99	0.43
6:N:192:GLU:HG3	6:N:196:ASP:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:188:TYR:CZ	7:I:194:LYS:HB2	2.54	0.43
9:K:386:LEU:HD11	16:V:550:LEU:HB3	2.01	0.43
15:Y:547:GLU:HA	15:Y:550:GLN:HB2	2.00	0.43
5:A:1379:ASN:HA	5:A:1415:LEU:HD23	2.01	0.43
7:I:49:LEU:HD11	7:I:730:VAL:HG11	2.01	0.43
7:I:111:SER:OG	7:I:205:CYS:SG	2.75	0.43
9:Q:264:HIS:HD2	9:Q:267:CYS:H	1.67	0.43
15:Y:543:GLN:HA	15:Y:546:LEU:HB2	2.01	0.43
16:U:261:LYS:HE3	16:U:261:LYS:HB2	1.85	0.43
5:A:1262:GLN:NE2	5:A:1579:SER:OG	2.51	0.43
9:K:350:HIS:ND1	9:K:377:GLU:OE1	2.36	0.43
16:U:81:ALA:HB2	16:V:67:LEU:HD13	2.00	0.43
16:V:210:CYS:HA	16:V:237:ILE:HD13	2.01	0.43
16:V:409:TYR:HB2	16:V:418:CYS:HB3	2.00	0.43
6:N:704:VAL:HA	6:N:719:GLU:HB3	2.01	0.42
7:I:101:LEU:HD11	7:I:164:ILE:HG23	2.01	0.42
15:Y:481:LYS:HA	15:Y:481:LYS:HD3	1.72	0.42
16:U:26:PHE:HE2	16:U:257:VAL:HG11	1.84	0.42
1:R:422:GLN:HG3	1:R:424:GLN:HG2	2.01	0.42
4:D:56:LYS:HD2	4:D:57:PRO:HD2	2.01	0.42
5:A:1110:ARG:HA	5:A:1110:ARG:HD3	1.81	0.42
8:O:621:SER:HB3	8:O:651:ILE:HG12	2.01	0.42
8:O:710:ILE:HA	8:O:713:VAL:HG12	2.01	0.42
14:P:128:THR:OG1	14:P:130:ARG:NH2	2.52	0.42
16:V:365:LEU:HD21	16:V:394:VAL:HG11	2.01	0.42
1:R:357:ALA:HB3	2:S:31:GLU:HG3	2.01	0.42
1:R:424:GLN:HB3	1:R:440:LYS:HD3	2.01	0.42
9:K:227:LEU:HD23	9:K:227:LEU:HA	1.91	0.42
9:K:256:VAL:HA	9:K:259:GLU:HG2	2.02	0.42
9:Q:28:LYS:HA	9:Q:28:LYS:HD3	1.73	0.42
15:Y:286:ASP:OD2	15:Y:289:ASN:ND2	2.42	0.42
15:Y:422:SER:OG	15:Y:425:GLU:OE1	2.30	0.42
16:U:475:LYS:HA	16:U:478:GLU:HG2	2.01	0.42
15:Z:298:GLN:HE22	15:Z:327:LEU:HD11	1.83	0.42
15:Z:447:LEU:HA	15:Z:450:VAL:HG22	2.02	0.42
3:L:129:LYS:HA	3:L:129:LYS:HD3	1.77	0.42
16:V:136:ASP:OD1	16:V:136:ASP:N	2.51	0.42
5:A:1369:LEU:HD23	5:A:1369:LEU:HA	1.85	0.42
7:I:302:ASP:HB2	8:O:58:ARG:HD2	2.01	0.42
8:O:153:LYS:HE3	8:O:153:LYS:HB3	1.91	0.42
9:Q:476:PRO:HB3	16:U:182:LEU:HB3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:V:215:ASP:HB3	16:V:218:MET:HB2	2.00	0.42
4:D:50:ASN:N	4:D:50:ASN:OD1	2.49	0.42
6:N:366:GLU:HG2	6:N:367:ARG:HD2	2.01	0.42
9:K:295:TYR:HE1	9:Q:52:GLN:HG2	1.84	0.42
14:P:752:GLN:HB3	14:P:755:LEU:HD13	2.02	0.42
15:Z:246:VAL:HG22	15:Z:280:LEU:HD11	2.02	0.42
1:R:326:SER:OG	1:R:334:ASN:O	2.32	0.42
6:N:341:ILE:HD13	6:N:341:ILE:HA	1.87	0.42
16:U:106:LEU:HB3	16:U:118:TYR:HB2	2.01	0.42
16:U:161:LYS:HB3	16:U:161:LYS:HE3	1.78	0.42
15:Z:54:ARG:HB2	15:Z:86:SER:HB2	2.01	0.42
15:Z:245:PHE:HD2	15:Z:257:THR:HG21	1.84	0.42
1:R:292:HIS:HB2	1:R:303:ALA:HB3	2.01	0.42
3:L:17:GLU:OE2	3:L:159:TYR:OH	2.35	0.42
5:A:863:LEU:HA	5:A:864:PRO:HD3	1.92	0.42
5:A:1377:LYS:HA	5:A:1416:TRP:HB3	2.01	0.42
6:N:397:ILE:HD13	6:N:428:LEU:HD21	2.01	0.42
7:I:578:ASN:ND2	7:I:581:SER:OG	2.52	0.42
8:O:226:ASP:HB3	8:O:229:LYS:HB2	2.01	0.42
8:O:467:ALA:HB1	8:O:506:LEU:HD11	2.01	0.42
14:J:767:ASP:N	14:J:767:ASP:OD1	2.52	0.42
16:V:36:LEU:HD12	16:V:36:LEU:HA	1.93	0.42
5:A:952:ALA:HA	5:A:955:ILE:HD12	2.01	0.42
6:N:207:TYR:HE2	6:N:276:ARG:HH21	1.68	0.42
7:I:494:GLY:HA3	8:O:459:GLN:HG3	2.02	0.42
8:O:74:THR:HG23	8:O:77:LYS:H	1.83	0.42
9:K:431:LYS:HD2	9:K:431:LYS:HA	1.84	0.42
14:J:694:LYS:HA	14:J:697:VAL:HG12	2.01	0.42
9:Q:320:ARG:NE	9:Q:343:SER:OG	2.43	0.42
16:V:400:ARG:HE	16:V:400:ARG:HB2	1.61	0.42
7:I:595:LEU:HD12	7:I:637:SER:HB2	2.01	0.42
9:K:74:TYR:CZ	9:K:78:ARG:HD2	2.55	0.42
15:Z:525:TYR:HD1	15:Z:528:ALA:HB3	1.84	0.42
1:R:116:TRP:HB3	5:A:1198:THR:HG22	2.02	0.41
1:R:370:VAL:HG12	1:R:384:ILE:HD11	2.02	0.41
5:A:1619:LEU:HD21	5:A:1697:LEU:HD22	2.02	0.41
5:A:1639:LYS:HB3	5:A:1664:LYS:HB2	2.02	0.41
5:A:1865:ASP:OD1	5:A:1865:ASP:N	2.53	0.41
7:I:488:SER:O	7:I:488:SER:OG	2.38	0.41
8:O:276:HIS:CG	16:V:389:ARG:HH21	2.38	0.41
8:O:408:LEU:HA	8:O:411:LYS:HB3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:Y:181:LYS:HB2	15:Y:181:LYS:HE2	1.91	0.41
3:L:178:PHE:HE1	14:P:703:PRO:HB2	1.84	0.41
5:A:777:THR:OG1	8:O:594:SER:O	2.35	0.41
6:N:353:ASP:OD1	6:N:353:ASP:N	2.53	0.41
7:I:43:GLU:HA	7:I:58:PHE:O	2.20	0.41
8:O:34:LYS:HA	8:O:37:VAL:HG12	2.01	0.41
16:V:389:ARG:HD3	16:V:405:LEU:HD21	2.02	0.41
15:Z:509:CYS:HA	15:Z:512:HIS:HB2	2.01	0.41
3:L:3:THR:HG21	3:L:6:LYS:HB3	2.02	0.41
5:A:72:GLU:OE1	5:A:94:TYR:OH	2.34	0.41
5:A:482:VAL:HG13	5:A:593:ASN:HA	2.02	0.41
5:A:1110:ARG:HD2	5:A:1115:ASN:HB2	2.00	0.41
5:A:1860:LEU:HD23	5:A:1860:LEU:HA	1.93	0.41
15:Z:169:PRO:HA	15:Z:172:ASN:HD22	1.85	0.41
1:R:262:ARG:HD3	1:R:295:VAL:HG23	2.03	0.41
1:R:445:ARG:NH2	2:S:31:GLU:O	2.44	0.41
3:L:74:VAL:HG11	3:L:137:ILE:HD11	2.02	0.41
5:A:617:LEU:HD13	5:A:773:LEU:HD11	2.02	0.41
5:A:1313:LEU:HB3	5:A:1316:MET:HB2	2.02	0.41
5:A:1647:THR:OG1	5:A:1648:LYS:N	2.54	0.41
8:O:41:LEU:HD22	8:O:132:VAL:HG13	2.03	0.41
9:K:290:LYS:HD2	9:K:290:LYS:HA	1.84	0.41
9:Q:344:PHE:HB2	9:Q:353:ALA:HB2	2.01	0.41
16:V:190:ASP:HA	16:V:193:VAL:HB	2.03	0.41
5:A:1017:ASN:HA	5:A:1038:ARG:HH12	1.85	0.41
5:A:1609:LEU:HD23	5:A:1609:LEU:HA	1.87	0.41
7:I:666:LEU:HG	7:I:714:LEU:HD11	2.02	0.41
9:K:357:TYR:HB3	9:K:374:ILE:HG13	2.02	0.41
10:C:55:PHE:HB2	10:C:60:ILE:HD11	2.02	0.41
3:L:45:LEU:O	3:L:155:GLN:NE2	2.53	0.41
5:A:1474:PHE:HD1	5:A:1581:ILE:HD12	1.86	0.41
5:A:1820:PHE:O	5:A:1823:SER:OG	2.32	0.41
9:K:483:SER:OG	9:K:515:SER:OG	2.33	0.41
14:J:499:GLY:O	14:J:503:CYS:HB2	2.19	0.41
1:R:185:TYR:H	2:S:32:ASN:ND2	2.18	0.41
5:A:139:GLU:HG2	5:A:185:TYR:HE1	1.86	0.41
