



Full wwPDB EM Validation Report ⓘ

May 25, 2024 – 09:50 am BST

PDB ID : 8QPE
EMDB ID : EMD-18548
Title : Cryo-EM Structure of Pre-B-like Complex (core part)
Authors : Zhang, Z.; Kumar, V.; Dybkov, O.; Will, C.L.; Zhong, J.; Ludwig, S.; Urlaub, H.; Kastner, B.; Stark, H.; Luehrmann, R.
Deposited on : 2023-10-01
Resolution : 3.10 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:

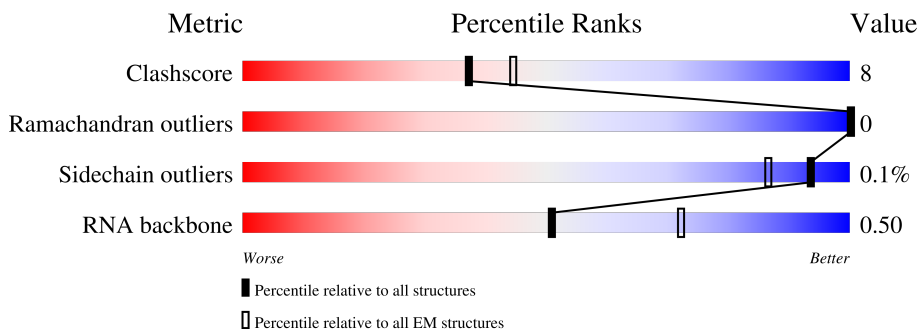
EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

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 3.10 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
RNA backbone	4643	859

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	4	144	
2	5	117	
3	6	106	
4	7	793	
5	C	972	
6	D	142	
7	I	312	

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Mol	Chain	Length	Quality of chain
8	K	439	 7% 93%
9	M	128	 82% 15%
10	U	565	 68% 65% 16% 19%
11	X	376	 6% 19% 79%
12	r	199	 10% 45% 55%
13	z1	11	 55% 45%
14	z2	4	 100%
15	J	683	 26% 7% 67%
16	L	499	 9% 61% 14% 25%
17	F	522	 9% 59% 18% 23%
18	N	941	 37% 73% 15% 12%
19	A	2335	 9% 74% 22%
20	S	800	 6% 15% 82%

2 Entry composition [i](#)

There are 21 unique types of molecules in this entry. The entry contains 54566 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called U4 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	4	63	1342	599	235	445	63	0	0

- Molecule 2 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	5	115	2420	1084	403	818	115	0	0

- Molecule 3 is a RNA chain called U6 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	6	43	926	414	177	292	43	0	0

- Molecule 4 is a protein called Splicing factor 3A subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	7	81	650	405	115	128	2	0	0

- Molecule 5 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	C	836	6592	4211	1110	1238	33	0	0

- Molecule 6 is a protein called Thioredoxin-like protein 4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	D	141	1170	751	194	215	10	0	0

- Molecule 7 is a protein called Pre-mRNA-splicing factor 38A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	I	183	1513	973	255	276	9	0	0

- Molecule 8 is a protein called Microfibrillar-associated protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	K	31	159	96	32	31	0	0

- Molecule 9 is a protein called NHP2-like protein 1, N-terminally processed.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	M	124	962	608	171	178	5	0	0

- Molecule 10 is a protein called Ubiquitin carboxyl-terminal hydrolase 39.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	U	456	3742	2421	635	672	14	0	0

- Molecule 11 is a protein called WW domain-binding protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	X	80	657	413	116	124	4	0	0

- Molecule 12 is a protein called Zinc finger matrin-type protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	r	89	728	452	137	132	7	0	0

- Molecule 13 is a RNA chain called oligo1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
13	z1	11	239	107	46	75	11	0	0

- Molecule 14 is a RNA chain called oligo2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
14	z2	4	90	40	20	26	4	0	0

- Molecule 15 is a protein called U4/U6 small nuclear ribonucleoprotein Prp3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	J	224	1806	1135	345	318	8	0	0

- Molecule 16 is a protein called U4/U6 small nuclear ribonucleoprotein Prp31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	L	376	2871	1785	522	551	13	0	0

- Molecule 17 is a protein called U4/U6 small nuclear ribonucleoprotein Prp4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	F	404	3194	2005	582	587	20	0	0

- Molecule 18 is a protein called Pre-mRNA-processing factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	N	831	6071	3787	1132	1128	24	0	0

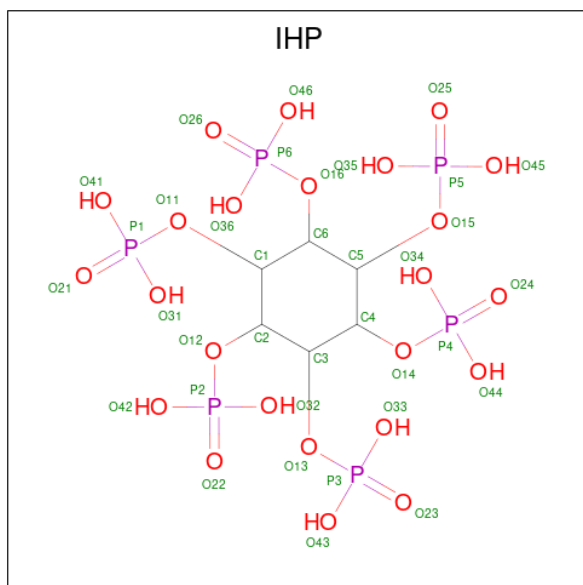
- Molecule 19 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	A	2247	18231	11711	3189	3258	73	0	0

- Molecule 20 is a protein called U4/U6.U5 tri-snRNP-associated protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	S	148	1167	727	216	222	2	0	0

- Molecule 21 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: C₆H₁₈O₂₄P₆) (labeled as "Ligand of Interest" by depositor).



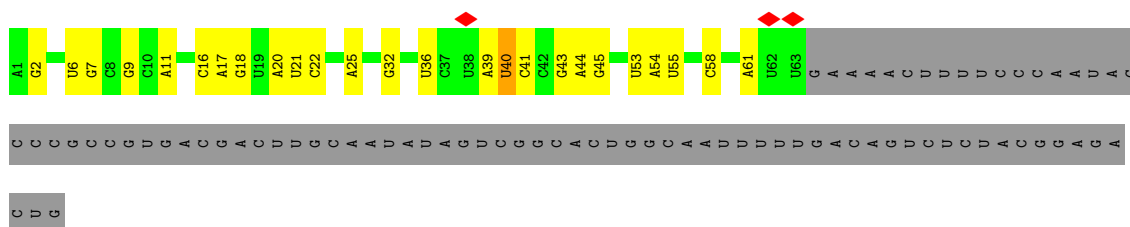
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
21	A	1	36	6	24	6	0

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.

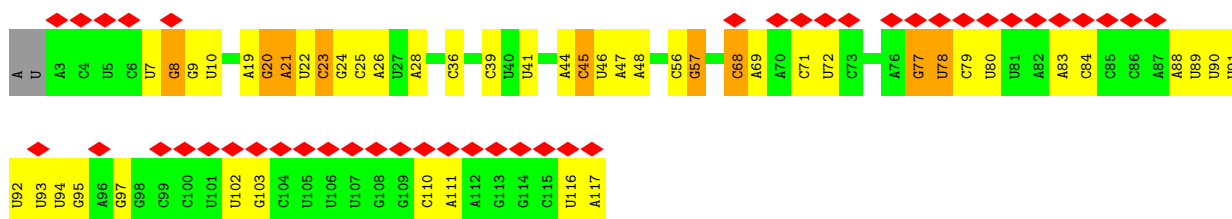
- Molecule 1: U4 snRNA

Chain 4: 




- Molecule 2: U5 snRNA

Chain 5: 



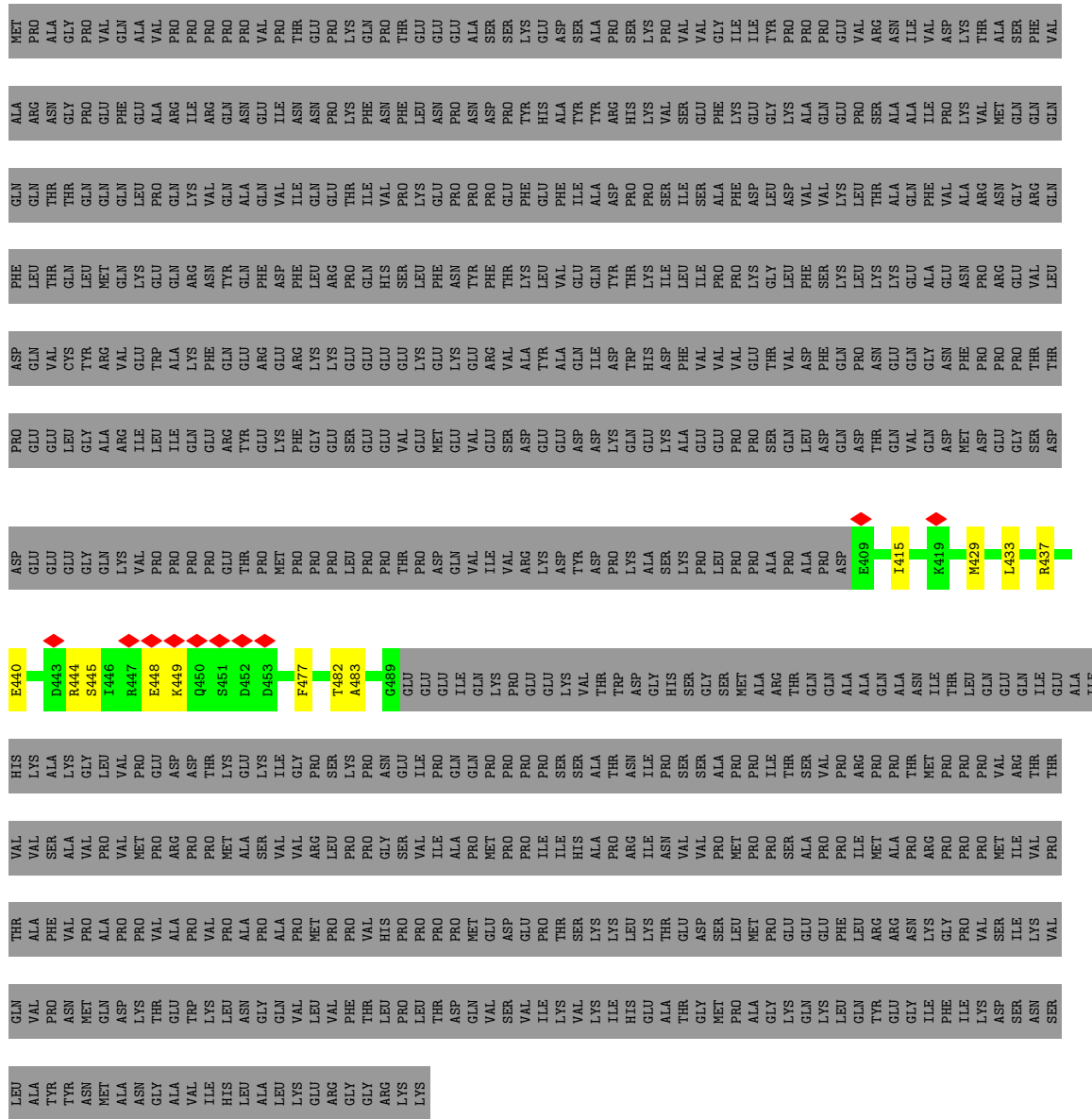
- Molecule 3: U6 snRNA

Chain 6: 

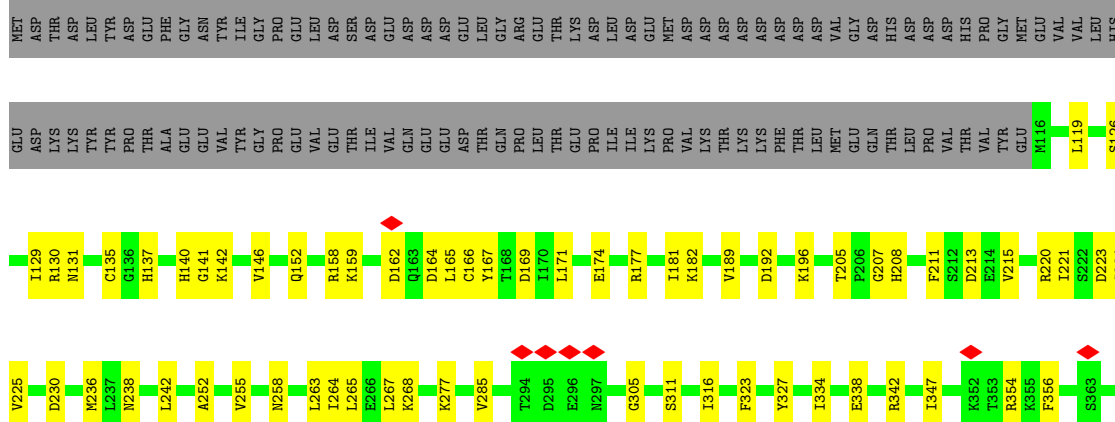


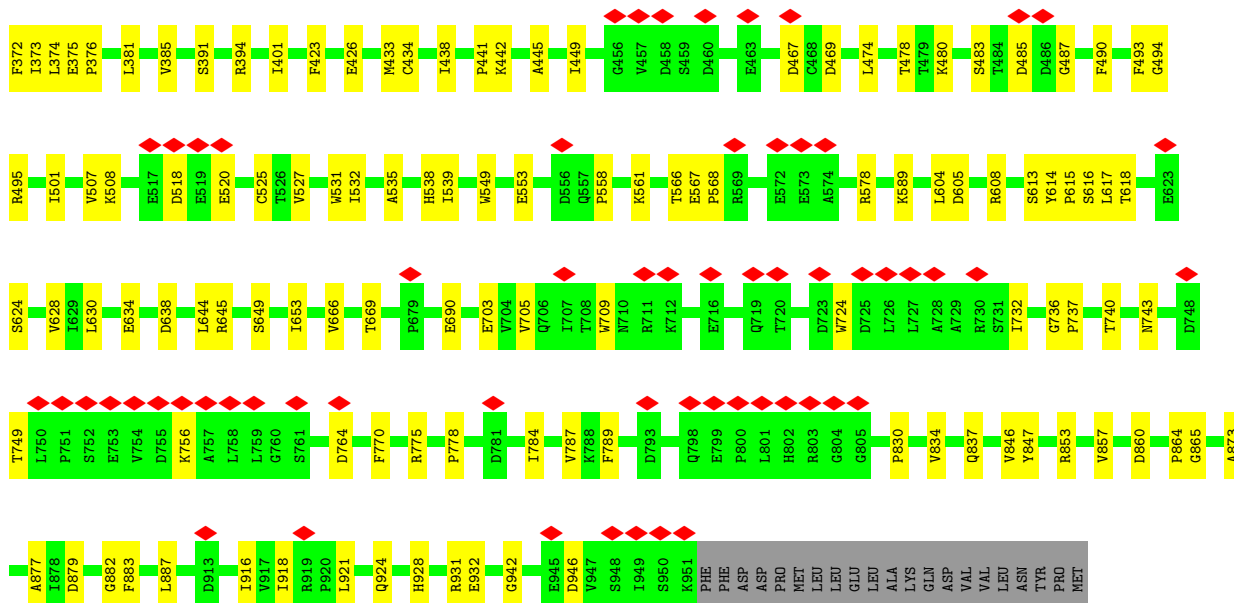
- Molecule 4: Splicing factor 3A subunit 1

Chain 7: 

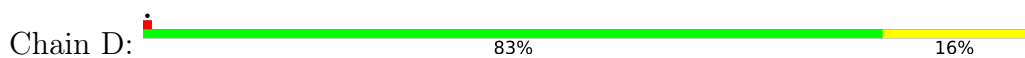


● Molecule 5: 116 kDa U5 small nuclear ribonucleoprotein component

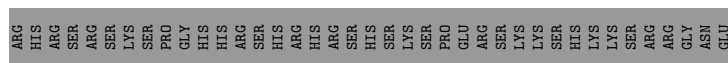
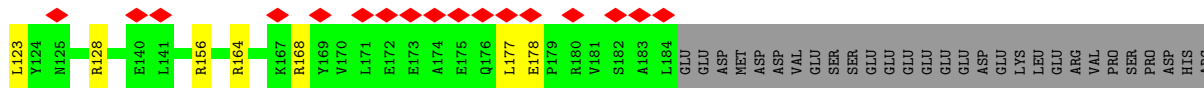
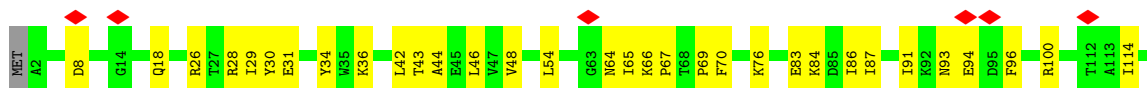




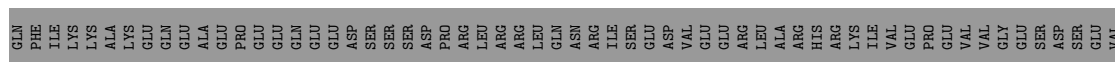
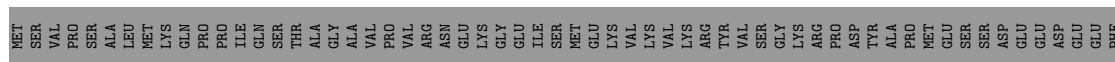
• Molecule 6: Thioredoxin-like protein 4A