5:A:642:TYR:O	5:A:646:SER:OG	2.35	0.41
6:N:407:LEU:HA	6:N:410:LEU:HB3	2.03	0.41
8:O:546:ARG:HA	8:O:549:VAL:HG12	2.02	0.41
15:Z:200:PRO:HG2	15:Z:201:LEU:HD12	2.02	0.41
5:A:124:GLN:NE2	5:A:177:VAL:O	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:101:LEU:HD21	7:I:167:LEU:HD11	2.02	0.41
14:P:502:LEU:HD23	14:P:502:LEU:HA	1.93	0.41
14:P:618:ASP:OD1	14:P:618:ASP:N	2.54	0.41
16:U:201:LEU:HA	16:U:229:MET:HG3	2.03	0.41
15:Z:330:ARG:HA	15:Z:333:ASN:HB3	2.02	0.41
1:R:259:LYS:HD2	1:R:259:LYS:HA	1.78	0.41
1:R:267:HIS:HA	1:R:291:HIS:CE1	2.56	0.41
1:R:270:ARG:O	1:R:286:ARG:N	2.54	0.41
1:R:285:SER:OG	1:R:288:GLY:N	2.54	0.41
5:A:271:LEU:HD22	5:A:407:LEU:HD23	2.03	0.41
5:A:628:ILE:HD12	5:A:628:ILE:HA	1.98	0.41
5:A:722:HIS:ND1	5:A:723:LEU:O	2.54	0.41
6:N:188:LYS:HD2	6:N:188:LYS:HA	1.76	0.41
6:N:340:ARG:HA	6:N:340:ARG:HD3	1.79	0.41
6:N:411:ASP:OD2	6:N:415:VAL:N	2.44	0.41
7:I:86:ASP:OD1	7:I:86:ASP:N	2.48	0.41
7:I:205:CYS:HA	7:I:221:THR:HA	2.01	0.41
7:I:421:LEU:HD12	7:I:421:LEU:HA	1.88	0.41
7:I:491:ASN:OD1	7:I:491:ASN:N	2.46	0.41
7:I:507:LEU:HD22	7:I:513:LEU:HD11	2.03	0.41
8:O:29:TRP:CD2	16:V:138:LEU:HD22	2.56	0.41
9:K:14:LEU:HD23	9:K:14:LEU:HA	1.84	0.41
9:K:154:LYS:HE2	9:K:184:LEU:HD21	2.03	0.41
9:K:523:ILE:HG21	14:P:653:LEU:HG	2.02	0.41
14:J:755:LEU:O	14:J:759:ASN:ND2	2.46	0.41
9:Q:14:LEU:HD23	9:Q:14:LEU:HA	1.82	0.41
9:Q:211:LYS:HG2	9:Q:240:ARG:HG2	2.02	0.41
9:Q:337:TRP:HB3	9:Q:360:ALA:HB2	2.02	0.41
16:V:413:LYS:HE3	16:V:413:LYS:HB2	1.85	0.41
5:A:246:ILE:HG12	5:A:258:THR:HG22	2.03	0.41
5:A:1433:ILE:HG23	5:A:1434:ILE:HG13	2.02	0.41
5:A:1672:ARG:HH22	5:A:1713:MET:H	1.67	0.41
14:J:687:LYS:HE3	14:J:687:LYS:HB3	1.94	0.41
9:Q:170:LEU:HD23	9:Q:170:LEU:HA	1.92	0.41
15:Y:194:GLU:O	15:Y:198:GLN:HB2	2.21	0.41
5:A:1209:LEU:HD23	5:A:1209:LEU:HA	1.94	0.40
6:N:31:LEU:HD11	6:N:131:LEU:HD23	2.02	0.40
6:N:417:LEU:HA	6:N:420:ALA:HB3	2.03	0.40
8:O:727:THR:HG23	8:O:730:ARG:HH21	1.85	0.40
14:P:55:TYR:OH	14:P:56:LYS:NZ	2.54	0.40
15:Y:458:GLN:HE21	15:Y:485:LEU:HD21	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:U:235:ALA:O	16:U:239:THR:OG1	2.40	0.40
16:U:318:TYR:HA	16:U:321:HIS:CE1	2.55	0.40
16:V:358:LEU:HD13	16:V:358:LEU:HA	1.94	0.40
15:Z:49:LEU:HD13	15:Z:52:ASN:HB2	2.02	0.40
1:R:363:TRP:HZ3	1:R:369:ASN:HA	1.86	0.40
1:R:427:ILE:HB	1:R:436:VAL:HB	2.04	0.40
5:A:18:GLN:HG3	5:A:107:LYS:HG3	2.02	0.40
5:A:1232:ILE:HG22	5:A:1235:LEU:H	1.86	0.40
7:I:140:PRO:HB2	7:I:142:LEU:HG	2.03	0.40
9:K:73:ARG:HD3	9:K:93:LEU:HA	2.02	0.40
9:K:443:LYS:HB3	9:K:443:LYS:HE2	1.86	0.40
9:Q:208:LYS:HB3	9:Q:208:LYS:HE3	1.87	0.40
16:U:65:LEU:HD12	16:U:65:LEU:HA	1.94	0.40
16:U:85:ASP:N	16:U:85:ASP:OD1	2.53	0.40
16:V:185:VAL:HG23	16:V:212:LEU:HD22	2.03	0.40
5:A:1697:LEU:HD12	5:A:1697:LEU:HA	1.86	0.40
6:N:386:LEU:HD12	6:N:396:ILE:HG12	2.03	0.40
8:O:625:LEU:HD23	8:O:644:LEU:HD11	2.03	0.40
16:U:419:LEU:HD12	16:U:442:CYS:HB3	2.03	0.40
16:V:58:LEU:HD23	16:V:58:LEU:HA	1.86	0.40
15:Z:423:ILE:HD12	15:Z:423:ILE:HA	1.90	0.40
3:L:43:ASP:N	3:L:43:ASP:OD1	2.53	0.40
5:A:950:GLY:H	5:A:1813:GLN:HG2	1.87	0.40
5:A:1738:ILE:HA	5:A:1741:PHE:HD2	1.85	0.40
6:N:103:ASP:HB3	6:N:106:GLN:HB2	2.03	0.40
6:N:616:ARG:HA	6:N:619:LEU:HB2	2.03	0.40
7:I:74:ARG:HB2	7:I:79:LEU:HB2	2.02	0.40
7:I:625:TYR:HB2	7:I:628:THR:HG23	2.03	0.40
8:O:439:LEU:HG	8:O:476:LEU:HD13	2.03	0.40
8:O:644:LEU:HD12	8:O:644:LEU:HA	1.89	0.40
9:K:84:LYS:HA	9:K:84:LYS:HD3	1.89	0.40
9:K:491:LEU:HD23	9:K:491:LEU:HA	1.93	0.40
11:G:23:ARG:H	11:G:23:ARG:HG3	1.74	0.40
14:J:633:ARG:HA	14:J:664:ILE:HD13	2.03	0.40
14:P:94:GLY:HA3	14:P:100:GLN:HA	2.03	0.40
14:P:601:ALA:HA	14:P:604:TYR:HD2	1.86	0.40
15:Y:50:HIS:HA	15:Y:53:VAL:HG22	2.03	0.40
15:Y:546:LEU:HD23	15:Y:546:LEU:HA	1.97	0.40
16:U:295:TYR:HA	16:U:326:ILE:HD13	2.04	0.40
15:Z:206:ILE:HG23	15:Z:219:VAL:HG21	2.04	0.40
1:R:275:SER:OG	1:R:315:LEU:O	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:8:LEU:HD23	4:D:8:LEU:HA	1.92	0.40
5:A:39:LEU:HD13	8:O:244:LEU:HD13	2.03	0.40
5:A:1421:PRO:HA	5:A:1472:LEU:HD11	2.03	0.40
6:N:580:LYS:HD2	6:N:582:PRO:HD3	2.03	0.40
6:N:660:THR:HG23	6:N:663:GLN:H	1.86	0.40
7:I:33:ASP:HB2	7:I:49:LEU:HD23	2.03	0.40
15:Z:187:PRO:HA	15:Z:190:THR:HG22	2.04	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	R	378/499 (76%)	352 (93%)	24 (6%)	2 (0%)	29	67
2	S	25/400 (6%)	22 (88%)	3 (12%)	0	100	100
3	L	175/185 (95%)	160 (91%)	15 (9%)	0	100	100
4	D	55/121 (46%)	51 (93%)	4 (7%)	0	100	100
5	A	1517/1855 (82%)	1434 (94%)	82 (5%)	1 (0%)	51	83
6	N	642/822 (78%)	615 (96%)	27 (4%)	0	100	100
7	I	721/808 (89%)	683 (95%)	38 (5%)	0	100	100
8	O	695/755 (92%)	675 (97%)	20 (3%)	0	100	100
9	K	512/620 (83%)	498 (97%)	14 (3%)	0	100	100
9	Q	500/620 (81%)	488 (98%)	12 (2%)	0	100	100
10	C	82/84 (98%)	71 (87%)	11 (13%)	0	100	100
11	G	25/85 (29%)	25 (100%)	0	0	100	100
11	W	24/85 (28%)	23 (96%)	1 (4%)	0	100	100
12	M	57/74 (77%)	54 (95%)	3 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	H	55/110 (50%)	55 (100%)	0	0	100	100
14	J	492/824 (60%)	481 (98%)	11 (2%)	0	100	100
14	P	480/824 (58%)	466 (97%)	14 (3%)	0	100	100
15	Y	496/599 (83%)	478 (96%)	18 (4%)	0	100	100
15	Z	483/599 (81%)	469 (97%)	14 (3%)	0	100	100
16	U	509/597 (85%)	489 (96%)	20 (4%)	0	100	100
16	V	526/597 (88%)	506 (96%)	20 (4%)	0	100	100
All	All	8449/11163 (76%)	8095 (96%)	351 (4%)	3 (0%)	100	100

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	R	100	GLN
1	R	101	PRO
5	A	1356	ASP

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	R	310/411 (75%)	308 (99%)	2 (1%)	86	94
2	S	19/348 (6%)	19 (100%)	0	100	100
3	L	163/170 (96%)	163 (100%)	0	100	100
4	D	54/115 (47%)	52 (96%)	2 (4%)	34	68
5	A	1342/1639 (82%)	1335 (100%)	7 (0%)	88	95
6	N	563/724 (78%)	558 (99%)	5 (1%)	78	91
7	I	635/730 (87%)	634 (100%)	1 (0%)	93	98
8	O	591/650 (91%)	589 (100%)	2 (0%)	92	96
9	K	445/548 (81%)	445 (100%)	0	100	100
9	Q	427/548 (78%)	424 (99%)	3 (1%)	84	94

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
10	C	68/75 (91%)	68 (100%)	0	100	100
11	G	24/77 (31%)	24 (100%)	0	100	100
11	W	25/77 (32%)	25 (100%)	0	100	100
12	M	54/67 (81%)	53 (98%)	1 (2%)	57	81
13	H	49/89 (55%)	49 (100%)	0	100	100
14	J	420/727 (58%)	420 (100%)	0	100	100
14	P	414/727 (57%)	414 (100%)	0	100	100
15	Y	424/513 (83%)	424 (100%)	0	100	100
15	Z	412/513 (80%)	412 (100%)	0	100	100
16	U	423/520 (81%)	423 (100%)	0	100	100
16	V	448/520 (86%)	447 (100%)	1 (0%)	93	98
All	All	7310/9788 (75%)	7286 (100%)	24 (0%)	92	96

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	388[A]	CYS
1	R	388[B]	CYS
4	D	22[A]	ARG
4	D	22[B]	ARG
5	A	90	ASP
5	A	252	ASP
5	A	970	TRP
5	A	1114	ARG
5	A	1267	ARG
5	A	1357	THR
5	A	1571	ARG
6	N	234	ARG
6	N	291	LYS
6	N	350	ASP
6	N	580	LYS
6	N	633	ARG
7	I	328	LYS
8	O	106	LYS
8	O	732	ARG
12	M	7	ARG
9	Q	194	CYS
9	Q	442	ASP

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Mol	Chain	Res	Type
9	Q	451	LEU
16	V	434	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (110) such sidechains are listed below:

Mol	Chain	Res	Type
1	R	218	GLN
1	R	221	GLN
1	R	367	GLN
1	R	369	ASN
1	R	418	HIS
2	S	32	ASN
3	L	155	GLN
4	D	19	ASN
5	A	38	GLN
5	A	162	HIS
5	A	215	HIS
5	A	426	GLN
5	A	451	GLN
5	A	671	ASN
5	A	717	GLN
5	A	725	ASN
5	A	1138	HIS
5	A	1161	ASN
5	A	1170	ASN
5	A	1192	ASN
5	A	1247	HIS
5	A	1262	GLN
5	A	1266	HIS
5	A	1327	GLN
5	A	1380	ASN
5	A	1486	ASN
5	A	1559	HIS
5	A	1591	HIS
5	A	1604	GLN
5	A	1813	GLN
6	N	81	ASN
6	N	186	GLN
6	N	306	GLN
6	N	370	GLN
6	N	373	GLN
7	I	47	HIS