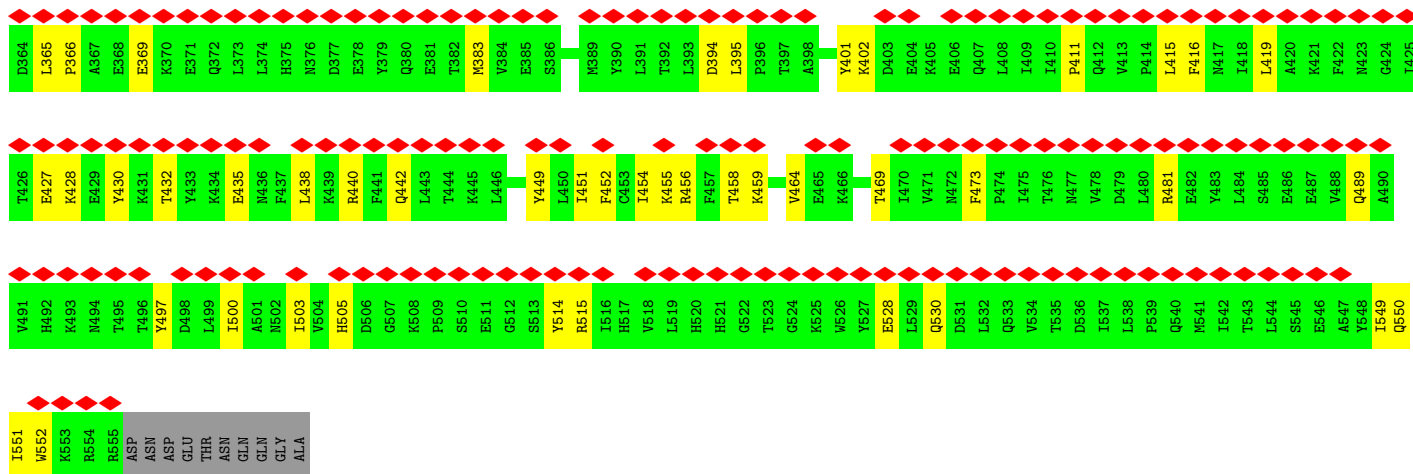


• Molecule 7: Pre-mRNA-splicing factor 38A

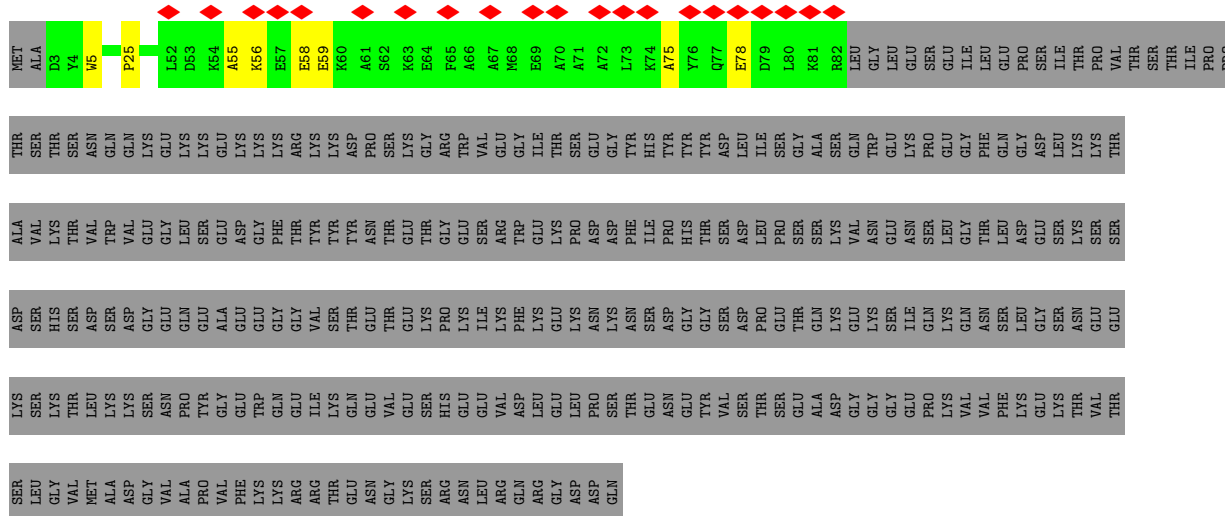


• Molecule 8: Microfibrillar-associated protein 1

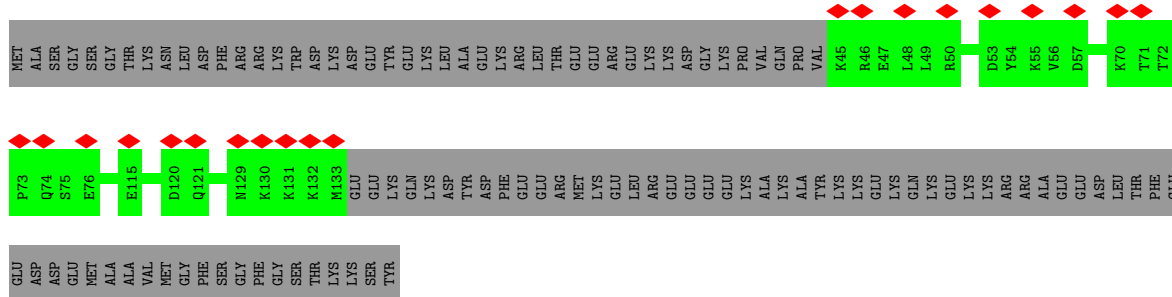




• Molecule 11: WW domain-binding protein 4



• Molecule 12: Zinc finger matrin-type protein 2



• Molecule 13: oligo1

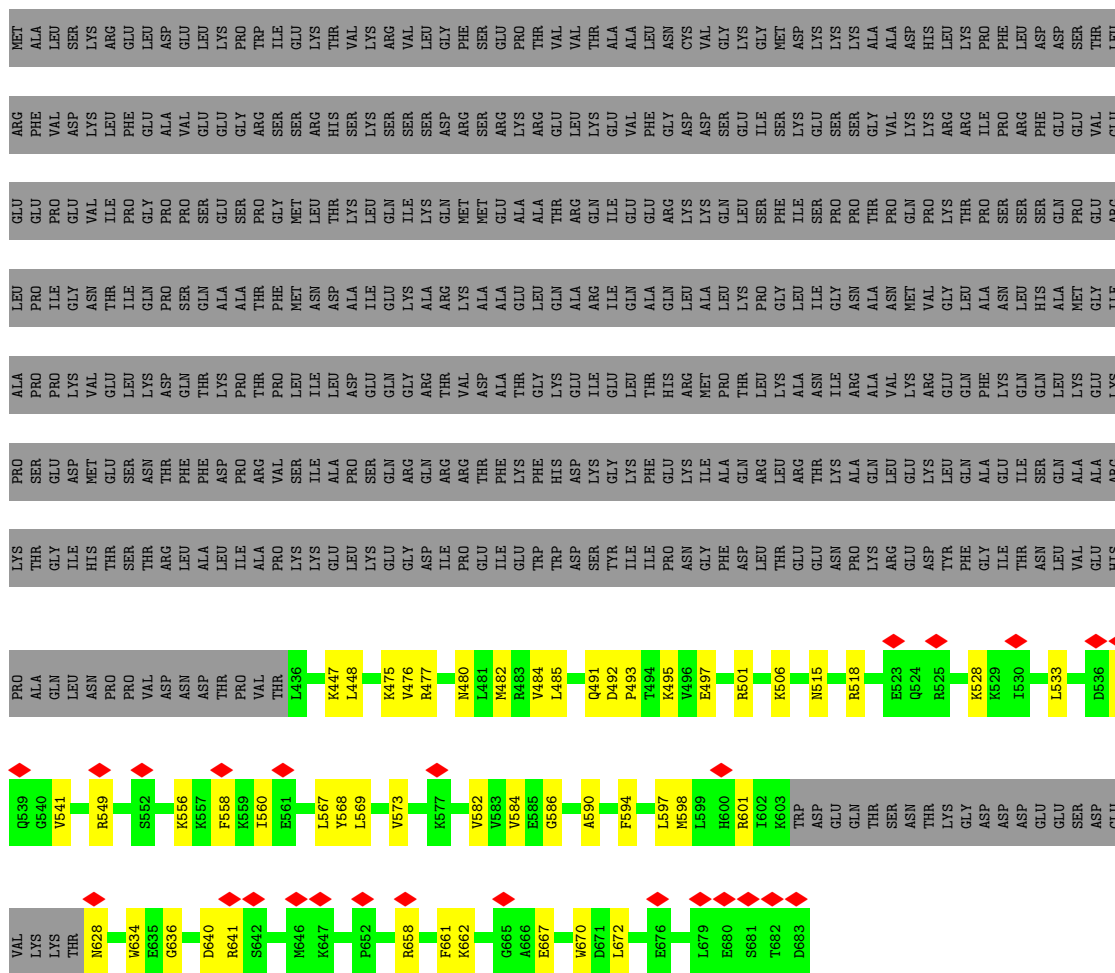


- Molecule 14: oligo2

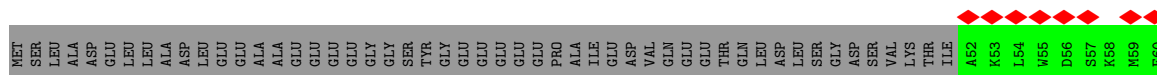


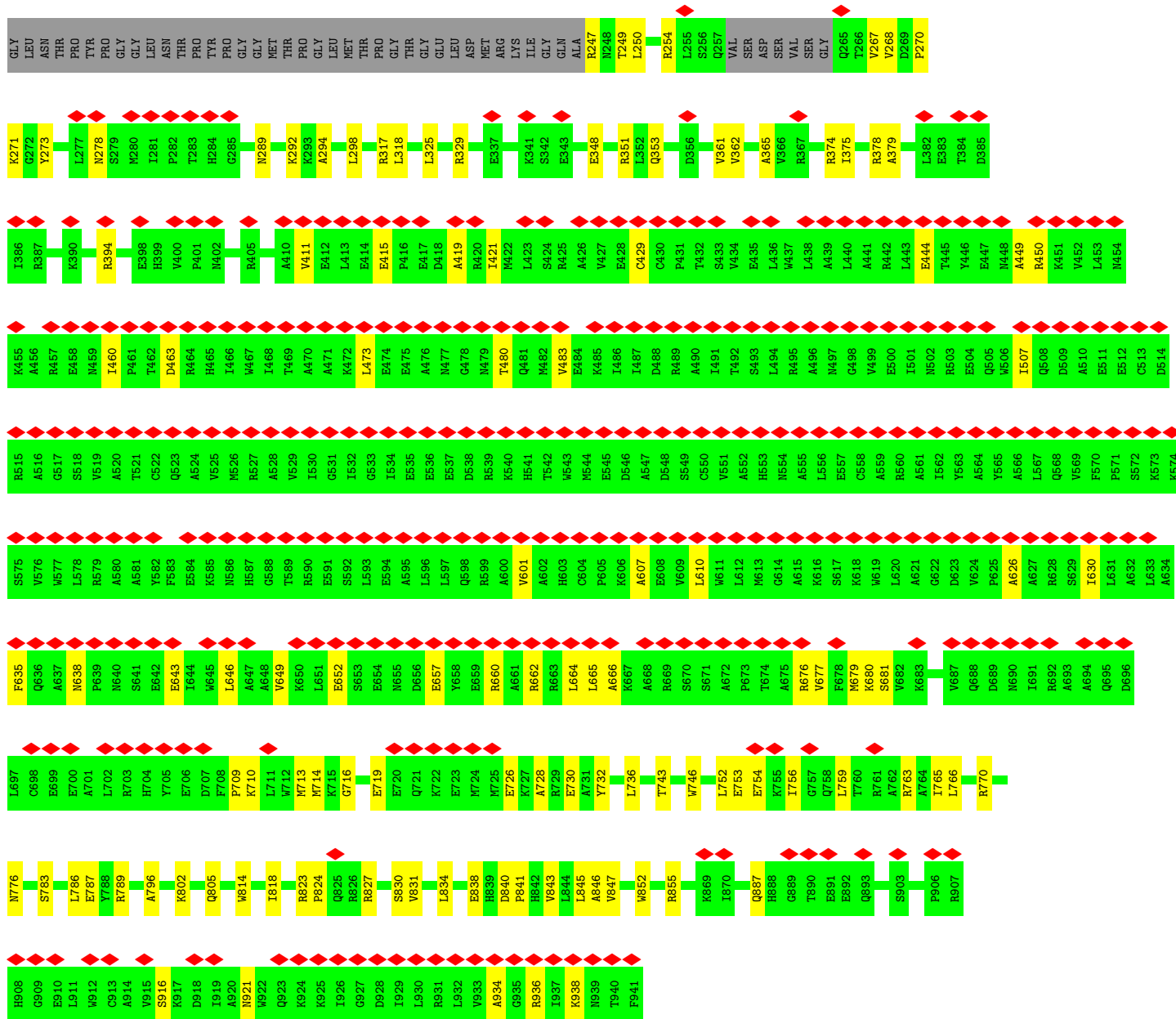
There are no outlier residues recorded for this chain.

- Molecule 15: U4/U6 small nuclear ribonucleoprotein Prp3

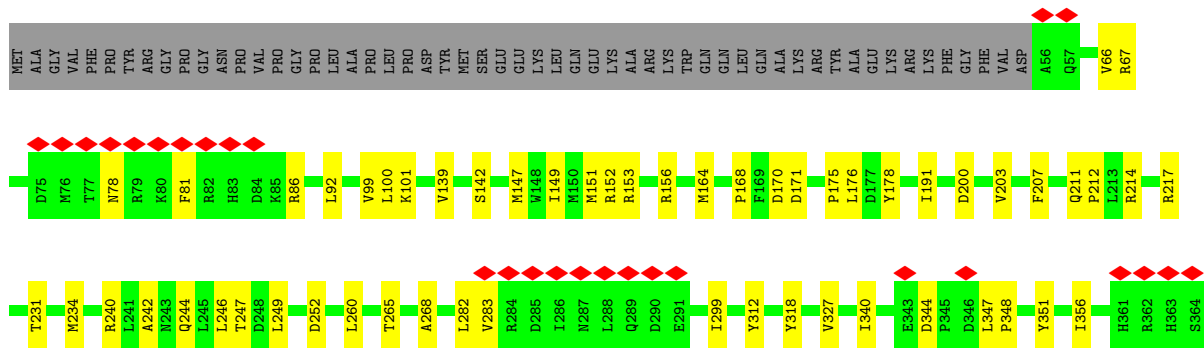
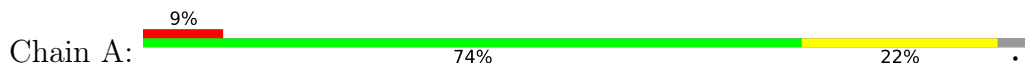


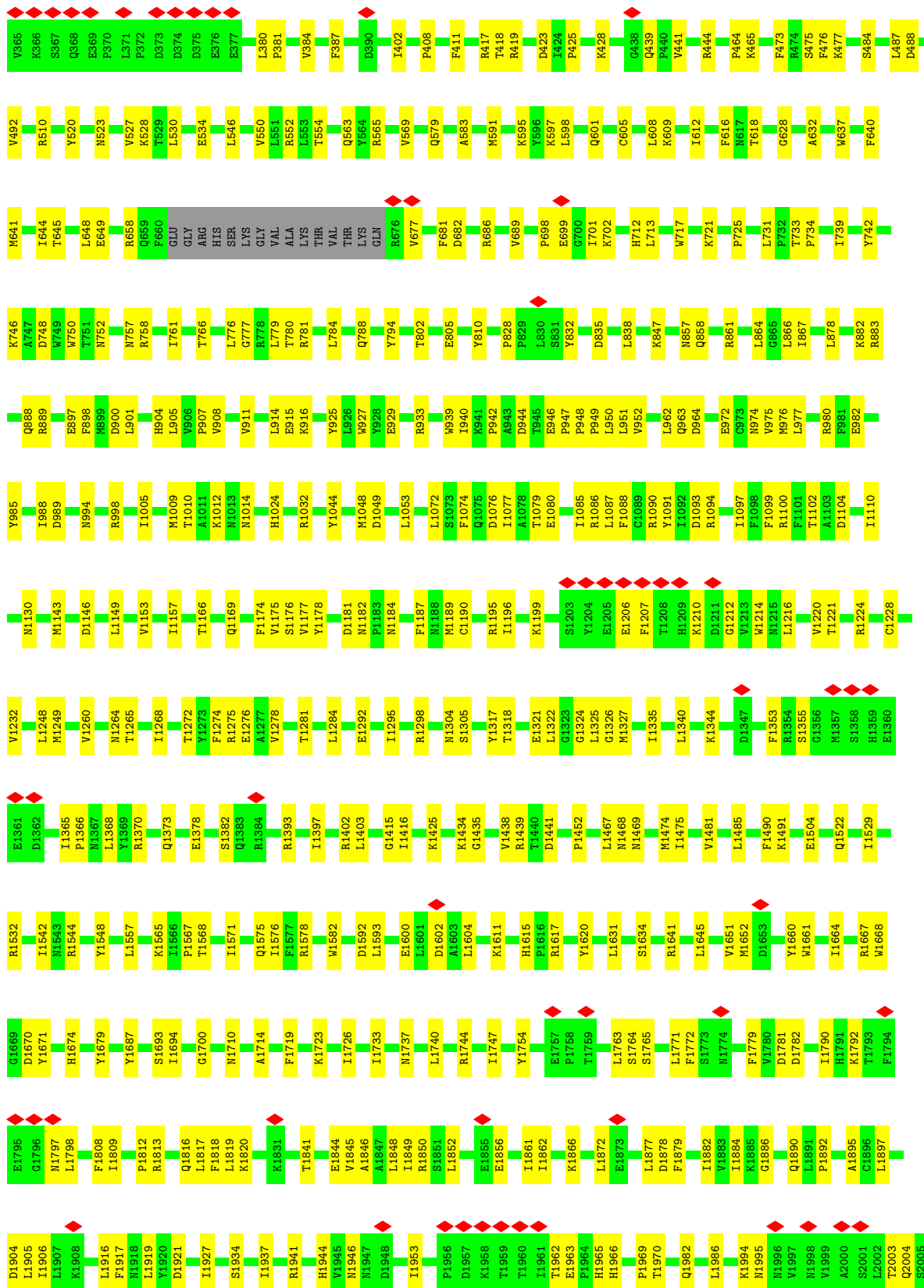
- Molecule 16: U4/U6 small nuclear ribonucleoprotein Prp31





• Molecule 19: Pre-mRNA-processing-splicing factor 8





ASP
GLU
THR
GLY
ARG
LYS
LEU
THR
PRO
LYS
GLU
ALA
PHE
ARG
GLN
SER
GLY
HIS
ARG
PHE
HIS
GLY
LYS
GLY
SER
GLY
LYS
MET
LYS
LYS
THR
GLU
ARG
ARG
MET
LYS
LYS
LEU
ASP
GLU
GLU
ALA
LEU
LEU
LYS
LYS
MET
SER
SER
SER
SER
ASP
THR
PRO
GLY
THR
VAL
ALA
LEU
LEU
GLN

GLU
LYS
GLN
LYS
ALA
GLN
LYS
THR
PRO
TYR
ILE
VAL
LEU
SER
GLY
SER
GLY
LYS
SER
MET
ASN
ALA
ASN
THR
ILE
THR
LYS

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	334084	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 ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.414	Depositor
Minimum map value	-0.149	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.085	Depositor
Map size (\AA)	675.0, 675.0, 675.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.35, 1.35, 1.35	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: IHP

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	4	0.19	0/1499	0.68	0/2334
2	5	0.17	0/2698	0.70	0/4195
3	6	0.22	0/1038	0.73	0/1617
4	7	0.23	0/659	0.49	0/884
5	C	0.25	0/6739	0.46	0/9151
6	D	0.26	0/1199	0.44	0/1620
7	I	0.24	0/1543	0.46	0/2080
8	K	0.22	0/158	0.26	0/218
9	M	0.24	0/974	0.46	0/1316
10	U	0.24	0/3837	0.44	0/5197
11	X	0.24	0/670	0.38	0/892
12	r	0.24	0/736	0.48	0/978
13	z1	0.24	0/268	0.76	0/416
14	z2	0.20	0/101	0.79	0/156
15	J	0.24	0/1833	0.48	0/2447
16	L	0.24	0/2909	0.47	0/3922
17	F	0.24	0/3271	0.49	0/4430
18	N	0.23	0/6168	0.48	0/8371
19	A	0.25	0/18724	0.46	0/25448
20	S	0.23	0/1175	0.50	0/1571
All	All	0.24	0/56199	0.50	0/77243

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [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	4	1342	0	676	14	0
2	5	2420	0	1226	18	0
3	6	926	0	468	28	0
4	7	650	0	655	10	0
5	C	6592	0	6615	113	0
6	D	1170	0	1141	17	0
7	I	1513	0	1532	25	0
8	K	159	0	78	1	0
9	M	962	0	1012	15	0
10	U	3742	0	3762	56	0
11	X	657	0	645	6	0
12	r	728	0	759	0	0
13	z1	239	0	119	0	0
14	z2	90	0	45	0	0
15	J	1806	0	1896	43	0
16	L	2871	0	2848	55	0
17	F	3194	0	3125	59	0
18	N	6071	0	5694	110	0
19	A	18231	0	17841	359	0
20	S	1167	0	1182	23	0
21	A	36	0	6	1	0
All	All	54566	0	51325	832	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 8.