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Mol	Chain	Res	Type
7	I	301	GLN
7	I	323	ASN
7	I	442	GLN
7	I	577	ASN
7	I	578	ASN
7	I	676	ASN
7	I	684	GLN
8	O	62	GLN
8	O	91	ASN
8	O	110	GLN
8	O	382	GLN
8	O	424	GLN
8	O	449	ASN
8	O	565	GLN
8	O	631	GLN
8	O	693	ASN
8	O	699	ASN
8	O	722	HIS
8	O	731	ASN
8	O	742	GLN
8	O	747	HIS
9	K	45	GLN
9	K	54	HIS
9	K	80	HIS
9	K	174	HIS
9	K	230	ASN
9	K	264	HIS
9	K	271	HIS
9	K	316	ASN
9	K	550	HIS
13	H	62	GLN
13	H	75	GLN
14	J	14	GLN
14	J	103	HIS
14	J	497	ASN
14	J	583	HIS
14	J	657	HIS
14	J	674	HIS
14	P	103	HIS
14	P	455	GLN
14	P	634	HIS
14	P	680	HIS

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Mol	Chain	Res	Type
14	P	754	HIS
9	Q	18	GLN
9	Q	20	GLN
9	Q	45	GLN
9	Q	58	HIS
9	Q	503	HIS
15	Y	66	ASN
15	Y	78	GLN
15	Y	151	GLN
15	Y	172	ASN
15	Y	251	ASN
15	Y	270	ASN
15	Y	506	GLN
16	U	197	HIS
16	U	252	GLN
16	U	299	ASN
16	U	305	ASN
16	U	321	HIS
16	U	373	HIS
16	V	202	HIS
16	V	287	ASN
16	V	305	ASN
16	V	373	HIS
16	V	488	GLN
15	Z	151	GLN
15	Z	172	ASN
15	Z	184	GLN
15	Z	338	HIS
15	Z	385	ASN
15	Z	431	ASN
15	Z	432	ASN
15	Z	523	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no 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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	R	1
5	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	R	388[A]:CYS	C	389:SER	N	3.14
1	A	1591:HIS	C	1592:PHE	N	1.17

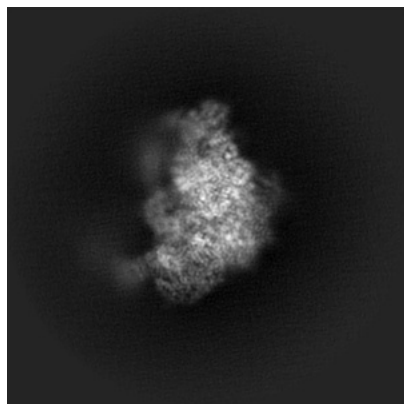
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4465. These allow visual inspection of the internal detail of the map and identification of artifacts.

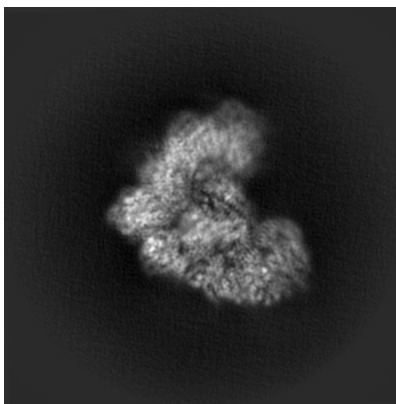
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

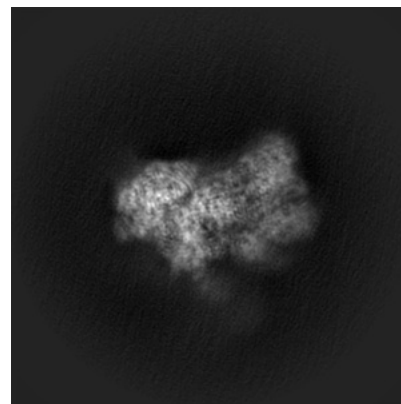
6.1.1 Primary map



X

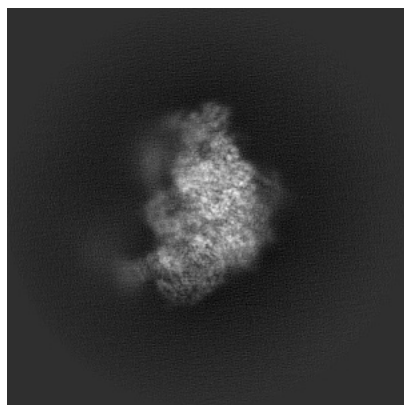


Y

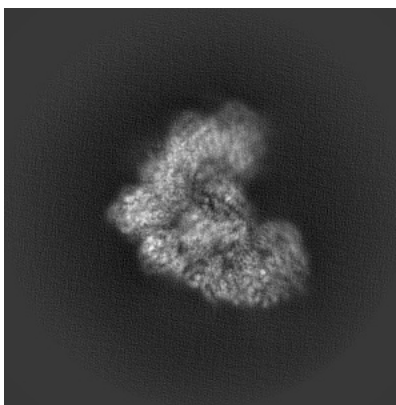


Z

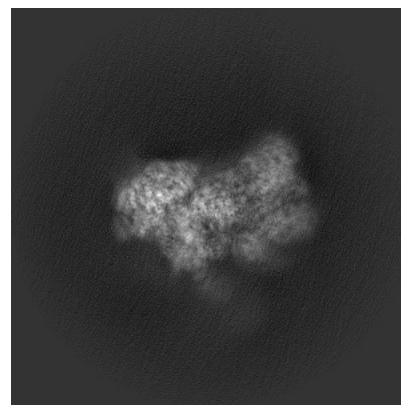
6.1.2 Raw map



X



Y

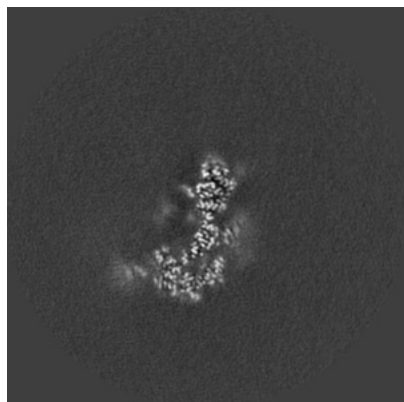


Z

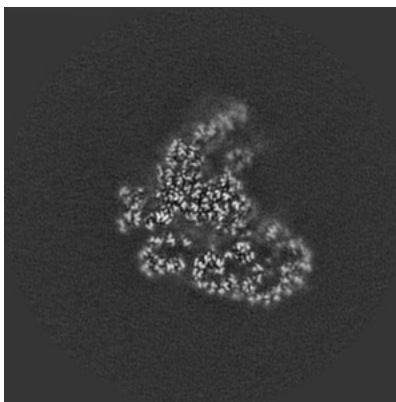
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

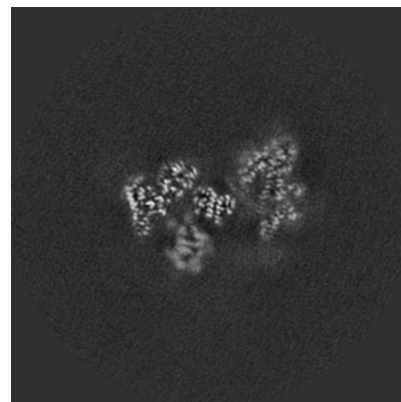
6.2.1 Primary map



X Index: 200



Y Index: 200

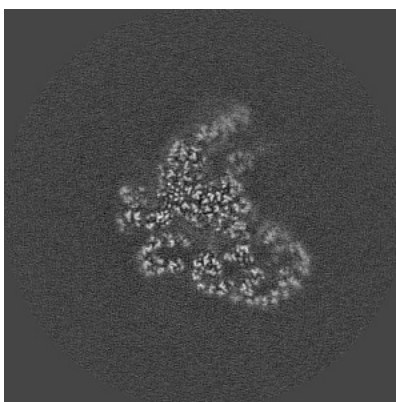


Z Index: 200

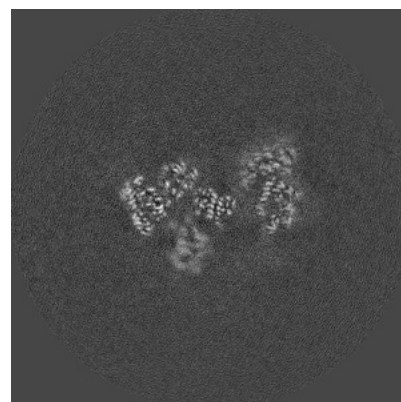
6.2.2 Raw map



X Index: 200



Y Index: 200

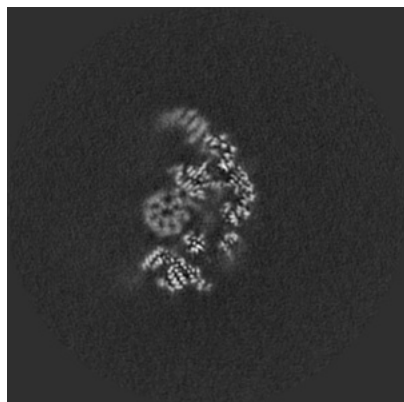


Z Index: 200

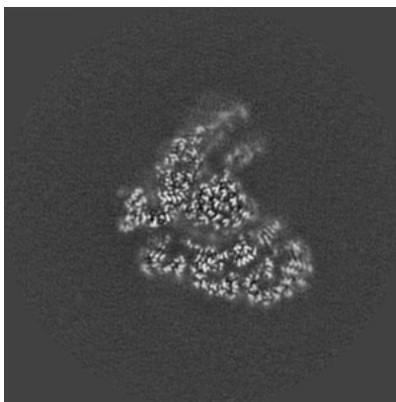
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 175

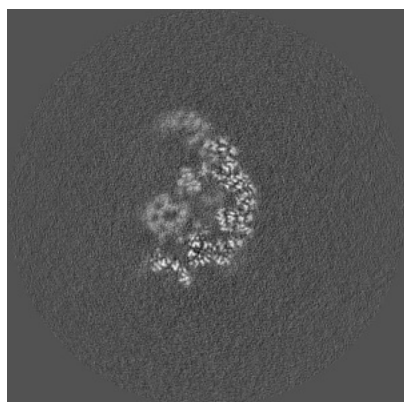


Y Index: 203

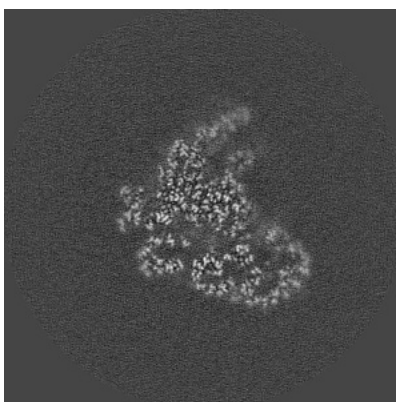


Z Index: 226

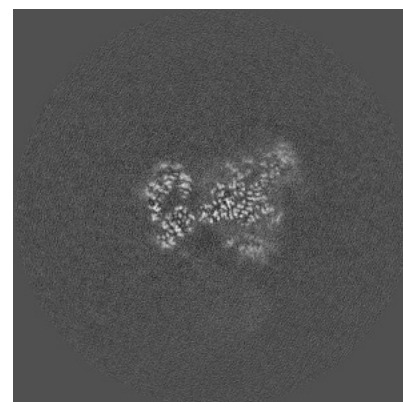
6.3.2 Raw map



X Index: 170



Y Index: 201

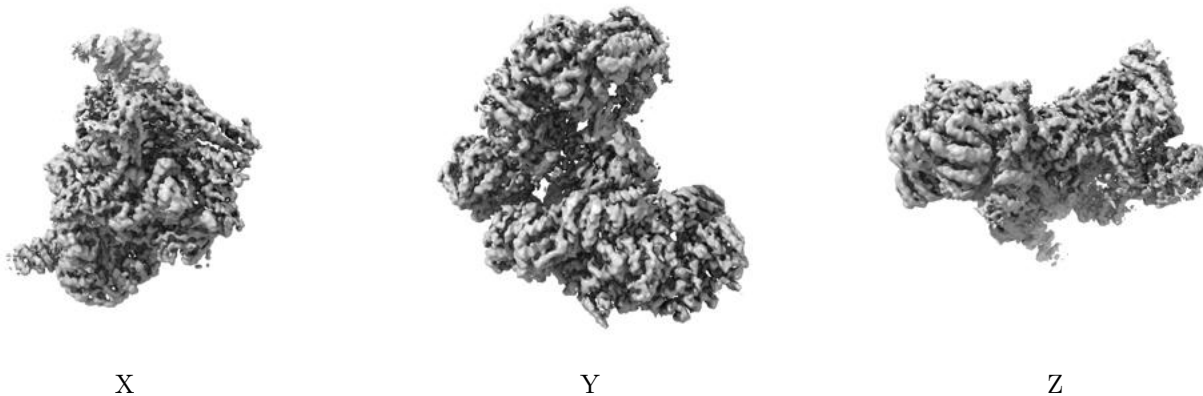


Z Index: 167

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

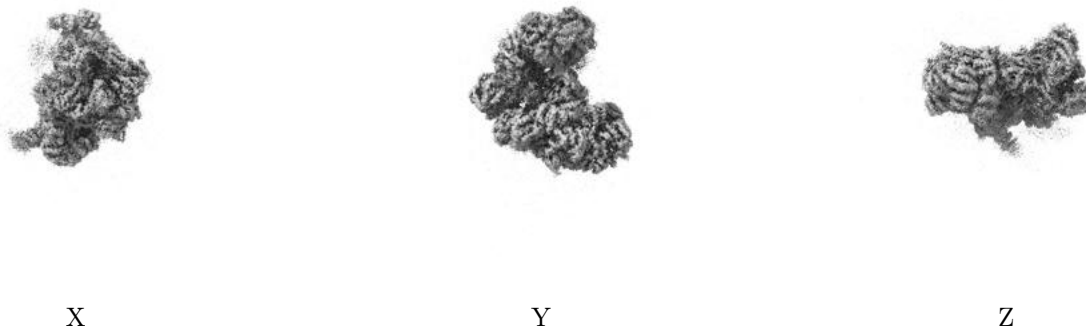
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0085. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 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.

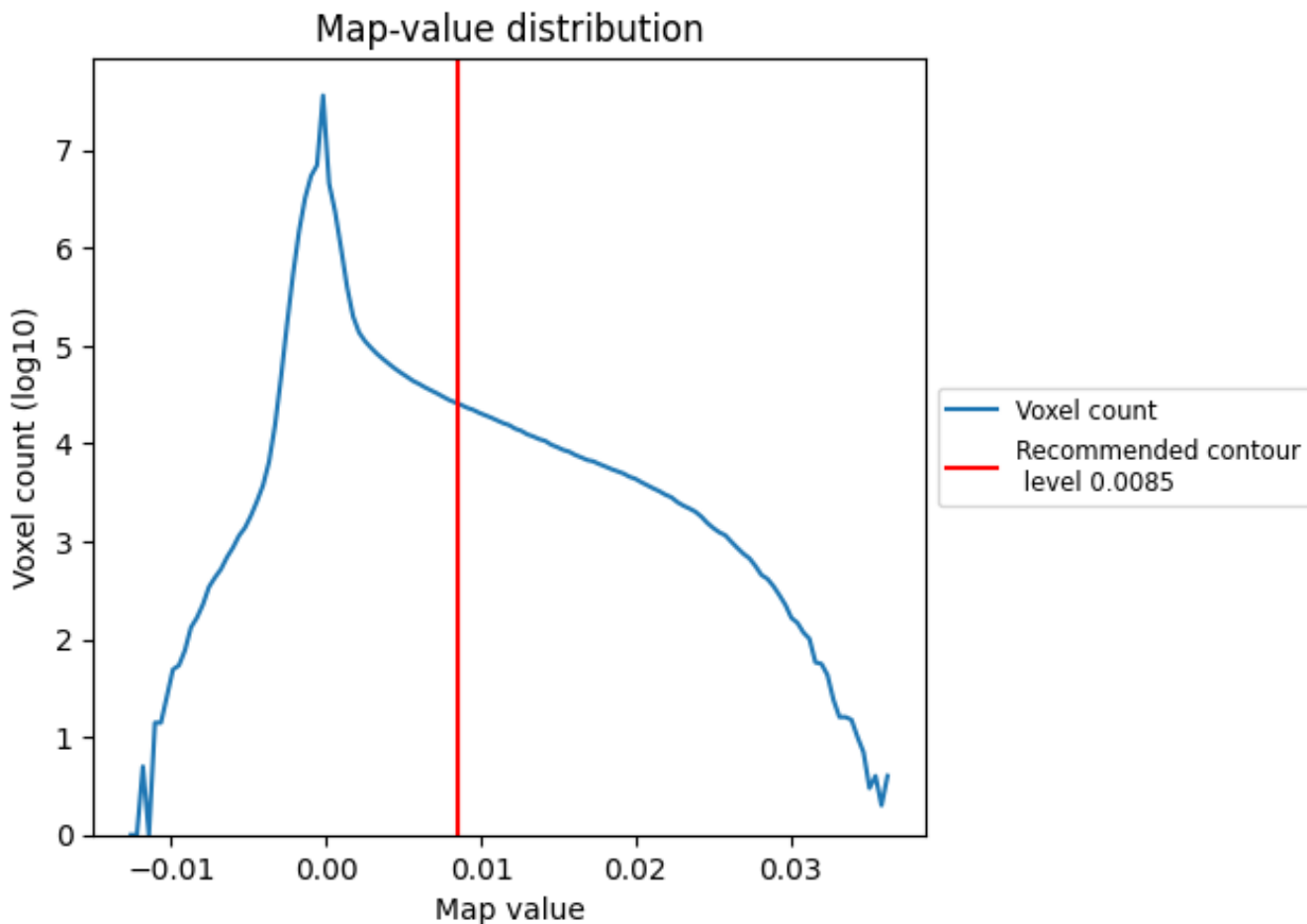
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