All (832) 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)
19:A:1146:ASP:HB2	19:A:1177:VAL:HG21	1.55	0.87
16:L:383:ILE:HA	19:A:1321:GLU:HG3	1.64	0.80
18:N:818:ILE:HG22	18:N:830:SER:OG	1.83	0.79
7:I:114:ILE:HG23	7:I:177:LEU:HD21	1.64	0.79
19:A:2110:VAL:HG23	19:A:2271:PHE:HE1	1.47	0.78
18:N:362:VAL:HG11	18:N:379:ALA:HB2	1.67	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:N:814:TRP:HB3	18:N:834:LEU:HD22	1.67	0.77
7:I:43:THR:H	7:I:46:LEU:HD12	1.50	0.75
19:A:942:PRO:HD2	19:A:1438:VAL:HG12	1.69	0.75
3:6:55:C:H5''	15:J:480:ASN:HD21	1.52	0.75
18:N:823:ARG:HG3	18:N:824:PRO:HD3	1.68	0.75
5:C:236:MET:SD	5:C:837:GLN:NE2	2.59	0.74
19:A:1146:ASP:OD2	19:A:1182:ASN:ND2	2.20	0.74
19:A:828:PRO:HD3	19:A:1005:ILE:HD11	1.69	0.74
19:A:1737:ASN:HB3	19:A:1740:LEU:HB2	1.70	0.74
18:N:818:ILE:HD11	18:N:846:ALA:HB1	1.70	0.72
4:7:482:THR:HG22	4:7:483:ALA:H	1.55	0.72
2:5:23:C:O2'	2:5:57:G:N2	2.23	0.71
19:A:527:VAL:HG23	19:A:528:LYS:HG3	1.73	0.71
19:A:1196:ILE:HG12	19:A:1228:CYS:SG	2.31	0.71
7:I:64:ASN:HD21	7:I:66:LYS:HE3	1.56	0.70
19:A:1771:LEU:O	19:A:1813:ARG:NH2	2.24	0.70
5:C:645:ARG:NH1	19:A:318:TYR:O	2.25	0.69
19:A:1216:LEU:HD11	19:A:1228:CYS:SG	2.31	0.69
16:L:93:ILE:HG21	16:L:215:ILE:HG21	1.74	0.69
10:U:394:ASP:OD2	10:U:428:LYS:NZ	2.26	0.69
5:C:736:GLY:HA2	5:C:743:ASN:HB2	1.75	0.69
19:A:975:VAL:HG11	19:A:1153:VAL:HG21	1.74	0.68
19:A:546:LEU:HD22	19:A:648:LEU:HD21	1.75	0.68
3:6:49:G:OP1	19:A:1522:GLN:NE2	2.26	0.68
20:S:352:GLU:HG2	20:S:356:THR:HG22	1.77	0.67
2:5:23:C:N4	19:A:465:LYS:O	2.27	0.66
15:J:477:ARG:H	15:J:480:ASN:HB3	1.61	0.66
18:N:601:VAL:HA	18:N:607:ALA:HB3	1.77	0.66
19:A:147:MET:O	19:A:151:MET:HG3	1.95	0.66
19:A:1491:LYS:O	19:A:1710:ASN:ND2	2.27	0.66
6:D:117:GLU:OE2	6:D:121:ARG:NH1	2.28	0.66
10:U:411:PRO:HG2	10:U:469:THR:HA	1.78	0.66
15:J:636:GLY:HA2	17:F:429:ASN:HD22	1.59	0.66
19:A:1212:GLY:HA2	19:A:1276:GLU:HG2	1.77	0.66
19:A:1879:PHE:HB3	19:A:1882:ILE:HD12	1.78	0.65
19:A:974:ASN:HB3	19:A:1100:ARG:HD2	1.79	0.65
18:N:267:VAL:HB	19:A:1965:HIS:HA	1.80	0.64
17:F:119:ILE:HG22	17:F:120:THR:HG23	1.79	0.64
17:F:414:ASN:HD22	17:F:456:LYS:HA	1.62	0.64
5:C:604:LEU:HD22	10:U:128:LEU:HD21	1.79	0.64
19:A:1434:LYS:O	19:A:1439:ARG:NH2	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:1667:ARG:HH12	19:A:1674:HIS:HA	1.63	0.64
19:A:699:GLU:HA	19:A:702:LYS:HE2	1.80	0.64
19:A:1275:ARG:NH1	19:A:1378:GLU:OE1	2.31	0.63
10:U:356:PHE:HB2	10:U:440:ARG:HB2	1.79	0.63
19:A:200:ASP:OD1	19:A:240:ARG:NH2	2.32	0.63
17:F:228:ILE:HG13	17:F:515:THR:HG22	1.79	0.63
18:N:394:ARG:NH1	20:S:196:TRP:O	2.31	0.63
19:A:748:ASP:O	19:A:752:ASN:ND2	2.26	0.63
17:F:296:LEU:HB2	17:F:308:TRP:HB2	1.80	0.63
6:D:2:SER:HA	6:D:42:ASP:HB3	1.80	0.62
9:M:22:LEU:HD21	9:M:123:ILE:HD11	1.80	0.62
19:A:152:ARG:NH2	19:A:618:THR:O	2.32	0.62
10:U:497:TYR:HB3	10:U:552:TRP:HB3	1.82	0.62
16:L:412:VAL:HG13	18:N:184:ASP:HB2	1.81	0.62
18:N:411:VAL:HG13	18:N:419:ALA:HB1	1.81	0.62
19:A:1048:MET:HE3	19:A:1166:THR:HB	1.81	0.62
3:6:67:G:H5'	15:J:518:ARG:O	1.99	0.62
5:C:778:PRO:HD3	5:C:784:ILE:HD11	1.82	0.62
19:A:1600:GLU:HB3	19:A:1604:LEU:HD23	1.81	0.62
18:N:37:ALA:HA	19:A:510:ARG:HG2	1.81	0.62
19:A:477:LYS:HE2	19:A:484:SER:HB2	1.82	0.62
16:L:144:ASN:ND2	16:L:178:GLN:OE1	2.33	0.61
7:I:42:LEU:HD12	7:I:76:LYS:HG2	1.83	0.61
19:A:608:LEU:HD13	19:A:632:ALA:HB1	1.82	0.61
18:N:752:LEU:O	18:N:756:ILE:HG13	1.99	0.61
17:F:474:ALA:HB3	17:F:488:LEU:HB2	1.83	0.61
6:D:32:HIS:HE1	6:D:64:THR:HG23	1.65	0.61
19:A:2216:CYS:SG	19:A:2217:SER:N	2.73	0.61
5:C:213:ASP:HB3	5:C:616:SER:HB2	1.83	0.61
2:5:45:C:OP1	19:A:597:LYS:N	2.33	0.61
5:C:370:VAL:HA	5:C:374:LEU:HB2	1.83	0.61
10:U:174:CYS:O	10:U:178:ASN:N	2.33	0.61
5:C:207:GLY:O	5:C:238:ASN:ND2	2.34	0.60
10:U:456:ARG:NH1	10:U:469:THR:O	2.33	0.60
18:N:165:ASP:OD2	18:N:167:ARG:NH1	2.34	0.60
20:S:254:LEU:HB3	20:S:257:LEU:HD12	1.82	0.60
5:C:126:SER:HA	5:C:129:ILE:HD12	1.82	0.60
11:X:5:TRP:HE3	19:A:1575:GLN:HE21	1.49	0.60
19:A:2306:HIS:HB3	19:A:2309:HIS:HD2	1.66	0.60
16:L:88:PRO:HG2	16:L:91:ARG:HG2	1.82	0.60
17:F:369:TYR:H	17:F:384:GLY:HA2	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:135:CYS:HB2	5:C:242:LEU:HD13	1.84	0.60
18:N:178:LYS:O	19:A:861:ARG:NH2	2.34	0.60
19:A:1344:LYS:HG2	19:A:1353:PHE:HE2	1.67	0.60
9:M:77:ASN:O	18:N:805:GLN:NE2	2.30	0.60
15:J:493:PRO:HB3	19:A:1934:SER:HB3	1.82	0.60
19:A:757:ASN:O	19:A:761:ILE:HG12	2.02	0.60
19:A:1485:LEU:HD12	19:A:1490:PHE:HB2	1.83	0.60
10:U:111:ILE:HG23	10:U:137:LEU:HB3	1.84	0.59
10:U:365:LEU:HD12	10:U:366:PRO:HD2	1.84	0.59
19:A:1866:LYS:HZ3	19:A:1886:GLY:HA3	1.67	0.59
19:A:2123:GLN:NE2	19:A:2153:THR:O	2.27	0.59
7:I:156:ARG:NH2	19:A:170:ASP:OD2	2.35	0.59
10:U:213:ARG:HH22	10:U:217:GLY:HA2	1.67	0.59
18:N:743:THR:HG21	18:N:776:ASN:ND2	2.16	0.59
5:C:311:SER:HB3	5:C:316:ILE:HB	1.84	0.59
19:A:940:ILE:HD12	19:A:1090:ARG:HH21	1.67	0.59
18:N:444:GLU:HA	18:N:449:ALA:HB3	1.85	0.59
19:A:1809:ILE:HB	19:A:1818:PHE:HB2	1.83	0.59
9:M:6:VAL:HG21	9:M:13:LEU:HD22	1.84	0.59
5:C:442:LYS:NZ	5:C:467:ASP:O	2.35	0.58
7:I:28:ARG:HG3	7:I:65:ILE:HB	1.85	0.58
10:U:276:ARG:HD2	10:U:302:ALA:HB2	1.85	0.58
10:U:148:LEU:HG	10:U:149:LYS:HG3	1.84	0.58
19:A:142:SER:HA	19:A:242:ALA:HB2	1.84	0.58
19:A:972:GLU:HG3	19:A:1100:ARG:HH22	1.69	0.58
5:C:834:VAL:HG11	5:C:883:PHE:HE2	1.69	0.58
17:F:105:ASP:OD1	17:F:129:ARG:NH1	2.36	0.58
15:J:556:LYS:O	15:J:560:ILE:HG12	2.04	0.58
17:F:192:ARG:NH1	17:F:418:ASN:O	2.36	0.58
18:N:662:ARG:HH12	18:N:666:ALA:HB2	1.69	0.58
1:4:18:G:O2'	16:L:358:ARG:NH2	2.36	0.58
5:C:508:LYS:HB2	5:C:568:PRO:HA	1.84	0.58
19:A:1604:LEU:HD12	19:A:1719:PHE:HE2	1.69	0.58
5:C:561:LYS:NZ	5:C:614:TYR:O	2.37	0.57
16:L:97:ASN:ND2	16:L:237:GLY:HA2	2.19	0.57
3:6:66:C:H1'	15:J:518:ARG:HH21	1.69	0.57
6:D:43:GLU:OE1	19:A:686:ARG:NH2	2.34	0.57
15:J:662:LYS:NZ	15:J:667:GLU:OE1	2.38	0.57
17:F:476:ILE:HD12	17:F:486:LYS:HB3	1.85	0.57
18:N:823:ARG:HA	18:N:827:ARG:HD2	1.86	0.57
19:A:1340:LEU:HD12	19:A:1355:SER:HB3	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2312:SER:O	19:A:2316:ASN:ND2	2.37	0.57
10:U:296:PRO:HB2	10:U:299:MET:HB3	1.86	0.57
19:A:1322:LEU:HD22	19:A:1485:LEU:HD21	1.86	0.57
19:A:1946:ASN:HB3	19:A:1986:LEU:HD21	1.86	0.57
5:C:624:SER:HB3	5:C:942:GLY:HA3	1.85	0.57
16:L:392:LEU:HD21	19:A:1268:ILE:HD11	1.86	0.57
18:N:814:TRP:CE3	18:N:834:LEU:HB3	2.40	0.57
19:A:677:VAL:O	19:A:681:PHE:HB2	2.05	0.57
19:A:847:LYS:HG3	19:A:867:ILE:HG21	1.86	0.57
19:A:915:GLU:HB3	19:A:1012:LYS:HZ1	1.70	0.57
2:5:97:G:N1	2:5:116:U:O2	2.38	0.57
17:F:299:CYS:HB2	17:F:326:VAL:HG23	1.87	0.57
19:A:1895:ALA:HB2	19:A:1944:HIS:HB2	1.87	0.57
19:A:1102:THR:OG1	19:A:1104:ASP:OD1	2.20	0.56
19:A:1995:ASN:HB3	20:S:307:ARG:HH22	1.70	0.56
16:L:152:ASN:HA	16:L:156:GLN:HE22	1.71	0.56
17:F:389:GLY:HA3	17:F:403:LEU:HD12	1.87	0.56
18:N:135:ARG:HH22	18:N:138:ILE:HD11	1.71	0.56
19:A:247:THR:HG22	19:A:249:LEU:H	1.70	0.56
5:C:391:SER:OG	5:C:394:ARG:NH2	2.38	0.56
5:C:921:LEU:HG	19:A:299:ILE:HD12	1.86	0.56
7:I:168:ARG:NH2	7:I:178:GLU:O	2.38	0.56
5:C:916:ILE:HB	5:C:931:ARG:HG2	1.85	0.56
19:A:591:MET:HB3	19:A:598:LEU:HD22	1.87	0.56
20:S:255:GLN:HB3	20:S:353:GLN:H	1.70	0.56
5:C:277:LYS:NZ	5:C:864:PRO:O	2.29	0.56
18:N:719:GLU:HB3	18:N:728:ALA:HB2	1.87	0.56
4:7:477:PHE:O	18:N:137:LYS:NZ	2.33	0.56
5:C:401:ILE:HD11	5:C:423:PHE:HB2	1.88	0.56
19:A:246:LEU:HD22	19:A:408:PRO:HG2	1.86	0.56
19:A:2252:LEU:H	19:A:2255:HIS:CE1	2.23	0.56
6:D:141:ARG:HB3	19:A:766:THR:HG22	1.87	0.56
19:A:1904:ASP:OD1	19:A:1905:LEU:N	2.39	0.56
19:A:2251:TYR:HA	19:A:2255:HIS:HE1	1.70	0.56
5:C:931:ARG:NH1	5:C:946:ASP:OD1	2.30	0.56
10:U:262:ILE:O	10:U:264:ARG:NH1	2.38	0.56
18:N:254:ARG:HB3	18:N:271:LYS:HE2	1.87	0.56
18:N:643:GLU:HA	18:N:646:LEU:HD13	1.86	0.56
19:A:1771:LEU:HD11	19:A:1779:PHE:HZ	1.69	0.56
10:U:416:PHE:HA	10:U:419:LEU:HB2	1.88	0.55
19:A:758:ARG:NH2	19:A:901:LEU:O	2.38	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:985:TYR:HB2	19:A:1032:ARG:HH21	1.70	0.55
7:I:18:GLN:OE1	7:I:30:TYR:OH	2.22	0.55
10:U:245:ASN:ND2	10:U:500:ILE:O	2.39	0.55
17:F:466:LEU:HD23	17:F:498:LEU:HD13	1.88	0.55
18:N:421:ILE:HG22	20:S:204:ILE:HG21	1.87	0.55
4:7:429:MET:HG3	9:M:91:ARG:HH12	1.71	0.55
5:C:666:VAL:HG22	5:C:787:VAL:HG22	1.88	0.55
18:N:254:ARG:NH2	19:A:1844:GLU:OE1	2.40	0.55
19:A:1214:TRP:NE1	19:A:1276:GLU:OE1	2.33	0.55
5:C:177:ARG:NH2	5:C:638:ASP:OD2	2.39	0.55
19:A:750:TRP:HH2	19:A:781:ARG:HB2	1.71	0.55
19:A:976:MET:HG2	19:A:1187:PHE:HB3	1.88	0.55
5:C:338:GLU:OE2	5:C:342:ARG:NH2	2.35	0.55
15:J:568:TYR:O	15:J:641:ARG:NH2	2.39	0.55
18:N:135:ARG:NH1	18:N:136:PRO:O	2.39	0.55
19:A:779:LEU:HB3	19:A:905:LEU:HD11	1.89	0.55
19:A:1366:PRO:HG2	19:A:1474:MET:HE2	1.88	0.55
5:C:634:GLU:OE2	5:C:882:GLY:N	2.38	0.55
15:J:537:ILE:HB	15:J:541:VAL:HG22	1.87	0.55
18:N:607:ALA:HB1	18:N:610:LEU:HD23	1.89	0.55
19:A:1265:THR:HG22	19:A:1452:PRO:HG3	1.88	0.55
19:A:2130:GLY:N	19:A:2173:GLU:O	2.35	0.55
7:I:91:ILE:HG23	7:I:123:LEU:HD11	1.89	0.55
10:U:198:THR:HG23	10:U:201:GLN:H	1.71	0.55
16:L:151:ASN:HA	16:L:155:LEU:HD12	1.89	0.55
17:F:474:ALA:O	17:F:488:LEU:N	2.39	0.55
19:A:425:PRO:HB2	19:A:428:LYS:HB2	1.89	0.55
3:6:65:G:H21	15:J:515:ASN:HD21	1.55	0.54
5:C:589:LYS:HG3	5:C:628:VAL:HG13	1.90	0.54
16:L:283:LEU:HD22	16:L:291:ALA:HB2	1.88	0.54
17:F:249:ALA:HB2	17:F:279:ILE:HG22	1.89	0.54
1:4:18:G:H22	16:L:361:LYS:HD3	1.72	0.54
16:L:120:LYS:HB2	16:L:179:LEU:HD21	1.89	0.54
18:N:250:LEU:HD21	19:A:1850:ARG:HD3	1.89	0.54
5:C:137:HIS:HA	5:C:238:ASN:HB3	1.90	0.54
10:U:411:PRO:HB2	10:U:469:THR:HG23	1.89	0.54
18:N:652:GLU:HG2	18:N:664:LEU:HG	1.89	0.54
5:C:669:THR:HG23	5:C:690:GLU:HB3	1.88	0.54
15:J:640:ASP:OD1	15:J:641:ARG:N	2.40	0.54
3:6:56:A:H5 [?]	15:J:475:LYS:HD3	1.88	0.54
19:A:1763:LEU:HD22	19:A:1862:ILE:HD13	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:354:ARG:NH2	19:A:384:VAL:O	2.38	0.54
18:N:278:ASN:OD1	18:N:374:ARG:NH1	2.33	0.54
18:N:753:GLU:HA	18:N:756:ILE:HD12	1.90	0.54