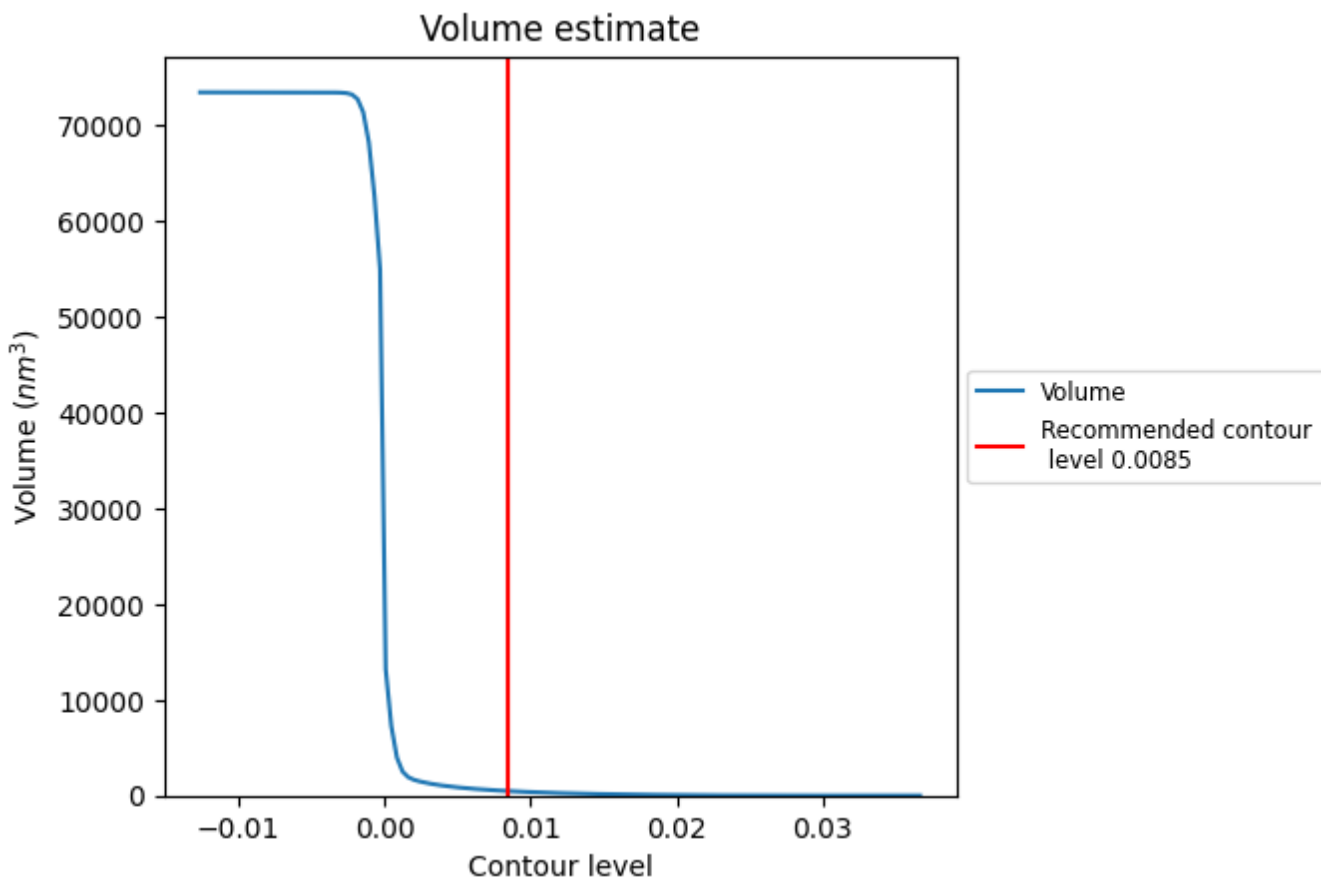
This section contains the results of statistical analysis of the map.

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.

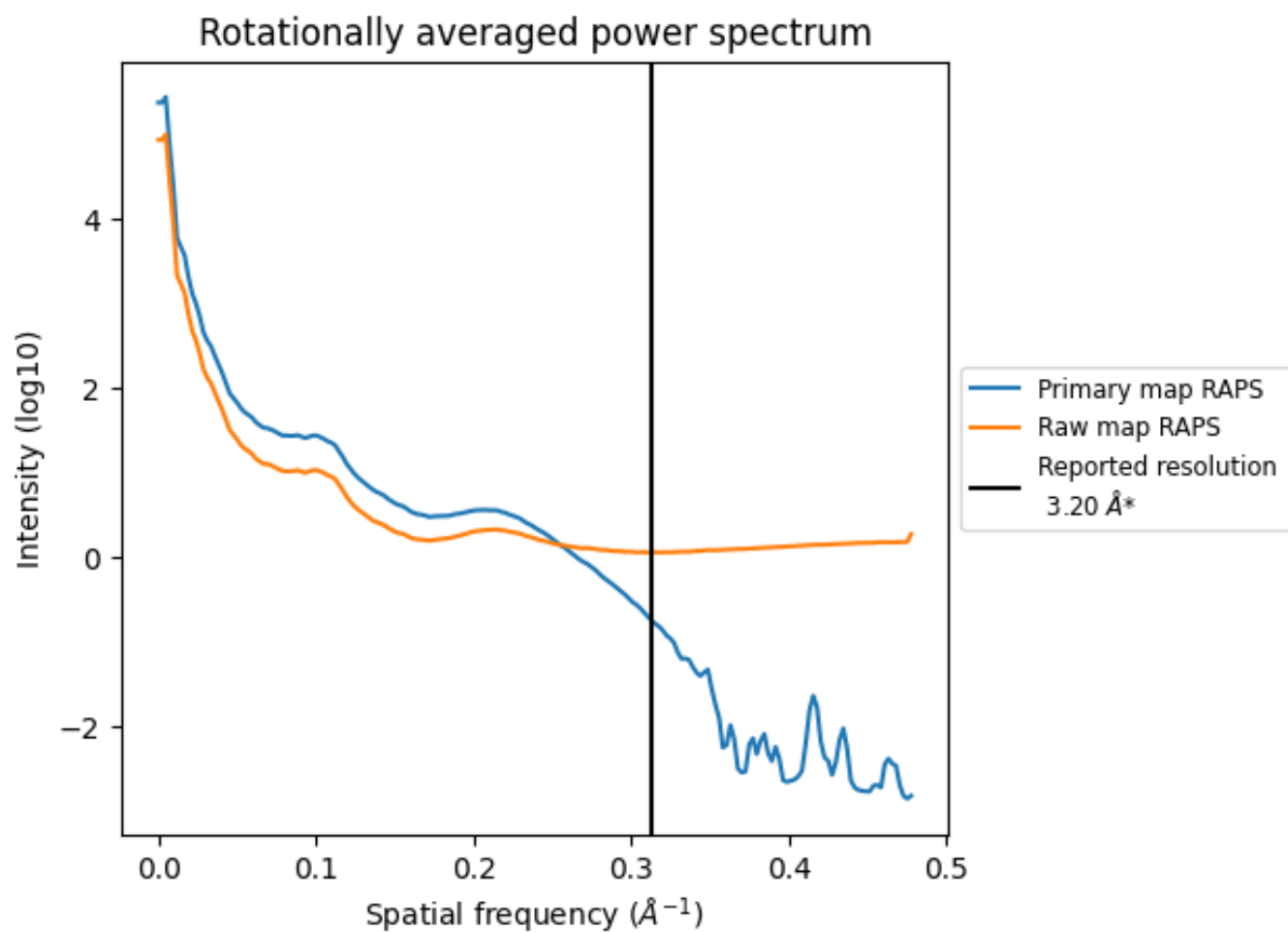
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 470 nm³; this corresponds to an approximate mass of 425 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