6:D:8:LEU:HD13	6:D:14:VAL:HA	1.90	0.54
7:I:84:LYS:HA	7:I:87:ILE:HD12	1.90	0.54
19:A:609:LYS:HD2	21:A:2401:IHP:O33	2.08	0.54
17:F:455:VAL:HG22	17:F:467:THR:HG22	1.90	0.54
18:N:202:PRO:HB2	19:A:1397:ILE:HD11	1.89	0.54
19:A:1604:LEU:HD12	19:A:1719:PHE:CE2	2.42	0.54
16:L:122:PHE:CD2	16:L:125:LEU:HB2	2.43	0.54
3:6:76:A:H2'	15:J:558:PHE:HE2	1.73	0.53
16:L:396:LEU:HB3	16:L:399:LEU:HB2	1.89	0.53
16:L:422:LYS:HE3	16:L:426:ARG:HH22	1.73	0.53
16:L:424:LEU:HD21	19:A:866:LEU:HD11	1.91	0.53
18:N:709:PRO:O	18:N:713:MET:HG3	2.07	0.53
19:A:340:ILE:HG13	19:A:356:ILE:HD11	1.89	0.53
6:D:73:TYR:OH	18:N:23:ARG:NH2	2.42	0.53
9:M:64:GLU:HG2	16:L:310:GLU:HG3	1.90	0.53
19:A:1575:GLN:O	19:A:1578:ARG:NH1	2.41	0.53
16:L:155:LEU:HD23	16:L:158:ILE:HD12	1.91	0.53
5:C:376:PRO:HB3	19:A:387:PHE:HB2	1.89	0.53
16:L:431:GLN:HG2	19:A:883:ARG:HH21	1.73	0.53
18:N:680:LYS:HE3	18:N:934:ALA:HB1	1.91	0.53
7:I:83:GLU:H	7:I:86:ILE:HD12	1.73	0.53
17:F:513:ASP:OD1	18:N:802:LYS:NZ	2.42	0.53
5:C:518:ASP:HB2	5:C:520:GLU:HG2	1.89	0.53
19:A:1382:SER:HA	19:A:1415:GLY:HA2	1.89	0.53
5:C:478:THR:HA	5:C:494:GLY:HA3	1.89	0.53
5:C:749:THR:OG1	5:C:756:LYS:NZ	2.40	0.53
15:J:476:VAL:HG22	15:J:484:VAL:HG21	1.91	0.53
16:L:380:PHE:HZ	19:A:1485:LEU:HD11	1.72	0.53
17:F:255:CYS:HB2	17:F:269:LEU:HD12	1.90	0.53
19:A:641:MET:HA	19:A:644:ILE:HG22	1.89	0.53
19:A:2273:VAL:O	19:A:2297:GLN:N	2.34	0.53
19:A:857:ASN:OD1	19:A:858:GLN:N	2.41	0.53
7:I:93:ASN:HD21	7:I:96:PHE:HD2	1.57	0.53
10:U:427:GLU:HB3	10:U:438:LEU:HD22	1.90	0.53
19:A:1819:LEU:HD21	19:A:1906:ILE:HD11	1.91	0.53
19:A:1850:ARG:NH2	19:A:1878:ASP:OD2	2.42	0.53
7:I:29:ILE:HA	7:I:67:PRO:HG3	1.91	0.52
15:J:549:ARG:HB3	15:J:628:ASN:HA	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:F:329:VAL:HG22	17:F:340:THR:HG22	1.91	0.52
18:N:201:ASP:OD1	19:A:1402:ARG:NH1	2.41	0.52
18:N:657:GLU:HB3	18:N:660:ARG:HB3	1.91	0.52
19:A:550:VAL:O	19:A:554:THR:HG23	2.08	0.52
19:A:1740:LEU:O	19:A:1744:ARG:HD3	2.08	0.52
19:A:1199:LYS:HG3	19:A:1224:ARG:HH12	1.74	0.52
19:A:1544:ARG:HD2	19:A:1671:TYR:HB3	1.92	0.52
2:5:46:U:O4	2:5:47:A:N6	2.42	0.52
4:7:433:LEU:HD23	15:J:447:LYS:HB3	1.92	0.52
16:L:219:LEU:HD21	16:L:231:ILE:HD11	1.91	0.52
17:F:259:SER:OG	17:F:262:ASP:O	2.21	0.52
18:N:665:LEU:HD11	18:N:681:SER:HA	1.92	0.52
19:A:1220:VAL:HG23	19:A:1221:THR:HG23	1.92	0.52
19:A:1962:THR:HG22	19:A:1969:PRO:HA	1.90	0.52
5:C:205:THR:HB	5:C:215:VAL:HG22	1.91	0.52
10:U:225:VAL:HG11	10:U:294:VAL:HG23	1.90	0.52
19:A:1072:LEU:HD22	19:A:1087:LEU:HD22	1.91	0.52
2:5:41:U:H4'	6:D:139:LYS:HG3	1.91	0.52
3:6:42:C:O3'	19:A:2038:GLN:NE2	2.42	0.52
19:A:980:ARG:HG2	19:A:1094:ARG:HD3	1.91	0.52
17:F:278:ALA:N	17:F:299:CYS:SG	2.83	0.52
19:A:612:ILE:O	19:A:616:PHE:HB2	2.10	0.52
17:F:418:ASN:OD1	17:F:479:HIS:NE2	2.43	0.52
18:N:35:GLY:O	19:A:510:ARG:NH1	2.43	0.52
19:A:1576:ILE:HD13	19:A:1747:ILE:HG12	1.92	0.52
19:A:2124:ILE:HD11	19:A:2304:PHE:HE1	1.74	0.52
19:A:1091:TYR:OH	19:A:1441:ASP:OD2	2.21	0.52
19:A:1921:ASP:HB3	19:A:1966:HIS:CD2	2.45	0.52
6:D:8:LEU:HB2	6:D:61:VAL:HG22	1.92	0.52
18:N:450:ARG:HH11	18:N:473:LEU:HD23	1.75	0.52
4:7:433:LEU:HD21	15:J:448:LEU:HG	1.92	0.51
16:L:358:ARG:O	16:L:362:MET:HG2	2.10	0.51
19:A:168:PRO:HB3	19:A:563:GLN:HG3	1.92	0.51
2:5:102:U:H2'	2:5:103:G:H8	1.75	0.51
5:C:645:ARG:NH2	5:C:653:ILE:O	2.43	0.51
10:U:170:LEU:HD11	10:U:194:LYS:HD3	1.93	0.51
19:A:231:THR:H	19:A:234:MET:HE3	1.75	0.51
19:A:982:GLU:HG3	19:A:1169:GLN:HG2	1.92	0.51
5:C:736:GLY:N	5:C:743:ASN:O	2.39	0.51
19:A:878:LEU:O	19:A:882:LYS:HG2	2.11	0.51
19:A:1248:LEU:HD21	19:A:1295:ILE:HG22	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2222:SER:OG	19:A:2223:CYS:N	2.43	0.51
5:C:508:LYS:HB3	5:C:566:THR:HG23	1.92	0.51
16:L:97:ASN:O	16:L:100:THR:OG1	2.26	0.51
16:L:420:ILE:HB	16:L:424:LEU:HD22	1.92	0.51
18:N:353:GLN:HG3	18:N:361:VAL:HG21	1.93	0.51
18:N:936:ARG:O	18:N:938:LYS:N	2.42	0.51
19:A:1481:VAL:HG23	20:S:158:PRO:HD3	1.93	0.51
16:L:371:ILE:HG21	18:N:184:ASP:HB3	1.92	0.51
19:A:1076:ASP:O	19:A:1079:THR:OG1	2.26	0.51
19:A:1393:ARG:HA	19:A:1403:LEU:HD21	1.92	0.51
1:4:43:G:N7	9:M:44:LYS:NZ	2.57	0.51
16:L:408:ARG:HG2	19:A:1877:LEU:HD23	1.93	0.51
19:A:1264:ASN:ND2	19:A:1326:GLY:O	2.40	0.51
4:7:445:SER:O	4:7:449:LYS:HG2	2.11	0.51
17:F:272:HIS:CG	17:F:300:ALA:HB2	2.46	0.51
17:F:385:LEU:HA	17:F:409:GLU:HB3	1.92	0.51
10:U:452:PHE:HB2	10:U:550:GLN:HB2	1.91	0.51
18:N:754:GLU:OE1	18:N:789:ARG:NH1	2.36	0.51
3:6:51:U:O2'	3:6:52:U:OP1	2.27	0.51
5:C:305:GLY:O	5:C:433:MET:HG3	2.11	0.51
5:C:469:ASP:N	5:C:469:ASP:OD1	2.44	0.51
18:N:108:LEU:HD21	19:A:476:PHE:CE1	2.46	0.51
19:A:439:GLN:O	19:A:444:ARG:NH1	2.44	0.51
19:A:929:GLU:O	19:A:933:ARG:HG2	2.10	0.51
19:A:1817:LEU:HD22	19:A:1919:LEU:HD11	1.92	0.51
15:J:661:PHE:HB3	15:J:667:GLU:HA	1.92	0.51
19:A:1130:ASN:HA	19:A:1174:PHE:HE1	1.76	0.51
19:A:2133:PRO:HA	19:A:2140:LYS:HA	1.93	0.51
3:6:44:G:O3'	3:6:45:A:H3'	2.11	0.50
3:6:47:A:C4	19:A:1571:ILE:HD12	2.46	0.50
10:U:427:GLU:HG2	10:U:440:ARG:HD3	1.93	0.50
19:A:888:GLN:O	19:A:889:ARG:NH1	2.38	0.50
19:A:2212:ILE:HD12	19:A:2259:VAL:HG21	1.92	0.50
5:C:166:CYS:HB3	5:C:169:ASP:HB2	1.93	0.50
15:J:484:VAL:HG12	15:J:485:LEU:HG	1.92	0.50
16:L:407:VAL:HG13	18:N:294:ALA:HB2	1.92	0.50
1:4:17:A:H2'	1:4:18:G:H5''	1.94	0.50
2:5:102:U:H2'	2:5:103:G:C8	2.46	0.50
5:C:327:TYR:OH	5:C:372:PHE:O	2.24	0.50
5:C:152:GLN:NE2	5:C:426:GLU:HB3	2.27	0.50
5:C:159:LYS:HG3	5:C:165:LEU:H	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:192:ASP:OD1	5:C:196:LYS:N	2.44	0.50
17:F:455:VAL:HG13	17:F:465:LEU:HD11	1.93	0.50
19:A:2038:GLN:HB3	19:A:2059:THR:HB	1.92	0.50
10:U:401:TYR:HB3	19:A:725:PRO:HA	1.94	0.50
5:C:830:PRO:HG2	5:C:877:ALA:HB3	1.92	0.50
17:F:378:SER:OG	17:F:395:ARG:NE	2.44	0.50
17:F:470:TYR:CD1	17:F:494:LYS:HB3	2.46	0.50
19:A:1206:GLU:HB2	19:A:1224:ARG:CZ	2.42	0.50
18:N:186:PHE:CE1	19:A:864:LEU:HD11	2.47	0.50
19:A:994:ASN:HB2	19:A:1010:THR:HG21	1.94	0.50
19:A:1085:ILE:HG12	19:A:1099:PHE:CE1	2.46	0.50
19:A:2003:THR:HG23	19:A:2006:GLU:H	1.77	0.50
17:F:323:THR:HG23	17:F:324:VAL:HG23	1.92	0.49
19:A:1274:PHE:O	19:A:1278:VAL:HG23	2.12	0.49
19:A:1275:ARG:HD3	19:A:1373:GLN:O	2.12	0.49
15:J:573:VAL:HG22	15:J:582:VAL:HG13	1.94	0.49
19:A:99:VAL:HG13	19:A:554:THR:HG21	1.93	0.49
19:A:348:PRO:HG2	19:A:351:TYR:HB2	1.95	0.49
19:A:952:VAL:HG22	19:A:1189:MET:HB3	1.94	0.49
19:A:964:ASP:O	19:A:1100:ARG:NH2	2.30	0.49
19:A:1260:VAL:HG21	19:A:1325:LEU:HD13	1.94	0.49
15:J:497:GLU:HG2	19:A:1927:ILE:HG22	1.95	0.49
19:A:344:ASP:HB2	19:A:347:LEU:HD13	1.94	0.49
19:A:1994:LYS:HZ1	20:S:297:LYS:HG2	1.76	0.49
2:5:19:A:H4'	2:5:20:G:C8	2.47	0.49
5:C:159:LYS:HE3	5:C:164:ASP:HA	1.94	0.49
5:C:853:ARG:HB3	5:C:879:ASP:HB3	1.94	0.49
5:C:130:ARG:NE	5:C:438:ILE:O	2.45	0.49
5:C:223:ASP:OD1	5:C:495:ARG:NH1	2.45	0.49
19:A:682:ASP:N	19:A:682:ASP:OD1	2.45	0.49
2:5:23:C:C4	19:A:464:PRO:HB2	2.47	0.49
7:I:8:ASP:OD1	7:I:8:ASP:N	2.41	0.49
19:A:994:ASN:O	19:A:998:ARG:HG2	2.13	0.49
19:A:1088:PHE:CD1	19:A:1097:ILE:HG12	2.47	0.49
5:C:493:PHE:CZ	5:C:549:TRP:HB3	2.48	0.49
5:C:853:ARG:NH2	19:A:312:TYR:OH	2.46	0.49
15:J:491:GLN:NE2	19:A:2004:GLN:OE1	2.41	0.49
17:F:346:SER:OG	17:F:362:GLU:HG2	2.13	0.49
18:N:415:GLU:O	18:N:419:ALA:N	2.37	0.49
19:A:832:TYR:OH	19:A:929:GLU:OE2	2.26	0.49
19:A:1861:ILE:HB	19:A:1884:ILE:HG22	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:M:18:LEU:HD22	9:M:126:LEU:HD13	1.93	0.49
18:N:676:ARG:O	18:N:679:MET:HG3	2.13	0.49
19:A:78:ASN:HB3	19:A:81:PHE:HE1	1.78	0.49
19:A:717:TRP:CE2	19:A:746:LYS:HE3	2.48	0.49
19:A:2179:HIS:NE2	19:A:2192:ASP:OD2	2.45	0.49
3:6:69:A:OP2	15:J:528:LYS:NZ	2.46	0.49
10:U:297:HIS:O	10:U:301:GLN:HG2	2.12	0.49
19:A:419:ARG:NH2	19:A:423:ASP:O	2.46	0.49
1:4:16:C:H2'	1:4:17:A:C8	2.48	0.48
6:D:138:THR:HG21	19:A:1298:ARG:HH22	1.77	0.48
10:U:356:PHE:HE1	10:U:383:MET:HG3	1.77	0.48
16:L:234:VAL:HG13	16:L:252:LEU:HD22	1.95	0.48
19:A:265:THR:HG23	19:A:327:VAL:HG13	1.95	0.48
19:A:1634:SER:HG	19:A:2154:HIS:HE2	1.57	0.48
20:S:157:ASN:HB3	20:S:160:ALA:HB3	1.95	0.48
5:C:334:ILE:HD11	19:A:384:VAL:HG11	1.95	0.48
18:N:177:GLU:OE2	19:A:858:GLN:N	2.47	0.48
19:A:794:TYR:OH	19:A:989:ASP:OD1	2.27	0.48
19:A:1963:GLU:OE1	19:A:1970:THR:OG1	2.31	0.48
5:C:501:ILE:HD11	5:C:527:VAL:HG21	1.95	0.48
10:U:454:ILE:HG22	10:U:456:ARG:HG2	1.95	0.48
18:N:111:ARG:NH1	19:A:475:SER:OG	2.46	0.48
19:A:1565:LYS:HG2	19:A:1567:PRO:HD3	1.96	0.48
5:C:264:ILE:HD12	5:C:381:LEU:HD22	1.96	0.48
19:A:1953:ILE:HD13	19:A:1982:GLN:HG2	1.94	0.48
5:C:162:ASP:OD1	5:C:162:ASP:N	2.46	0.48
5:C:860:ASP:N	5:C:860:ASP:OD1	2.47	0.48
10:U:395:LEU:HD13	10:U:469:THR:HB	1.94	0.48
10:U:451:ILE:HG12	10:U:551:ILE:HG12	1.94	0.48
7:I:34:TYR:CZ	7:I:69:PRO:HB3	2.48	0.48
10:U:528:GLU:OE2	10:U:530:GLN:NE2	2.46	0.48
18:N:753:GLU:HG3	18:N:765:ILE:HD12	1.96	0.48
7:I:64:ASN:ND2	19:A:2051:GLY:O	2.47	0.48
10:U:139:CYS:HB3	10:U:161:HIS:HE1	1.79	0.48
16:L:159:LEU:HB2	16:L:164:ILE:HG13	1.96	0.48
18:N:726:GLU:O	18:N:730:GLU:HG2	2.14	0.48
19:A:784:LEU:O	19:A:788:GLN:HG3	2.14	0.48
3:6:67:G:H4'	15:J:518:ARG:HG2	1.95	0.48
7:I:31:GLU:HA	7:I:36:LYS:HE3	1.96	0.48
5:C:644:LEU:O	5:C:649:SER:OG	2.25	0.47
10:U:515:ARG:HD3	10:U:530:GLN:HE21	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:J:567:LEU:HB3	15:J:590:ALA:HB1	1.95	0.47
17:F:232:ARG:HG3	17:F:252:SER:HB3	1.96	0.47
18:N:646:LEU:HD11	18:N:677:VAL:HG22	1.95	0.47
19:A:605:CYS:SG	19:A:637:TRP:NE1	2.87	0.47
19:A:1368:LEU:HD11	19:A:1467:LEU:HD11	1.96	0.47
19:A:1532:ARG:HA	19:A:1568:THR:HG22	1.95	0.47
3:6:40:U:H2'	3:6:41:A:C8	2.49	0.47
19:A:66:VAL:HG11	19:A:487:LEU:HD11	1.96	0.47
19:A:713:LEU:HG	19:A:742:TYR:CE1	2.49	0.47
19:A:1542:ILE:HG23	19:A:1548:TYR:HE2	1.78	0.47
19:A:1953:ILE:HD12	19:A:1986:LEU:HD12	1.96	0.47
5:C:323:PHE:CD2	5:C:373:ILE:HG12	2.47	0.47
16:L:183:GLU:OE2	16:L:186:ARG:NH2	2.47	0.47
18:N:766:LEU:HD13	18:N:783:SER:HA	1.96	0.47
3:6:37:C:H2'	3:6:38:G:O4'	2.14	0.47
3:6:48:A:N1	19:A:1532:ARG:NH1	2.60	0.47
5:C:119:LEU:HD12	5:C:189:VAL:HG23	1.97	0.47
5:C:737:PRO:HD3	5:C:743:ASN:HD22	1.78	0.47
6:D:21:GLU:HG3	6:D:57:VAL:HG11	1.96	0.47
16:L:142:LEU:HD11	16:L:155:LEU:HD11	1.96	0.47
16:L:402:SER:HB2	18:N:292:LYS:HG2	1.95	0.47
2:5:47:A:O2'	2:5:48:A:H5''	2.15	0.47
11:X:56:LYS:O	11:X:59:GLU:HG3	2.15	0.47
17:F:465:LEU:N	17:F:477:TRP:O	2.43	0.47
18:N:834:LEU:CD1	18:N:843:VAL:HG13	2.45	0.47
19:A:579:GLN:HG3	19:A:628:GLY:O	2.14	0.47
5:C:531:TRP:HB3	5:C:538:HIS:HB3	1.97	0.47
9:M:56:MET:HG3	9:M:82:PHE:CE2	2.50	0.47
15:J:569:LEU:HB3	15:J:584:VAL:HG13	1.96	0.47
18:N:736:LEU:HD22	18:N:746:TRP:CE2	2.50	0.47
19:A:946:GLU:HB2	19:A:950:LEU:HB3	1.97	0.47
19:A:1278:VAL:HG22	19:A:1284:LEU:HD23	1.97	0.47
19:A:1797:ASN:HA	20:S:357:ALA:HA	1.96	0.47
19:A:2039:LEU:HG	19:A:2040:THR:HG23	1.97	0.47
10:U:276:ARG:NH1	10:U:298:GLU:O	2.46	0.47
10:U:505:HIS:HD2	10:U:514:TYR:CZ	2.33	0.47
18:N:916:SER:HA	18:N:921:ASN:H	1.80	0.47
19:A:777:GLY:O	19:A:781:ARG:HG2	2.15	0.47
19:A:1602:ASP:N	19:A:1602:ASP:OD1	2.48	0.47
19:A:2251:TYR:HA	19:A:2255:HIS:CE1	2.49	0.47
15:J:672:LEU:HD11	17:F:446:PRO:HD2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:N:267:VAL:HG13	18:N:268:VAL:HG23	1.97	0.47
19:A:252:ASP:OD1	19:A:252:ASP:N	2.43	0.47
19:A:948:PRO:HA	19:A:951:LEU:HG	1.96	0.47
19:A:1335:ILE:HD11	19:A:1365:ILE:HG22	1.96	0.47
19:A:1779:PHE:HE2	19:A:1812:PRO:HG3	1.79	0.47
2:5:7:U:H3'	2:5:8:G:H8	1.80	0.47
5:C:208:HIS:HB3	5:C:211:PHE:HD2	1.80	0.47
18:N:460:ILE:HG12	18:N:463:ASP:HB2	1.96	0.47
3:6:51:U:HO2'	3:6:52:U:P	2.37	0.46
16:L:122:PHE:HD1	16:L:174:THR:HG23	1.80	0.46
19:A:1088:PHE:HD1	19:A:1097:ILE:HG12	1.80	0.46
19:A:2178:ILE:HG13	19:A:2214:ILE:HB	1.97	0.46
3:6:48:A:OP1	6:D:127:ARG:NH1	2.32	0.46
10:U:101:ARG:HH21	10:U:177:ASP:HB3	1.79	0.46
19:A:595:LYS:HB3	19:A:598:LEU:HD13	1.96	0.46
19:A:1615:HIS:HD2	19:A:1617:ARG:HB2	1.80	0.46
15:J:533:LEU:HD21	15:J:567:LEU:HD23	1.97	0.46
17:F:333:PRO:HG2	17:F:374:HIS:O	2.16	0.46
19:A:488:ASP:OD2	19:A:565:ARG:NH1	2.36	0.46
19:A:977:LEU:HD13	19:A:1175:VAL:HG22	1.98	0.46
19:A:1849:ILE:HD11	19:A:1882:ILE:HD13	1.97	0.46
17:F:403:LEU:HD22	17:F:434:TRP:CD2	2.50	0.46
7:I:164:ARG:HG3	19:A:176:LEU:HD22	1.97	0.46
16:L:144:ASN:HD21	16:L:178:GLN:HB3	1.80	0.46
17:F:478:THR:HG22	17:F:485:LEU:HD11	1.96	0.46
19:A:282:LEU:HG	19:A:283:VAL:H	1.79	0.46
18:N:787:GLU:HB2	18:N:796:ALA:HB2	1.97	0.46
19:A:828:PRO:HB2	19:A:882:LYS:HE2	1.98	0.46
19:A:1005:ILE:O	19:A:1009:MET:HG3	2.16	0.46
19:A:1475:ILE:HG21	20:S:158:PRO:HD2	1.97	0.46
5:C:485:ASP:OD1	5:C:485:ASP:N	2.47	0.46
5:C:770:PHE:HE1	5:C:789:PHE:CD2	2.34	0.46
17:F:492:GLU:OE2	18:N:770:ARG:NH2	2.48	0.46
19:A:601:GLN:HG2	19:A:640:PHE:HB2	1.98	0.46
19:A:1086:ARG:NH1	19:A:1100:ARG:HB3	2.30	0.46
1:4:54:A:H3'	16:L:358:ARG:HH22	1.81	0.46
16:L:298:LYS:HD2	16:L:320:LEU:HD22	1.98	0.46
19:A:203:VAL:O	19:A:207:PHE:HB2	2.16	0.46
5:C:171:LEU:HD11	5:C:182:LYS:HD2	1.97	0.46
17:F:303:GLY:HA2	17:F:326:VAL:HG22	1.98	0.46
18:N:838:GLU:HG2	18:N:843:VAL:HG21	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:N:840:ASP:HB2	18:N:841:PRO:HD2	1.98	0.46
11:X:55:ALA:O	11:X:58:GLU:HG3	2.16	0.46
16:L:144:ASN:HB2	16:L:184:LEU:HD11	1.98	0.46
16:L:219:LEU:HD21	16:L:223:ILE:HD11	1.98	0.46
16:L:223:ILE:HD12	16:L:227:THR:HG22	1.98	0.46
18:N:429:CYS:SG	20:S:211:GLN:NE2	2.89	0.46
18:N:716:GLY:HA3	18:N:732:TYR:CE1	2.50	0.46
19:A:776:LEU:HD22	19:A:900:ASP:HB2	1.98	0.46
19:A:1143:MET:HG3	19:A:1181:ASP:HB3	1.97	0.46
5:C:347:ILE:HG22	5:C:356:PHE:HB3	1.97	0.45
6:D:72:MET:HE1	18:N:20:GLY:CA	2.46	0.45
19:A:1318:THR:HB	19:A:1324:GLY:HA3	1.97	0.45
19:A:1592:ASP:OD2	20:S:331:ARG:NH1	2.49	0.45
18:N:268:VAL:HG12	18:N:270:PRO:HD3	1.97	0.45
18:N:298:LEU:HD12	18:N:318:LEU:HD13	1.98	0.45
19:A:717:TRP:NE1	19:A:721:LYS:HD2	2.31	0.45
19:A:780:THR:HG22	19:A:898:PHE:CD1	2.50	0.45
1:4:20:A:C5	1:4:54:A:H8	2.34	0.45
4:7:444:ARG:O	4:7:448:GLU:HG3	2.17	0.45
18:N:247:ARG:HD2	18:N:317:ARG:NH1	2.30	0.45
19:A:523:ASN:OD1	19:A:552:ARG:NH1	2.49	0.45
19:A:1110:ILE:HD11	19:A:1149:LEU:HB2	1.97	0.45
18:N:710:LYS:O	18:N:714:MET:HG3	2.16	0.45
3:6:64:U:H2'	3:6:65:G:C8	2.52	0.45
3:6:66:C:O2'	15:J:518:ARG:O	2.31	0.45
16:L:428:LEU:HD11	19:A:914:LEU:HD21	1.98	0.45
17:F:202:ILE:O	17:F:207:ARG:NH2	2.50	0.45
17:F:426:SER:OG	17:F:427:GLY:N	2.50	0.45
16:L:115:ARG:HH21	18:N:855:ARG:HB2	1.82	0.45
18:N:759:LEU:HG	18:N:786:LEU:HD11	1.98	0.45
19:A:1723:LYS:HA	19:A:1726:ILE:HG22	1.98	0.45
19:A:2076:ARG:HD2	19:A:2121:ARG:HB3	1.99	0.45
1:4:20:A:H2'	1:4:21:U:C6	2.51	0.45
6:D:142:TYR:HB2	19:A:1249:MET:HG3	1.98	0.45
17:F:207:ARG:O	17:F:210:GLN:HG2	2.16	0.45
17:F:407:LEU:HG	17:F:408:LYS:HG3	1.98	0.45
18:N:202:PRO:O	19:A:1393:ARG:HD2	2.16	0.45
3:6:47:A:H3'	11:X:5:TRP:CD1	2.52	0.45
6:D:29:ARG:HH21	6:D:60:LEU:HD13	1.81	0.45
16:L:142:LEU:HD23	16:L:146:LEU:HD22	1.98	0.45
19:A:1304:ASN:OD1	19:A:1305:SER:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2088:ASN:OD1	19:A:2089:HIS:N	2.50	0.45
3:6:75:G:N7	15:J:601:ARG:NH2	2.64	0.45
5:C:618:THR:HB	5:C:630:LEU:HB2	1.98	0.45
8:K:280:LYS:HA	8:K:280:LYS:HD3	1.86	0.45
19:A:67:ARG:HH21	19:A:178:TYR:HE2	1.65	0.45
19:A:380:LEU:HD22	19:A:384:VAL:HG21	1.98	0.45
19:A:1099:PHE:CE2	19:A:1153:VAL:HG13	2.52	0.45
19:A:838:LEU:HD13	19:A:925:TYR:HA	1.99	0.45
19:A:963:GLN:HG3	19:A:1077:ILE:HG23	1.99	0.45
19:A:1641:ARG:HH21	19:A:1651:VAL:HG11	1.81	0.45
19:A:1764:SER:OG	19:A:1765:SER:N	2.49	0.45
10:U:354:ARG:HB3	10:U:442:GLN:HB3	1.99	0.44
10:U:481:ARG:HD2	10:U:489:GLN:HB2	1.98	0.44
16:L:259:LEU:HD13	16:L:262:PHE:O	2.17	0.44
18:N:365:ALA:HB1	18:N:375:ILE:HD13	1.98	0.44
20:S:148:GLU:HG3	20:S:149:GLU:H	1.82	0.44
5:C:846:VAL:HG22	5:C:887:LEU:HD11	1.98	0.44
9:M:11:TYR:CG	9:M:12:PRO:HD3	2.51	0.44
17:F:267:HIS:NE2	17:F:313:ASP:OD1	2.50	0.44
16:L:218:ASN:ND2	16:L:306:ASP:OD1	2.38	0.44
19:A:1206:GLU:OE1	19:A:1224:ARG:NH1	2.50	0.44
19:A:147:MET:HE3	19:A:191:ILE:O	2.18	0.44
19:A:2036:GLN:NE2	19:A:2061:ASN:H	2.14	0.44
3:6:44:G:C8	19:A:1557:LEU:HD11	2.52	0.44
10:U:105:CYS:HB2	10:U:181:ILE:HD12	1.98	0.44
10:U:164:PHE:CD2	10:U:175:LEU:HD13	2.52	0.44
18:N:249:THR:OG1	18:N:250:LEU:N	2.50	0.44
19:A:153:ARG:HG3	19:A:156:ARG:HH21	1.83	0.44
19:A:974:ASN:OD1	19:A:1178:TYR:HB3	2.17	0.44
19:A:2131:VAL:HA	19:A:2172:MET:HA	1.98	0.44
15:J:506:LYS:HA	15:J:506:LYS:HD3	1.87	0.44
15:J:569:LEU:HD23	15:J:586:GLY:HA3	2.00	0.44
17:F:406:HIS:NE2	17:F:432:LYS:HB2	2.33	0.44
18:N:97:ASP:OD1	18:N:97:ASP:N	2.51	0.44
19:A:1661:TRP:CE2	19:A:1700:GLY:HA3	2.53	0.44
19:A:1852:LEU:HD23	19:A:1856:GLU:HB3	2.00	0.44
19:A:1995:ASN:O	20:S:307:ARG:NH2	2.51	0.44
5:C:213:ASP:OD1	5:C:213:ASP:N	2.50	0.44
7:I:94:GLU:O	7:I:128:ARG:NH1	2.48	0.44
10:U:455:LYS:HE2	10:U:458:THR:HG22	2.00	0.44
19:A:897:GLU:O	19:A:908:VAL:N	2.44	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:1582:TRP:HB3	19:A:1620:TYR:HE1	1.83	0.44
19:A:1694:ILE:HD12	19:A:2045:ARG:HD3	2.00	0.44
3:6:47:A:H61	19:A:1567:PRO:HB2	1.83	0.44
5:C:263:LEU:HD23	5:C:267:LEU:HD12	1.98	0.44
5:C:375:GLU:HB2	5:C:376:PRO:HD3	2.00	0.44
5:C:764:ASP:N	5:C:764:ASP:OD1	2.51	0.44
17:F:431:CYS:N	17:F:445:ILE:O	2.43	0.44
18:N:378:ARG:HD2	18:N:378:ARG:HA	1.81	0.44
18:N:507:ILE:HD12	18:N:507:ILE:HA	1.87	0.44
19:A:381:PRO:O	19:A:384:VAL:HG22	2.18	0.44
19:A:488:ASP:O	19:A:492:VAL:HG23	2.18	0.44
19:A:1782:ASP:HB3	19:A:1841:THR:HG21	2.00	0.44
19:A:1820:LYS:HG2	19:A:1844:GLU:HG3	2.00	0.44
15:J:658:ARG:NH1	15:J:667:GLU:OE1	2.51	0.44
19:A:164:MET:HG2	19:A:569:VAL:HG11	2.00	0.44
19:A:1174:PHE:CZ	19:A:1176:SER:HB2	2.53	0.44
19:A:1264:ASN:O	19:A:1268:ILE:HG12	2.18	0.44
19:A:1846:ALA:HA	19:A:1849:ILE:HG22	1.99	0.44
1:4:32:G:N7	9:M:40:ASN:ND2	2.60	0.43
2:5:71:C:H2'	2:5:72:U:C6	2.53	0.43
5:C:174:GLU:HG3	5:C:181:ILE:HD12	1.99	0.43
5:C:775:ARG:HH22	10:U:149:LYS:HG2	1.82	0.43
10:U:247:PRO:HD2	10:U:449:TYR:CE2	2.53	0.43
16:L:115:ARG:HD2	16:L:126:GLU:HB2	2.00	0.43
19:A:1733:ILE:O	19:A:1737:ASN:HB2	2.17	0.43
7:I:28:ARG:NE	7:I:65:ILE:O	2.48	0.43
9:M:11:TYR:OH	9:M:80:TYR:OH	2.34	0.43
15:J:492:ASP:HB3	15:J:495:LYS:HB3	2.00	0.43
19:A:1631:LEU:HB2	19:A:1660:TYR:HB3	2.00	0.43
18:N:480:THR:O	18:N:483:VAL:HB	2.18	0.43
18:N:852:TRP:HZ2	18:N:887:GLN:HG3	1.82	0.43
19:A:1781:ASP:HB3	19:A:1808:PHE:HB2	2.01	0.43
5:C:140:HIS:CE1	5:C:230:ASP:H	2.36	0.43
5:C:224:GLY:HA3	5:C:438:ILE:HG12	2.00	0.43
5:C:724:TRP:HZ3	5:C:732:ILE:HD11	1.83	0.43
19:A:939:TRP:NE1	19:A:1049:ASP:OD2	2.48	0.43
19:A:1687:TYR:O	19:A:1693:SER:HB2	2.19	0.43
3:6:66:C:H1'	15:J:518:ARG:NH2	2.32	0.43
7:I:18:GLN:O	7:I:26:ARG:HD3	2.19	0.43
18:N:665:LEU:HD21	18:N:681:SER:HA	1.99	0.43
19:A:911:VAL:HB	19:A:916:LYS:HG3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:1232:VAL:HB	19:A:1281:THR:HG21	2.00	0.43
19:A:1809:ILE:HG21	19:A:1848:LEU:HD23	1.99	0.43
19:A:1905:LEU:HD13	19:A:1917:PHE:HZ	1.83	0.43
4:7:415:ILE:HG21	4:7:433:LEU:HD11	2.01	0.43
5:C:847:TYR:OH	5:C:860:ASP:OD2	2.33	0.43
7:I:44:ALA:O	7:I:48:VAL:HG23	2.19	0.43
10:U:503:ILE:HB	10:U:549:ILE:HB	1.99	0.43
17:F:379:LEU:HD21	17:F:400:ILE:HD12	1.99	0.43
19:A:151:MET:SD	19:A:628:GLY:HA3	2.58	0.43
19:A:689:VAL:HG21	19:A:742:TYR:HB2	2.01	0.43
19:A:1317:TYR:CD1	19:A:1327:MET:HB3	2.53	0.43
9:M:14:ALA:HB1	9:M:18:LEU:HB3	2.01	0.43
10:U:402:LYS:HB2	19:A:725:PRO:HD3	2.01	0.43
18:N:161:PRO:O	19:A:712:HIS:NE2	2.47	0.43
5:C:220:ARG:NH1	5:C:578:ARG:O	2.45	0.43
5:C:255:VAL:HG21	5:C:285:VAL:HG11	2.00	0.43
5:C:277:LYS:HD3	5:C:865:GLY:HA3	2.00	0.43
10:U:415:LEU:HD13	10:U:473:PHE:HB3	2.01	0.43
19:A:1611:LYS:NZ	19:A:2065:GLN:O	2.44	0.43
1:4:40:U:O2'	18:N:824:PRO:O	2.23	0.43
17:F:251:TRP:CD1	17:F:275:ASN:HB3	2.54	0.43
19:A:944:ASP:OD2	19:A:1435:GLY:N	2.45	0.43
19:A:1529:ILE:HD12	19:A:1529:ILE:H	1.84	0.43
19:A:2154:HIS:HB2	19:A:2182:PRO:HG2	2.01	0.43
5:C:131:ASN:ND2	5:C:441:PRO:HG3	2.34	0.43
10:U:247:PRO:HD2	10:U:449:TYR:HE2	1.84	0.43
19:A:139:VAL:HG11	19:A:212:PRO:HG2	2.00	0.43
19:A:802:THR:HG23	19:A:805:GLU:H	1.82	0.43