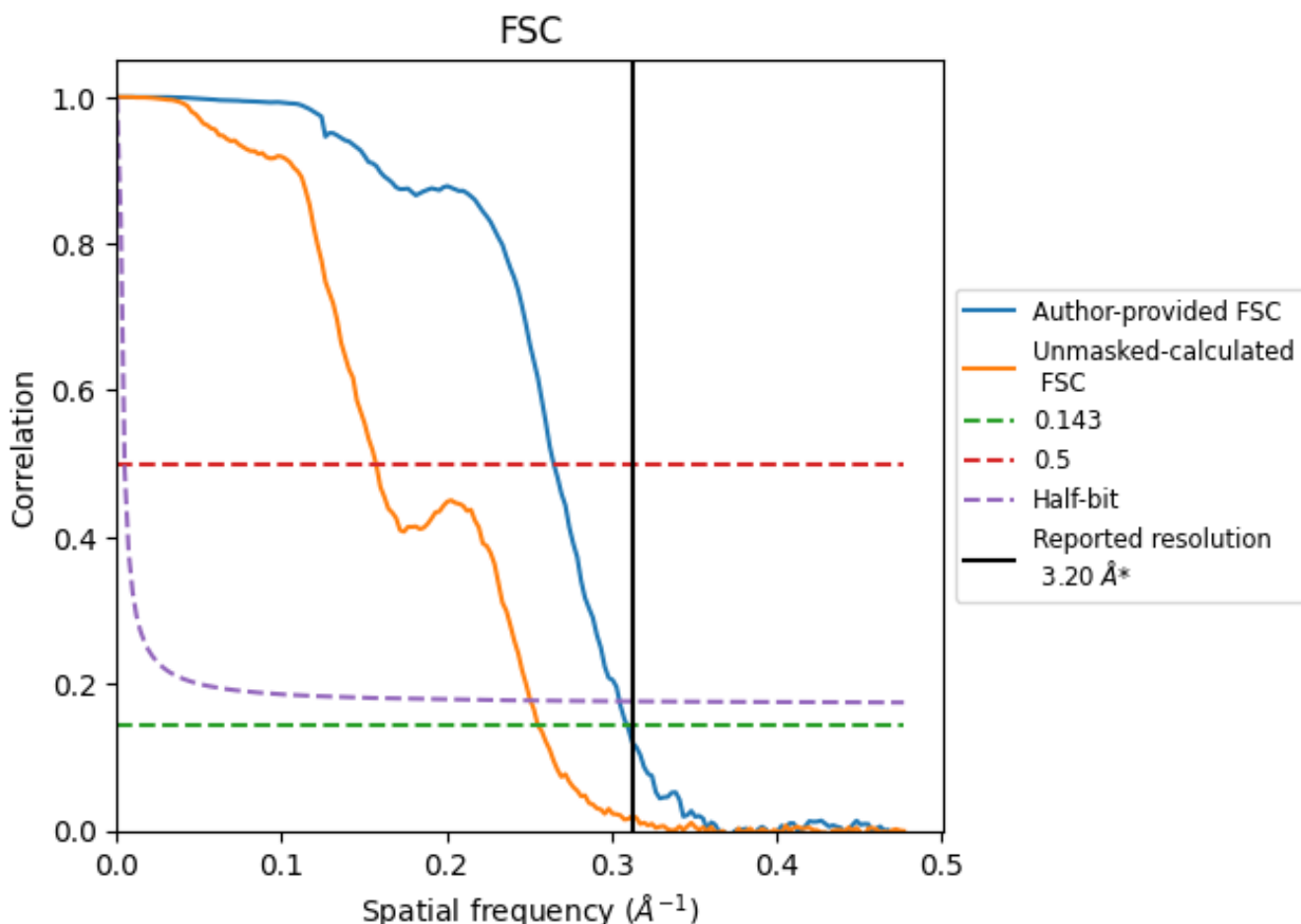


*Reported resolution corresponds to spatial frequency of 0.312 Å⁻¹

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 0.312 Å⁻¹

8.2 Resolution estimates [i](#)

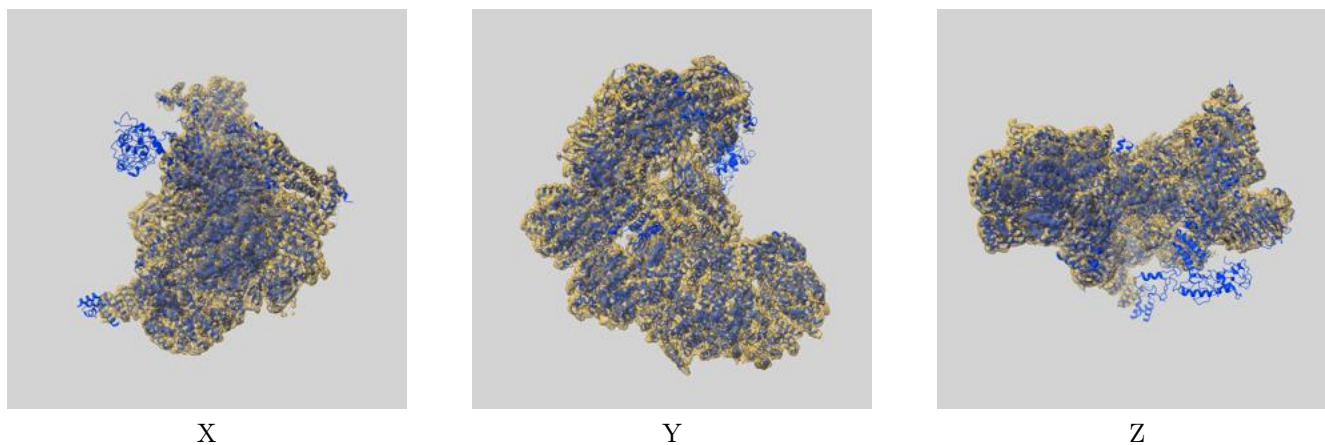
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.23	3.77	3.28
Unmasked-calculated*	3.91	6.36	3.98

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.91 differs from the reported value 3.2 by more than 10 %