5:C:265:LEU:HD22	5:C:385:VAL:HG11	2.01	0.42
16:L:406:ARG:O	18:N:289:ASN:HB3	2.19	0.42
18:N:119:ARG:O	18:N:122:GLN:HG3	2.18	0.42
19:A:260:LEU:HD23	19:A:260:LEU:HA	1.86	0.42
19:A:731:LEU:HD21	19:A:739:ILE:HD12	2.01	0.42
19:A:1544:ARG:HG3	19:A:1670:ASP:HB2	2.00	0.42
19:A:1668:TRP:HH2	19:A:1747:ILE:HD11	1.84	0.42
20:S:294:LEU:HD23	20:S:294:LEU:HA	1.90	0.42
1:4:18:G:OP1	16:L:419:ARG:HD2	2.18	0.42
4:7:437:ARG:O	4:7:440:GLU:HG3	2.18	0.42
5:C:225:VAL:N	5:C:252:ALA:O	2.47	0.42
10:U:366:PRO:HG2	10:U:369:GLU:HB2	2.01	0.42
10:U:459:LYS:HA	10:U:464:VAL:HA	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:N:202:PRO:HD3	19:A:1402:ARG:HG2	2.01	0.42
19:A:380:LEU:HD23	19:A:380:LEU:HA	1.91	0.42
15:J:482:MET:HG3	19:A:1772:PHE:CG	2.54	0.42
16:L:68:GLU:CB	16:L:99:LEU:HD11	2.49	0.42
17:F:420:TYR:HB2	17:F:437:ARG:HG3	2.01	0.42
19:A:1792:LYS:HG3	20:S:268:GLU:HG3	2.00	0.42
5:C:137:HIS:HB3	5:C:140:HIS:CE1	2.55	0.42
6:D:110:GLN:NE2	6:D:114:ASP:OD1	2.51	0.42
17:F:389:GLY:H	17:F:403:LEU:HB2	1.84	0.42
19:A:86:ARG:HD2	19:A:86:ARG:HA	1.82	0.42
19:A:1382:SER:HB2	19:A:1416:ILE:H	1.85	0.42
19:A:1645:LEU:HB2	19:A:1714:ALA:HB3	2.00	0.42
19:A:1892:PRO:HG3	19:A:1941:ARG:CZ	2.49	0.42
7:I:54:LEU:HD13	7:I:70:PHE:HD1	1.84	0.42
16:L:169:VAL:HG13	19:A:810:TYR:CG	2.55	0.42
19:A:530:LEU:HG	19:A:534:GLU:HB3	2.01	0.42
20:S:329:LYS:N	20:S:330:PRO:HD2	2.34	0.42
3:6:45:A:H2'	3:6:45:A:N3	2.34	0.42
9:M:91:ARG:HA	9:M:91:ARG:HD3	1.88	0.42
15:J:497:GLU:OE2	15:J:501:ARG:NE	2.53	0.42
18:N:362:VAL:HG13	18:N:375:ILE:HG22	2.01	0.42
5:C:918:ILE:HD12	5:C:932:GLU:HB2	2.00	0.42
17:F:282:HIS:HB3	17:F:285:SER:HB2	2.02	0.42
5:C:141:GLY:HA3	5:C:258:ASN:HD22	1.85	0.42
5:C:847:TYR:CE1	5:C:857:VAL:HG21	2.55	0.42
11:X:25:PRO:HB3	19:A:2038:GLN:NE2	2.35	0.42
11:X:75:ALA:O	11:X:78:GLU:HG3	2.19	0.42
15:J:541:VAL:HG21	15:J:641:ARG:HG3	2.01	0.42
16:L:298:LYS:HB2	16:L:324:ILE:HD11	2.02	0.42
17:F:226:SER:O	18:N:763:ARG:NH1	2.47	0.42
17:F:365:SER:HB3	17:F:386:ASP:OD1	2.19	0.42
18:N:157:TRP:HB3	19:A:701:ILE:CD1	2.50	0.42
19:A:1593:LEU:HD12	19:A:1664:ILE:HD11	2.00	0.42
19:A:1934:SER:O	19:A:1937:ILE:HG22	2.20	0.42
2:5:77:G:O2'	2:5:78:U:OP1	2.31	0.42
3:6:66:C:H2'	3:6:67:G:C8	2.55	0.42
5:C:181:ILE:HG22	5:C:182:LYS:HG3	2.01	0.42
5:C:531:TRP:HZ3	5:C:553:GLU:HB3	1.84	0.42
5:C:857:VAL:HG22	5:C:873:ALA:HB2	2.02	0.42
19:A:583:ALA:HB1	19:A:609:LYS:HD3	2.01	0.42
19:A:733:THR:OG1	19:A:734:PRO:HD3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2178:ILE:HA	19:A:2214:ILE:O	2.20	0.42
5:C:213:ASP:HB2	5:C:615:PRO:HB2	2.01	0.42
17:F:445:ILE:HD11	17:F:482:TRP:CD1	2.55	0.42
18:N:626:ALA:O	18:N:630:ILE:HG13	2.19	0.42
19:A:788:GLN:HG2	19:A:1024:HIS:HB3	2.00	0.42
9:M:11:TYR:CD1	9:M:12:PRO:HD3	2.55	0.41
16:L:408:ARG:NH1	19:A:1879:PHE:O	2.53	0.41
17:F:124:GLU:OE2	17:F:132:ARG:NE	2.44	0.41
18:N:635:PHE:HD1	18:N:638:ASN:ND2	2.18	0.41
19:A:947:PRO:HB2	19:A:949:PRO:HD2	2.01	0.41
19:A:1652:MET:HG3	19:A:1652:MET:O	2.20	0.41
2:5:56:C:H4'	19:A:100:LEU:HD21	2.02	0.41
4:7:482:THR:HG22	4:7:483:ALA:N	2.29	0.41
10:U:270:MET:HB3	10:U:333:ALA:HB2	2.02	0.41
18:N:662:ARG:HD2	18:N:662:ARG:HA	1.81	0.41
18:N:743:THR:HG21	18:N:776:ASN:HD21	1.84	0.41
19:A:605:CYS:HG	19:A:637:TRP:HE1	1.62	0.41
19:A:1093:ASP:N	19:A:1093:ASP:OD1	2.50	0.41
19:A:1272:THR:HB	19:A:1275:ARG:HH21	1.85	0.41
19:A:1468:ASN:OD1	19:A:1469:ASN:N	2.53	0.41
19:A:1872:LEU:HD23	19:A:1872:LEU:HA	1.93	0.41
1:4:2:G:H22	3:6:73:A:H2	1.68	0.41
5:C:525:CYS:SG	5:C:558:PRO:HG3	2.60	0.41
15:J:594:PHE:O	15:J:597:LEU:HB3	2.20	0.41
18:N:254:ARG:HG3	18:N:273:TYR:HB3	2.03	0.41
1:4:20:A:N3	1:4:54:A:H1'	2.35	0.41
5:C:490:PHE:HE2	5:C:613:SER:HB2	1.85	0.41
17:F:260:VAL:HG11	17:F:506:LEU:HD13	2.01	0.41
18:N:649:VAL:HG22	18:N:664:LEU:HB3	2.03	0.41
18:N:679:MET:HB2	18:N:714:MET:HE1	2.03	0.41
18:N:831:VAL:HG13	18:N:847:VAL:HG22	2.01	0.41
19:A:268:ALA:HA	19:A:282:LEU:HD22	2.02	0.41
19:A:1890:GLN:N	19:A:2013:GLY:HA3	2.35	0.41
7:I:28:ARG:HA	7:I:28:ARG:HD2	1.87	0.41
16:L:347:LEU:HD12	16:L:351:ARG:HH22	1.85	0.41
17:F:389:GLY:O	17:F:403:LEU:N	2.52	0.41
17:F:393:ASP:HB2	17:F:400:ILE:HG13	2.03	0.41
17:F:414:ASN:ND2	17:F:456:LYS:HG3	2.35	0.41
19:A:211:GLN:OE1	19:A:214:ARG:NH1	2.53	0.41
19:A:698:PRO:HD2	19:A:701:ILE:HD11	2.02	0.41
19:A:951:LEU:HD11	19:A:1190:CYS:SG	2.61	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:1808:PHE:HZ	19:A:1897:LEU:HG	1.85	0.41
5:C:142:LYS:O	5:C:146:VAL:HG23	2.21	0.41
5:C:221:ILE:HB	5:C:495:ARG:HB2	2.02	0.41
10:U:260:LYS:O	10:U:264:ARG:NH1	2.52	0.41
10:U:428:LYS:HE2	10:U:430:TYR:HE1	1.84	0.41
18:N:167:ARG:HB3	18:N:171:GLN:HB2	2.01	0.41
19:A:441:VAL:HG22	19:A:444:ARG:NH2	2.36	0.41
19:A:2104:TYR:HD1	19:A:2140:LYS:H	1.69	0.41
5:C:703:GLU:HG2	5:C:740:THR:HG21	2.01	0.41
5:C:924:GLN:HB3	5:C:928:HIS:HB2	2.03	0.41
18:N:149:LEU:HD23	19:A:734:PRO:HB2	2.02	0.41
18:N:845:LEU:HD23	18:N:845:LEU:HA	1.86	0.41
19:A:171:ASP:N	19:A:171:ASP:OD1	2.50	0.41
19:A:962:LEU:HD22	19:A:1086:ARG:HD3	2.03	0.41
19:A:1130:ASN:HA	19:A:1174:PHE:CE1	2.53	0.41
19:A:1232:VAL:HG11	19:A:1284:LEU:HD22	2.03	0.41
19:A:1667:ARG:HD2	19:A:1679:TYR:CD2	2.55	0.41
19:A:1790:ILE:HD11	20:S:266:PHE:CE1	2.55	0.41
1:4:6:U:H2'	1:4:7:G:C8	2.56	0.41
5:C:532:ILE:HB	5:C:539:ILE:HB	2.02	0.41
5:C:705:VAL:HG12	5:C:709:TRP:CZ3	2.56	0.41
15:J:661:PHE:CD2	15:J:670:TRP:HB2	2.56	0.41
17:F:307:LEU:HD12	17:F:317:ALA:HB3	2.02	0.41
18:N:348:GLU:OE2	18:N:351:ARG:NH2	2.46	0.41
19:A:149:ILE:HG13	19:A:244:GLN:HG3	2.01	0.41
19:A:246:LEU:HD11	19:A:411:PHE:CE2	2.56	0.41
19:A:832:TYR:HB3	19:A:835:ASP:HB2	2.03	0.41
19:A:1074:PHE:CD2	19:A:1080:GLU:HG2	2.56	0.41
19:A:1353:PHE:CD1	20:S:153:ALA:HB2	2.56	0.41
20:S:259:VAL:HG22	20:S:289:LEU:HB2	2.03	0.41
5:C:215:VAL:HG11	5:C:242:LEU:HD22	2.03	0.41
5:C:434:CYS:O	5:C:438:ILE:HB	2.20	0.41
5:C:445:ALA:O	5:C:449:ILE:HG12	2.21	0.41
10:U:139:CYS:HB3	10:U:161:HIS:CE1	2.56	0.41
10:U:144:GLN:HB2	10:U:151:HIS:HD2	1.86	0.41
18:N:195:GLU:HB3	19:A:1425:LYS:HE2	2.01	0.41
19:A:175:PRO:HD3	19:A:520:TYR:CD1	2.55	0.41
19:A:417:ARG:NH1	19:A:418:THR:O	2.54	0.41
19:A:1090:ARG:HG2	19:A:1091:TYR:O	2.20	0.41
5:C:167:TYR:CE2	5:C:535:ALA:HB3	2.55	0.41
5:C:474:LEU:HB3	5:C:567:GLU:HG3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:L:103:ILE:HG21	16:L:201:LYS:HB2	2.03	0.41
16:L:298:LYS:HA	16:L:298:LYS:HD3	1.85	0.41
17:F:308:TRP:CH2	17:F:315:PRO:HG3	2.56	0.41
19:A:92:LEU:HD23	19:A:92:LEU:HA	1.93	0.41
19:A:901:LEU:HB2	19:A:904:HIS:O	2.21	0.41
19:A:1816:GLN:HB3	19:A:1916:LEU:HD11	2.03	0.41
19:A:1892:PRO:HD2	19:A:1937:ILE:HD11	2.03	0.41
5:C:483:SER:OG	5:C:487:GLY:HA2	2.20	0.40
6:D:72:MET:HE1	18:N:20:GLY:HA2	2.03	0.40
7:I:100:ARG:HD3	7:I:123:LEU:HD22	2.02	0.40
18:N:325:LEU:O	18:N:329:ARG:HG3	2.21	0.40
19:A:1053:LEU:HD21	19:A:1088:PHE:CG	2.56	0.40
19:A:1099:PHE:HZ	19:A:1157:ILE:HD11	1.85	0.40
19:A:1260:VAL:HG21	19:A:1325:LEU:HB3	2.03	0.40
19:A:1292:GLU:HG3	19:A:1327:MET:HE2	2.03	0.40
19:A:2153:THR:HG22	19:A:2154:HIS:N	2.35	0.40
2:5:68:C:N4	19:A:217:ARG:HH22	2.19	0.40
2:5:110:C:H2'	2:5:111:A:H8	1.85	0.40
18:N:102:ASP:OD2	19:A:658:ARG:NH2	2.55	0.40
19:A:1504:GLU:HG3	19:A:1754:TYR:CE1	2.56	0.40
2:5:20:G:H2'	2:5:21:A:C8	2.56	0.40
5:C:605:ASP:O	5:C:608:ARG:HG2	2.21	0.40
9:M:55:VAL:HB	9:M:102:CYS:SG	2.61	0.40
10:U:277:PHE:O	10:U:281:MET:HG2	2.21	0.40
19:A:101:LYS:HA	19:A:101:LYS:HD2	1.91	0.40
19:A:101:LYS:HG3	19:A:473:PHE:CE2	2.56	0.40
19:A:907:PRO:HG2	19:A:1032:ARG:NH1	2.36	0.40
19:A:1798:LEU:HG	20:S:356:THR:O	2.21	0.40
19:A:1841:THR:O	19:A:1845:VAL:HG23	2.22	0.40
19:A:2110:VAL:HG23	19:A:2271:PHE:CE1	2.39	0.40
5:C:480:LYS:HE3	5:C:480:LYS:HB3	1.88	0.40
5:C:614:TYR:HB2	5:C:617:LEU:HB2	2.03	0.40
10:U:172:PHE:HB2	10:U:181:ILE:HB	2.02	0.40
10:U:432:THR:OG1	10:U:435:GLU:O	2.26	0.40
15:J:634:TRP:CZ2	15:J:636:GLY:HA3	2.56	0.40
19:A:645:THR:O	19:A:649:GLU:HG2	2.21	0.40
19:A:988:ILE:HG12	19:A:1044:TYR:CE2	2.56	0.40
19:A:1207:PHE:HE2	19:A:1210:LYS:HD2	1.86	0.40
19:A:1615:HIS:CD2	19:A:1617:ARG:HB2	2.56	0.40
19:A:1994:LYS:HZ1	20:S:297:LYS:HA	1.84	0.40
5:C:158:ARG:HA	5:C:158:ARG:HD3	1.83	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:268:LYS:HE3	19:A:402:ILE:HG21	2.02	0.40
5:C:507:VAL:HA	5:C:568:PRO:HD3	2.03	0.40
15:J:582:VAL:HG11	15:J:598:MET:HE1	2.03	0.40
19:A:927:TRP:CZ2	19:A:1438:VAL:HG21	2.56	0.40
19:A:1184:ASN:OD1	19:A:1195:ARG:HD3	2.22	0.40
19:A:2306:HIS:HB3	19:A:2309:HIS:CD2	2.51	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	
4	7	79/793 (10%)	77 (98%)	2 (2%)	0	100	100
5	C	834/972 (86%)	815 (98%)	19 (2%)	0	100	100
6	D	139/142 (98%)	138 (99%)	1 (1%)	0	100	100
7	I	181/312 (58%)	176 (97%)	5 (3%)	0	100	100
8	K	29/439 (7%)	29 (100%)	0	0	100	100
9	M	122/128 (95%)	122 (100%)	0	0	100	100
10	U	454/565 (80%)	447 (98%)	7 (2%)	0	100	100
11	X	78/376 (21%)	78 (100%)	0	0	100	100
12	r	87/199 (44%)	86 (99%)	1 (1%)	0	100	100
15	J	220/683 (32%)	217 (99%)	3 (1%)	0	100	100
16	L	372/499 (74%)	365 (98%)	7 (2%)	0	100	100
17	F	400/522 (77%)	387 (97%)	13 (3%)	0	100	100
18	N	823/941 (88%)	799 (97%)	24 (3%)	0	100	100
19	A	2243/2335 (96%)	2208 (98%)	35 (2%)	0	100	100
20	S	138/800 (17%)	137 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	6199/9706 (64%)	6081 (98%)	118 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	7	71/709 (10%)	71 (100%)	0	100	100
5	C	738/866 (85%)	738 (100%)	0	100	100
6	D	129/130 (99%)	129 (100%)	0	100	100
7	I	166/293 (57%)	166 (100%)	0	100	100
8	K	1/395 (0%)	1 (100%)	0	100	100
9	M	108/111 (97%)	108 (100%)	0	100	100
10	U	417/511 (82%)	415 (100%)	2 (0%)	88	94
11	X	68/333 (20%)	68 (100%)	0	100	100
12	r	84/181 (46%)	84 (100%)	0	100	100
15	J	193/599 (32%)	193 (100%)	0	100	100
16	L	299/424 (70%)	299 (100%)	0	100	100
17	F	344/442 (78%)	344 (100%)	0	100	100
18	N	547/792 (69%)	547 (100%)	0	100	100
19	A	1942/2108 (92%)	1940 (100%)	2 (0%)	93	98
20	S	121/681 (18%)	120 (99%)	1 (1%)	81	92
All	All	5228/8575 (61%)	5223 (100%)	5 (0%)	93	98

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
10	U	166	ASN
10	U	288	ARG

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Mol	Chain	Res	Type
19	A	1014	ASN
19	A	1370	ARG
20	S	252	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
6	D	32	HIS
7	I	64	ASN
9	M	28	GLN
9	M	115	GLN
10	U	530	GLN
11	X	39	ASN
12	r	107	ASN
15	J	480	ASN
15	J	515	ASN
16	L	97	ASN
16	L	425	GLN
17	F	414	ASN
17	F	421	HIS
17	F	429	ASN
18	N	308	HIS
19	A	1014	ASN
19	A	1615	HIS
19	A	2036	GLN
19	A	2255	HIS
19	A	2309	HIS
20	S	211	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	4	62/144 (43%)	14 (22%)	0
13	z1	10/11 (90%)	5 (50%)	0
14	z2	3/4 (75%)	0	0
2	5	114/117 (97%)	32 (28%)	2 (1%)
3	6	42/106 (39%)	10 (23%)	3 (7%)
All	All	231/382 (60%)	61 (26%)	5 (2%)

All (61) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	4	9	G
1	4	11	A
1	4	22	C
1	4	25	A
1	4	36	U
1	4	39	A
1	4	40	U
1	4	41	C
1	4	44	A
1	4	45	G
1	4	53	U
1	4	55	U
1	4	58	C
1	4	61	A
2	5	8	G
2	5	9	G
2	5	10	U
2	5	20	G
2	5	21	A
2	5	22	U
2	5	23	C
2	5	24	G
2	5	25	C
2	5	26	A
2	5	28	A
2	5	36	C
2	5	39	C
2	5	44	A
2	5	45	C
2	5	57	G
2	5	68	C
2	5	69	A
2	5	78	U
2	5	79	C
2	5	80	U
2	5	83	A
2	5	84	C
2	5	88	A
2	5	89	U
2	5	90	U
2	5	91	U
2	5	92	U
2	5	93	U

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Mol	Chain	Res	Type
2	5	94	U
2	5	95	G
2	5	117	A
3	6	45	A
3	6	46	G
3	6	47	A
3	6	49	G
3	6	51	U
3	6	52	U
3	6	53	A
3	6	71	G
3	6	77	C
3	6	78	A
13	z1	-2	A
13	z1	1	G
13	z1	2	U
13	z1	4	A
13	z1	5	G

All (5) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	5	77	G
2	5	78	U
3	6	45	A
3	6	51	U
3	6	77	C

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](#)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	IHP	A	2401	-	36,36,36	0.74	0	54,60,60	1.09	1 (1%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	IHP	A	2401	-	-	1/30/54/54	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	A	2401	IHP	C3-C2-C1	2.80	116.54	110.41

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
21	A	2401	IHP	C4-O14-P4-O34

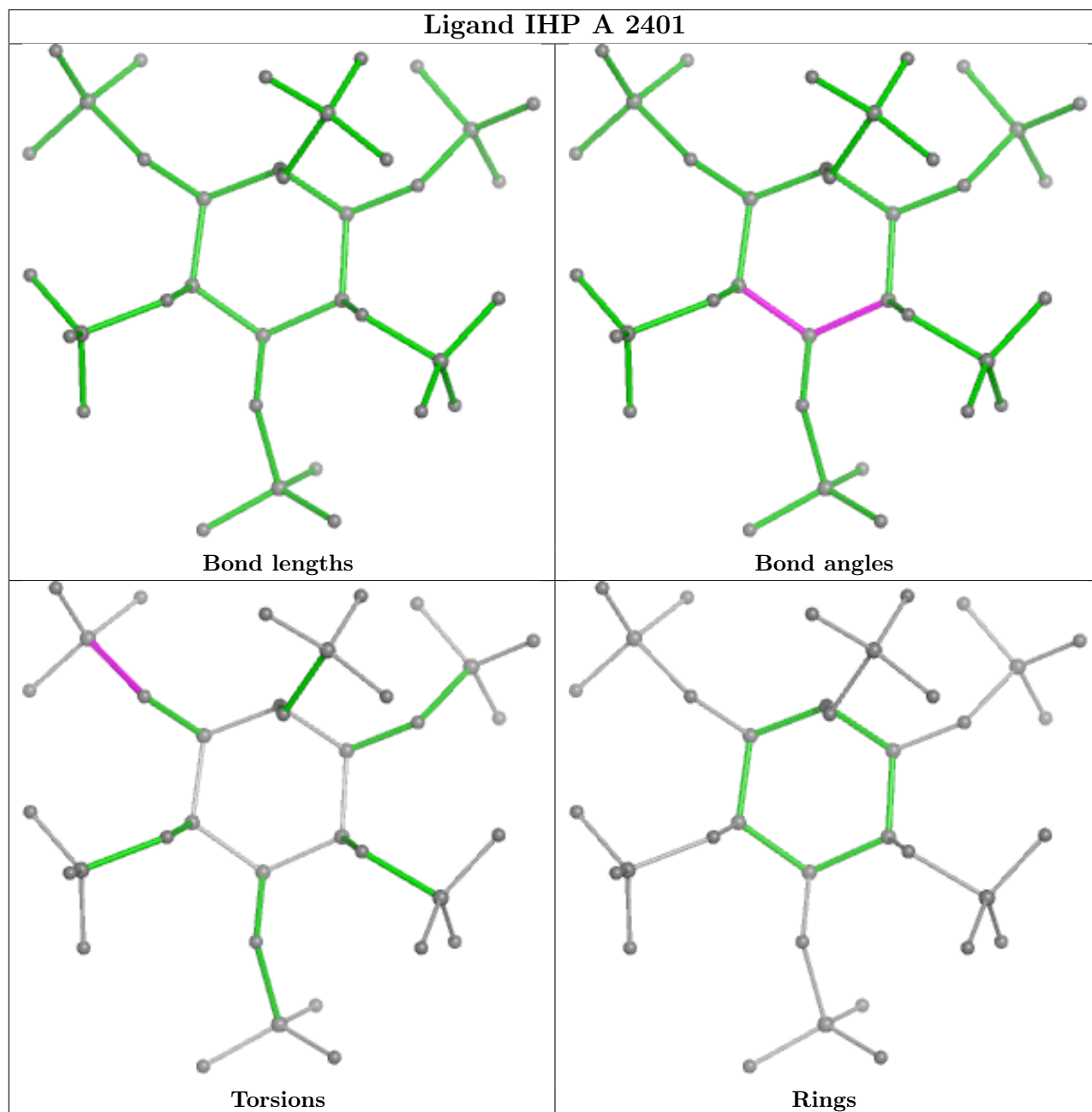
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
21	A	2401	IHP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier.

Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

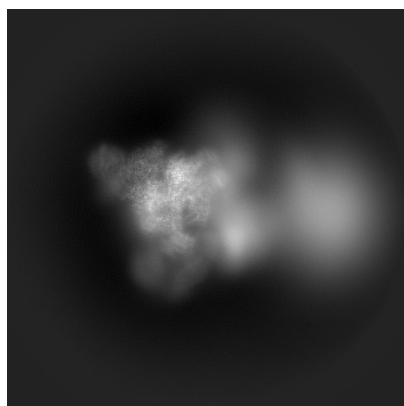
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18548. These allow visual inspection of the internal detail of the map and identification of artifacts.

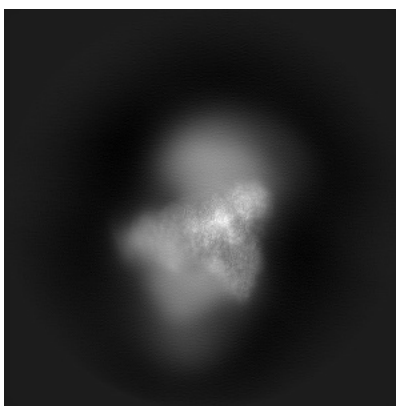
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

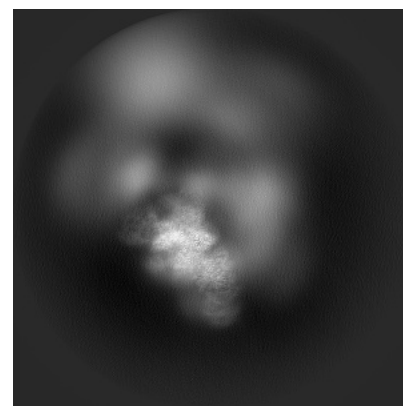
6.1.1 Primary map



X

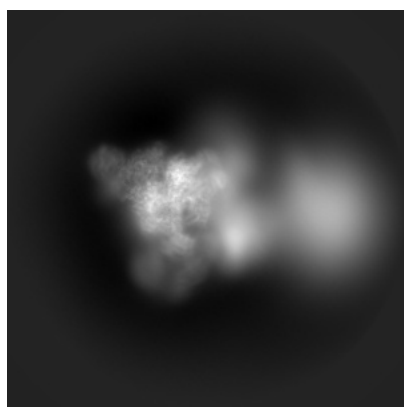


Y

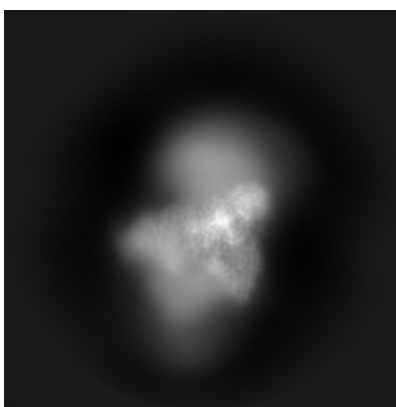


Z

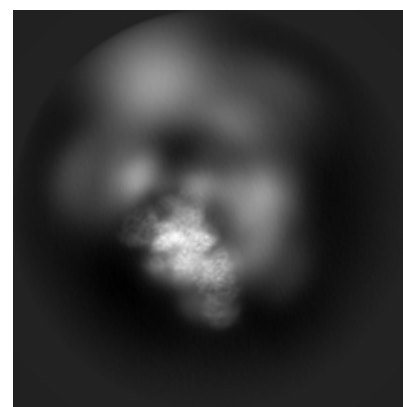
6.1.2 Raw map



X



Y



Z

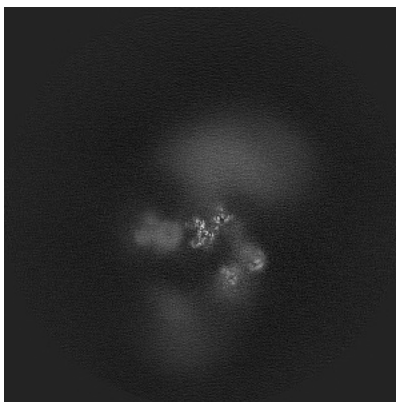
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

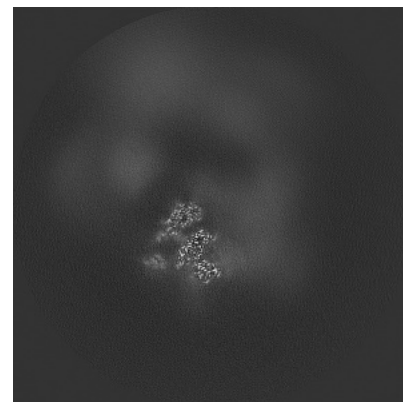
6.2.1 Primary map



X Index: 250

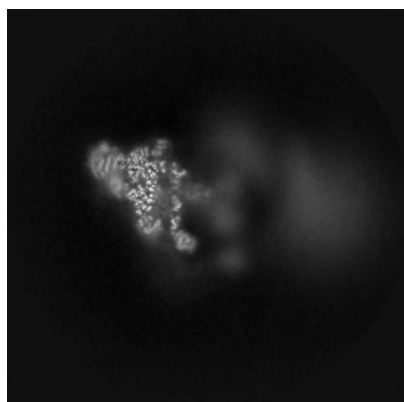


Y Index: 250

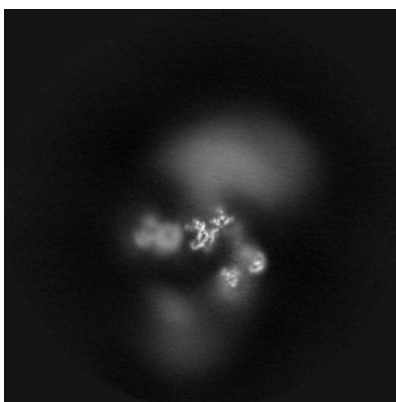


Z Index: 250

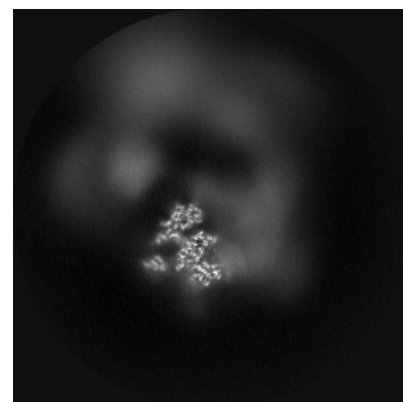
6.2.2 Raw map



X Index: 250



Y Index: 250

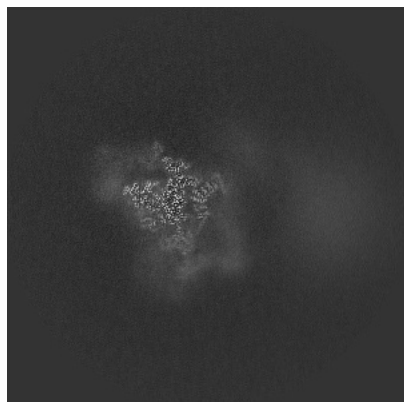


Z Index: 250

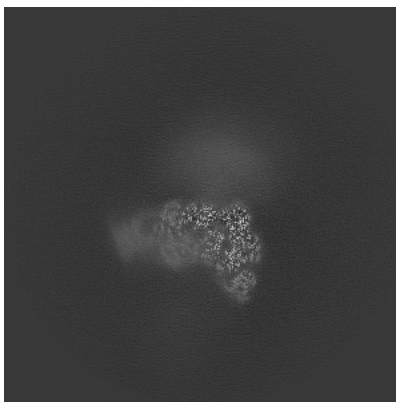
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

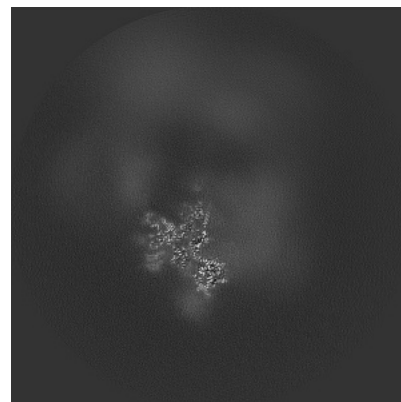
6.3.1 Primary map



X Index: 233

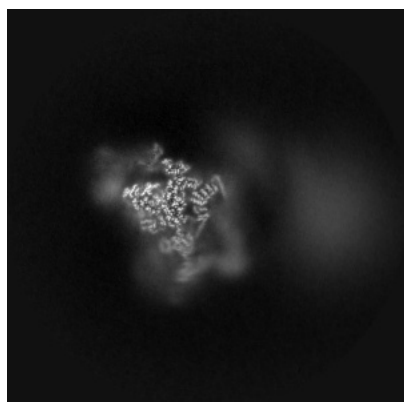


Y Index: 213

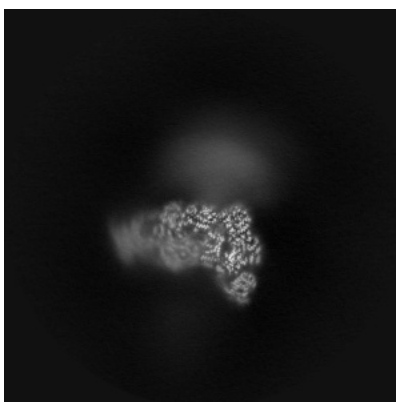


Z Index: 266

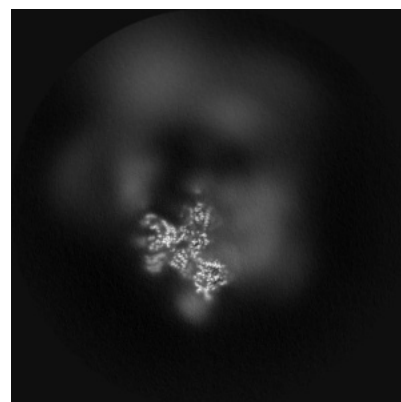
6.3.2 Raw map



X Index: 233



Y Index: 213

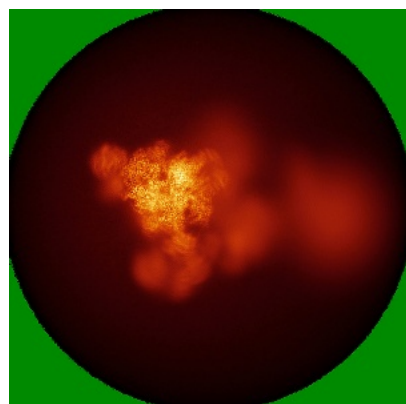


Z Index: 267

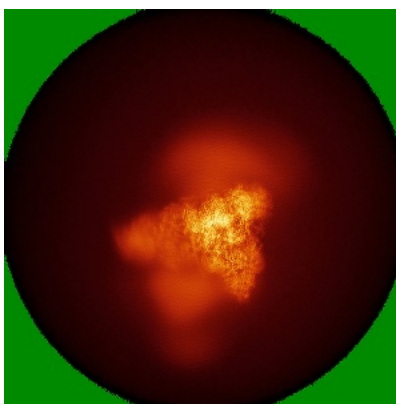
The images above show the largest variance slices of the map in three orthogonal directions.

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

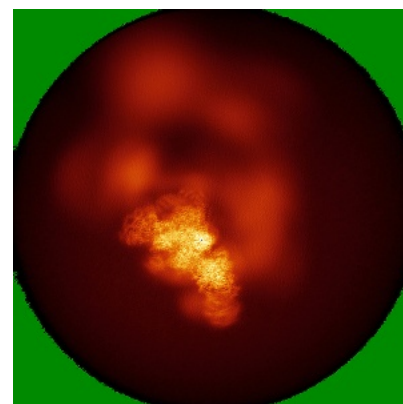
6.4.1 Primary map



X

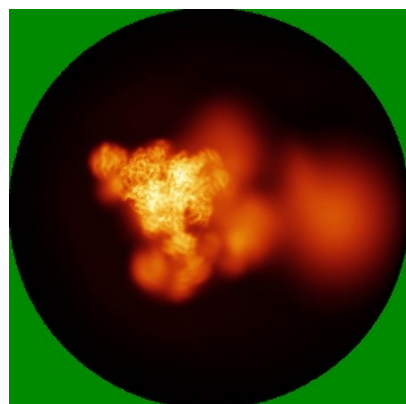


Y

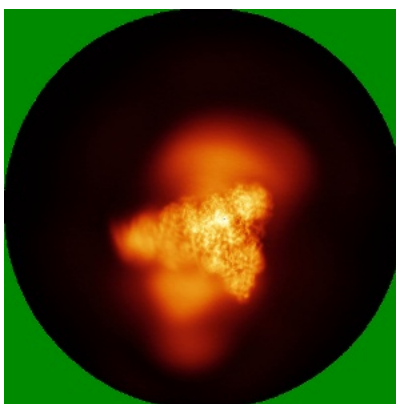


Z

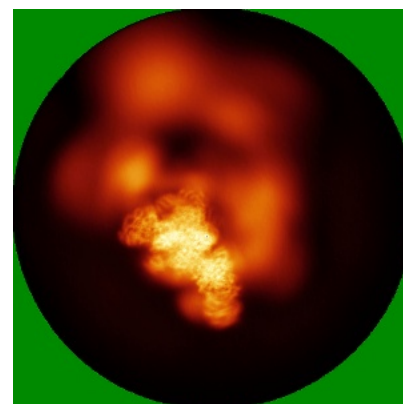
6.4.2 Raw map



X



Y

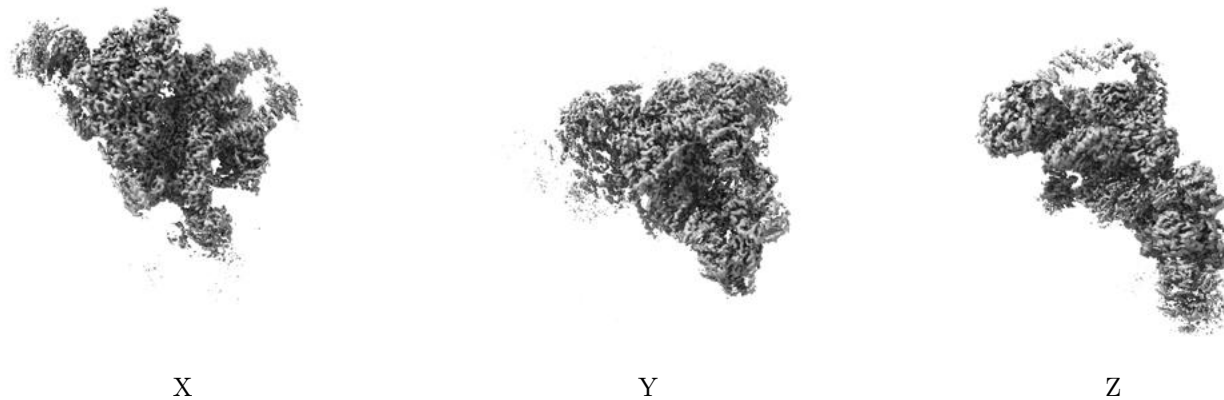


Z

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 0.085. 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.