9 Map-model fit [i](#)

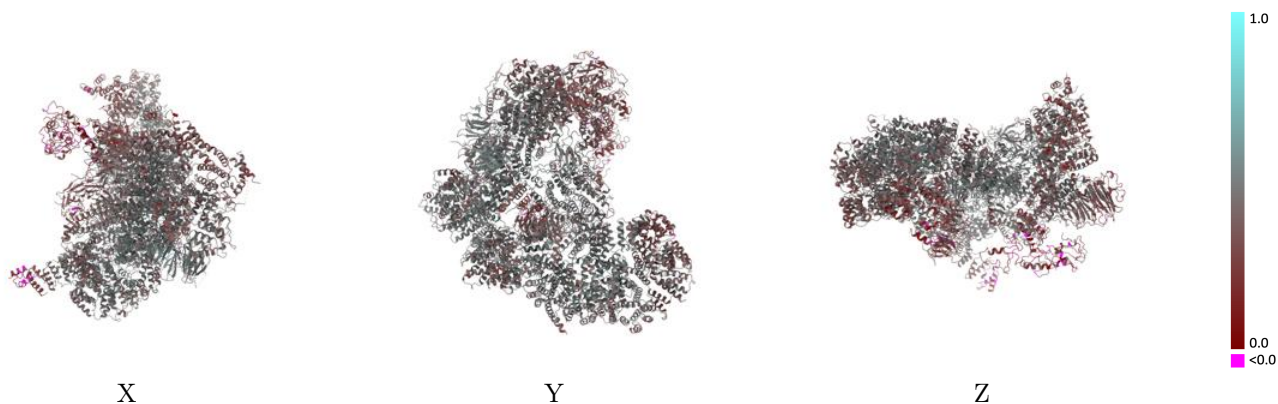
This section contains information regarding the fit between EMDB map EMD-4465 and PDB model 6Q6G. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



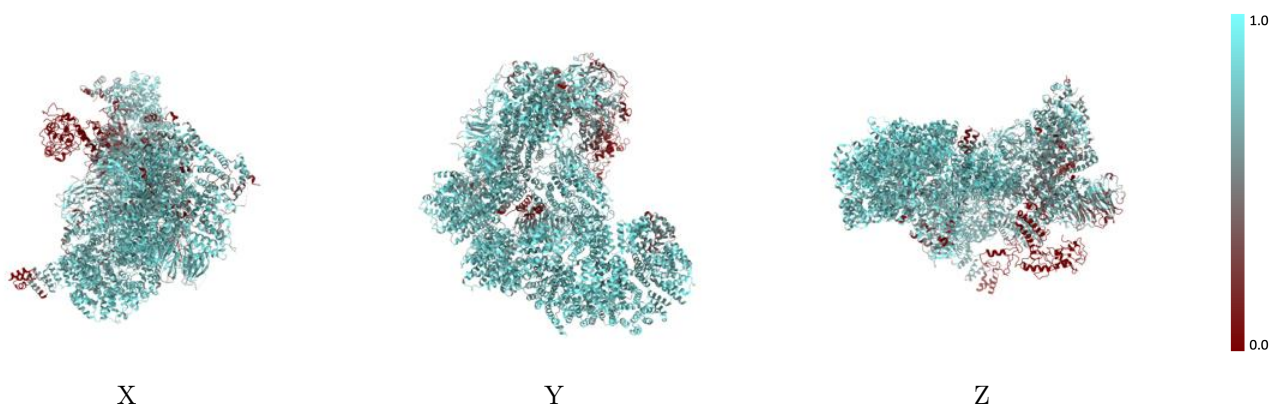
The images above show the 3D surface view of the map at the recommended contour level 0.0085 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



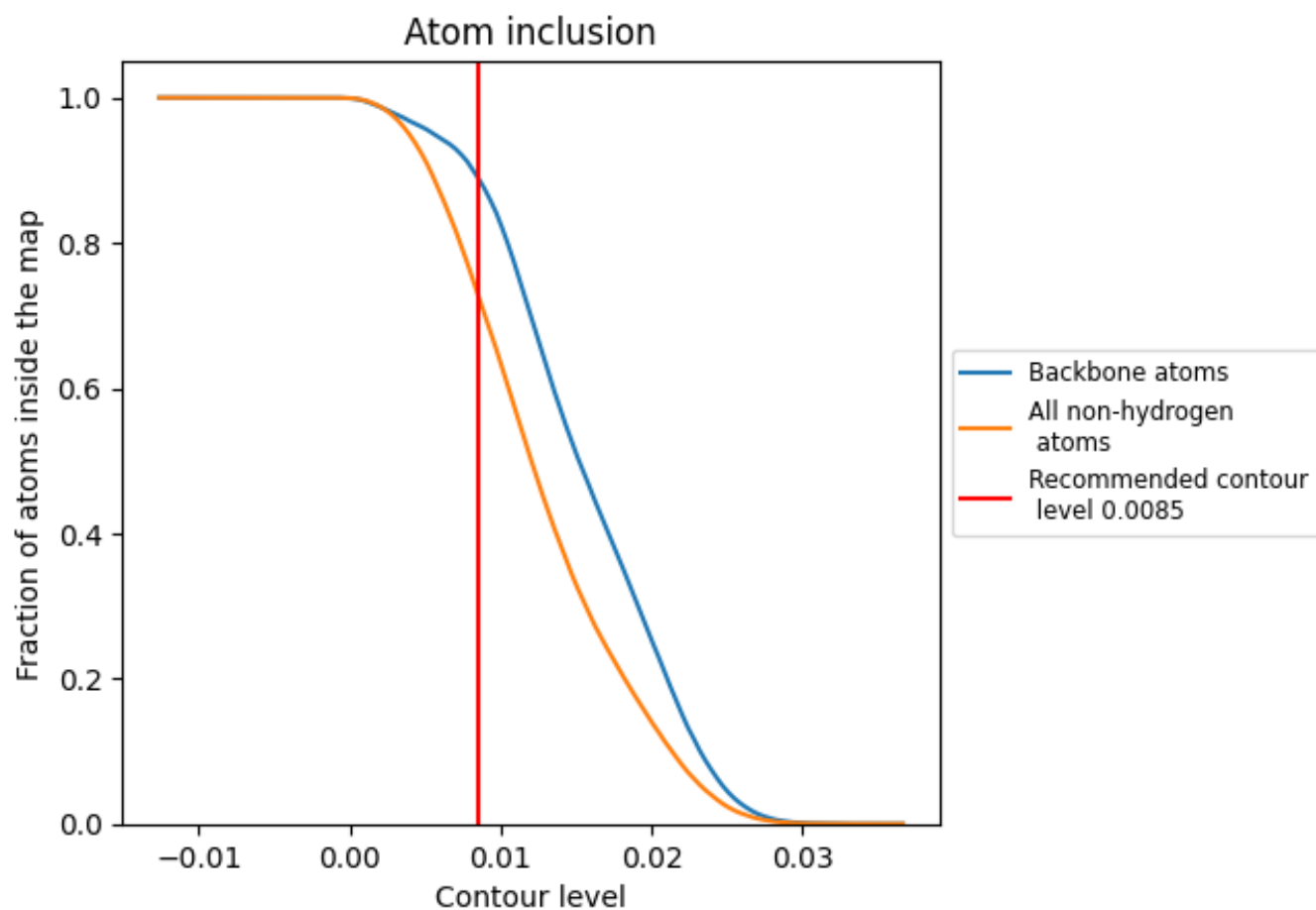
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0085).













































9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 73% 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 (0.0085) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7283	 0.4240
A	 0.7691	 0.4580
C	 0.0000	 0.1830
D	 0.6798	 0.4610
G	 0.8073	 0.4760
H	 0.8212	 0.4680
I	 0.6134	 0.3870
J	 0.8314	 0.4740
K	 0.8344	 0.4570
L	 0.8228	 0.4510
M	 0.7444	 0.4880
N	 0.3525	 0.3000
O	 0.7404	 0.4580
P	 0.8624	 0.4840
Q	 0.8530	 0.4700
R	 0.7215	 0.3200
S	 0.6215	 0.2840
U	 0.7651	 0.4350
V	 0.7544	 0.4550
W	 0.7788	 0.4580
Y	 0.8025	 0.4170
Z	 0.7158	 0.3560