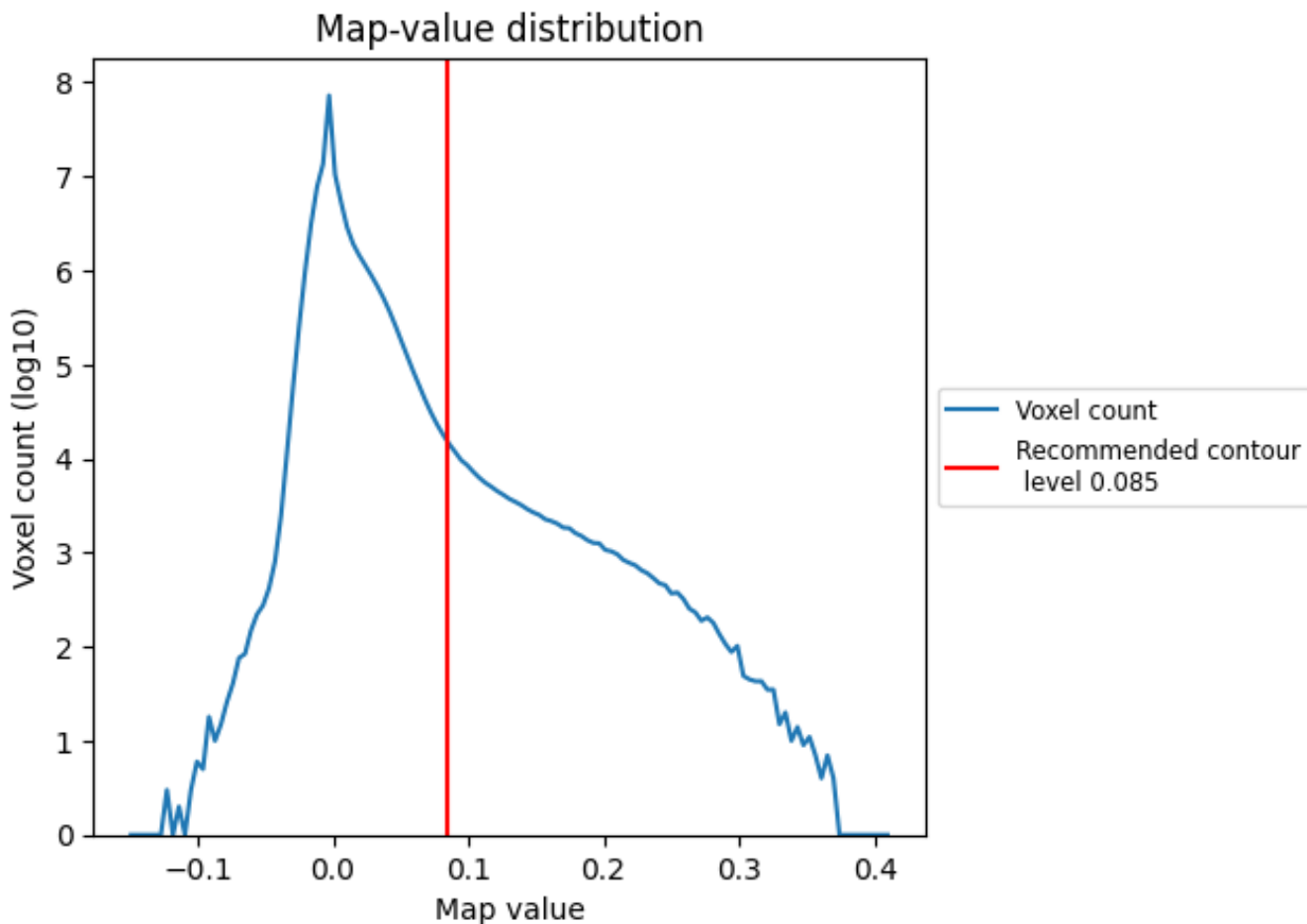
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

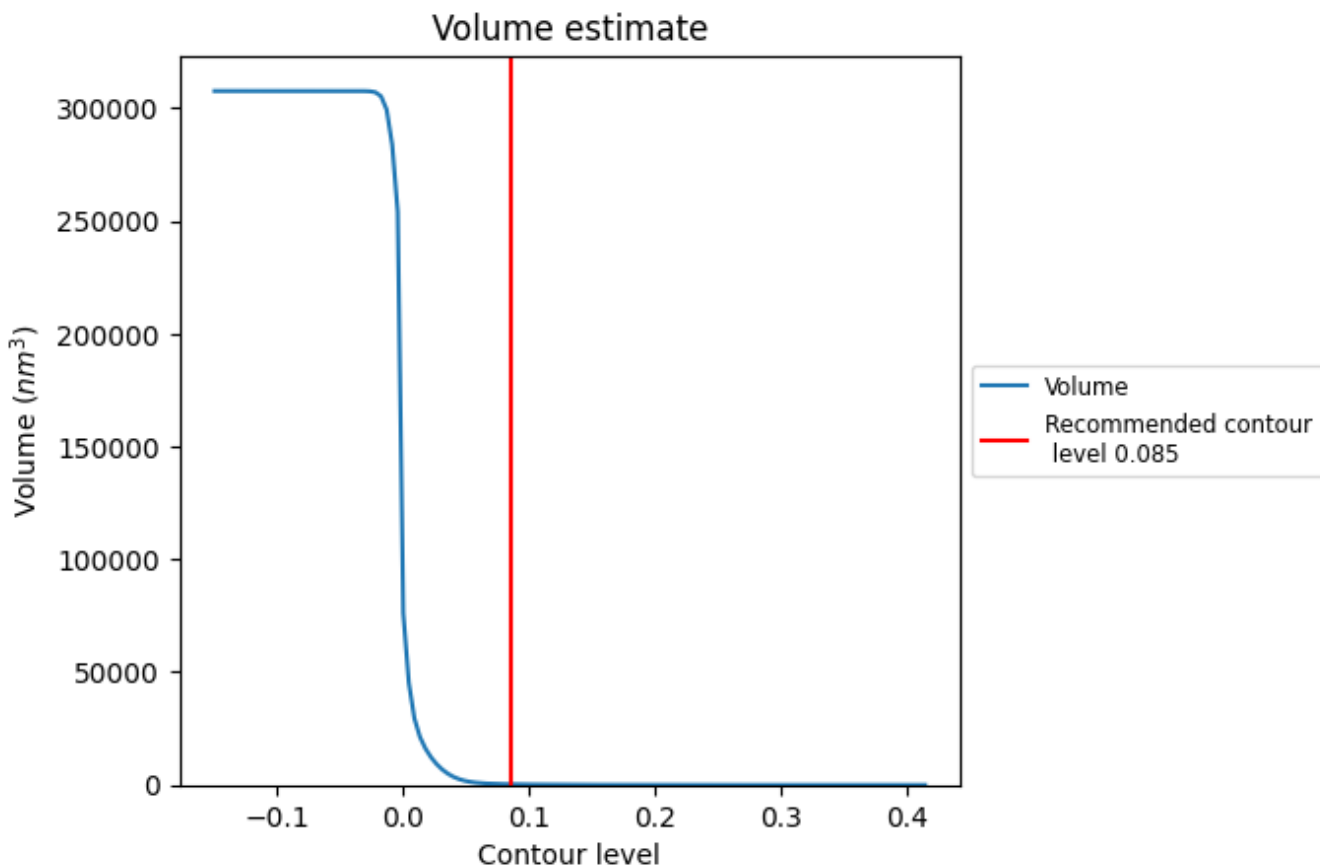
This section contains the results of statistical analysis of the map.

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.

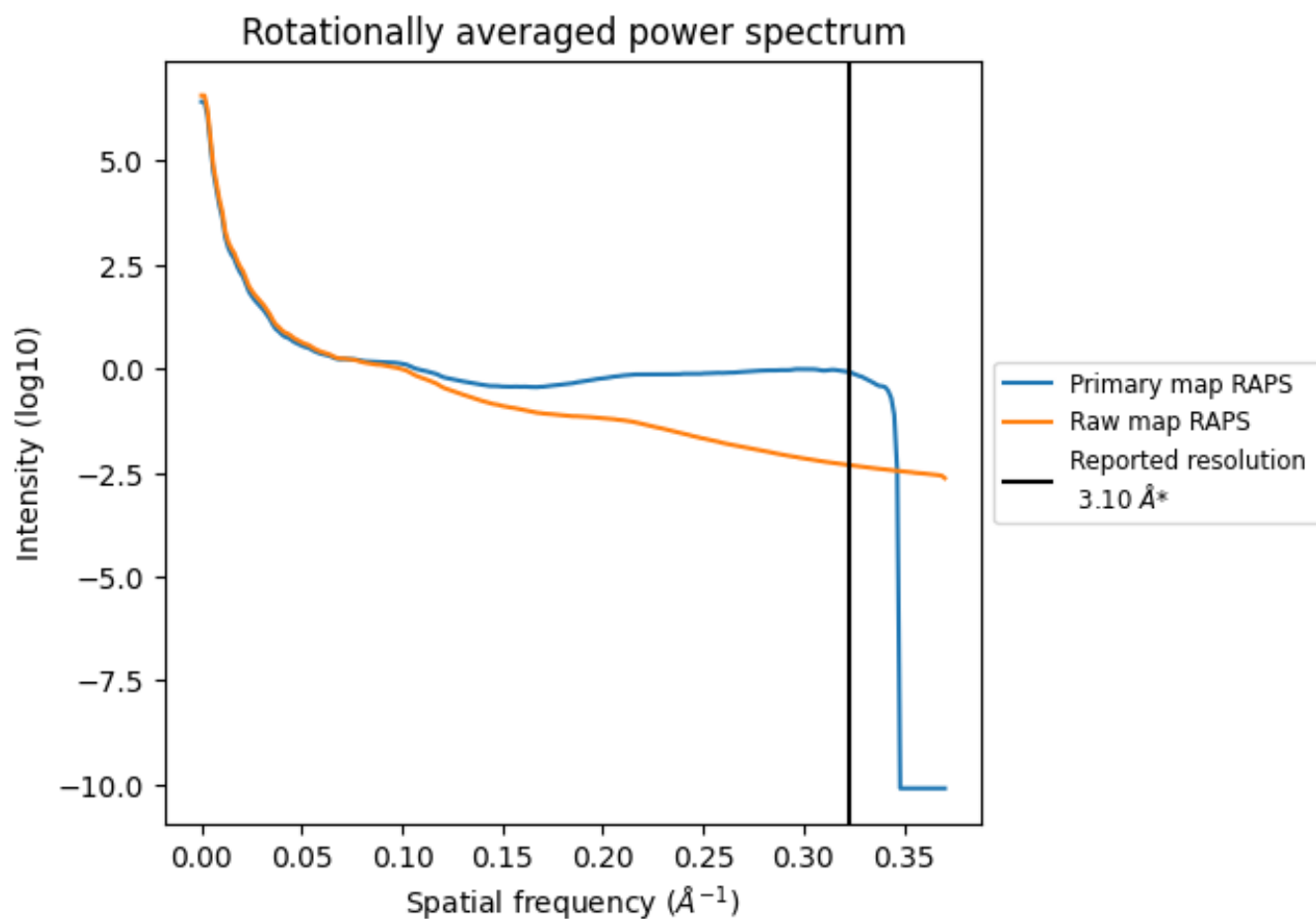
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 313 nm^3 ; this corresponds to an approximate mass of 283 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

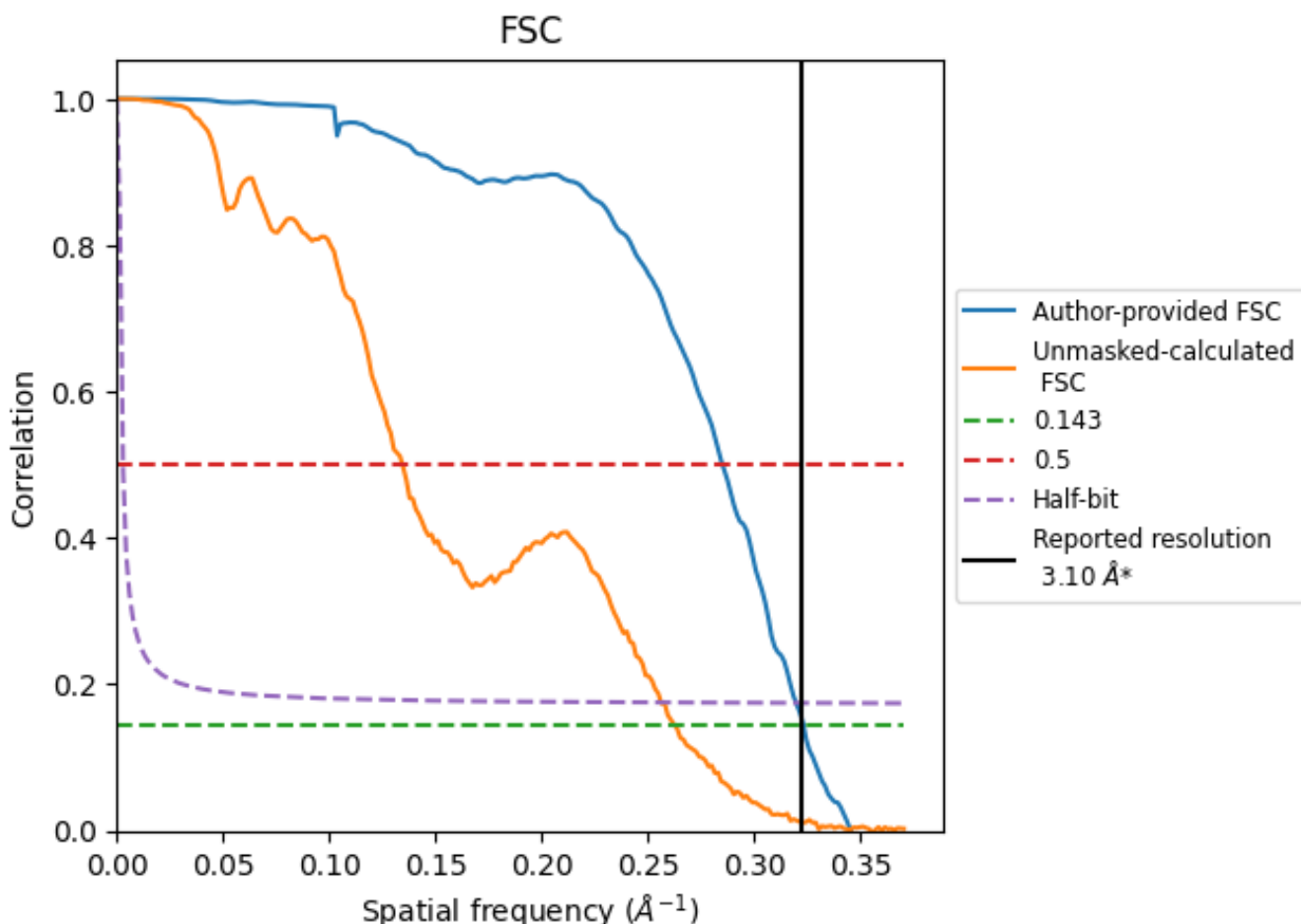


*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

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 0.323 Å⁻¹

8.2 Resolution estimates [i](#)

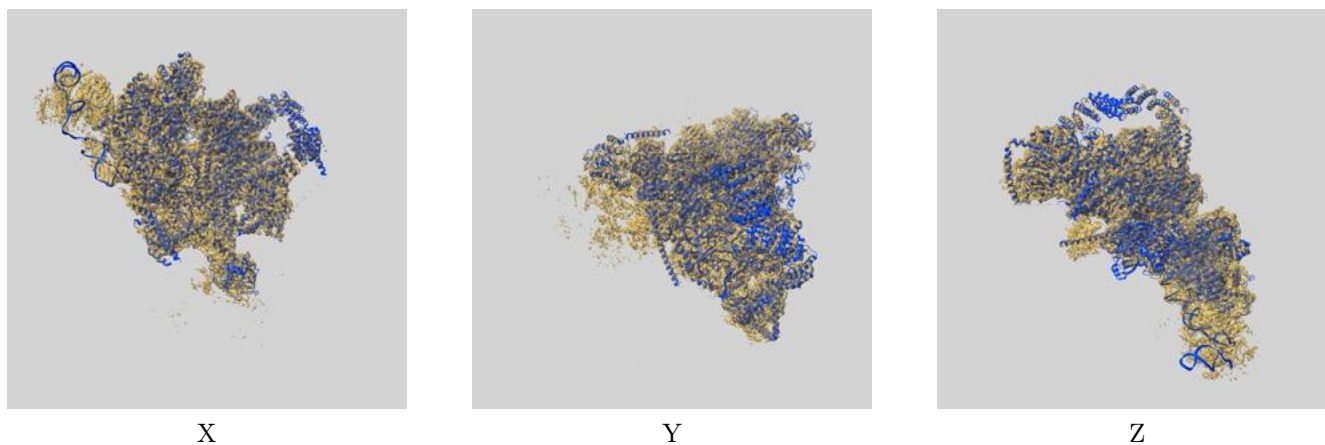
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.09	3.51	3.13
Unmasked-calculated*	3.81	7.44	3.90

*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 3.81 differs from the reported value 3.1 by more than 10 %

9 Map-model fit [i](#)

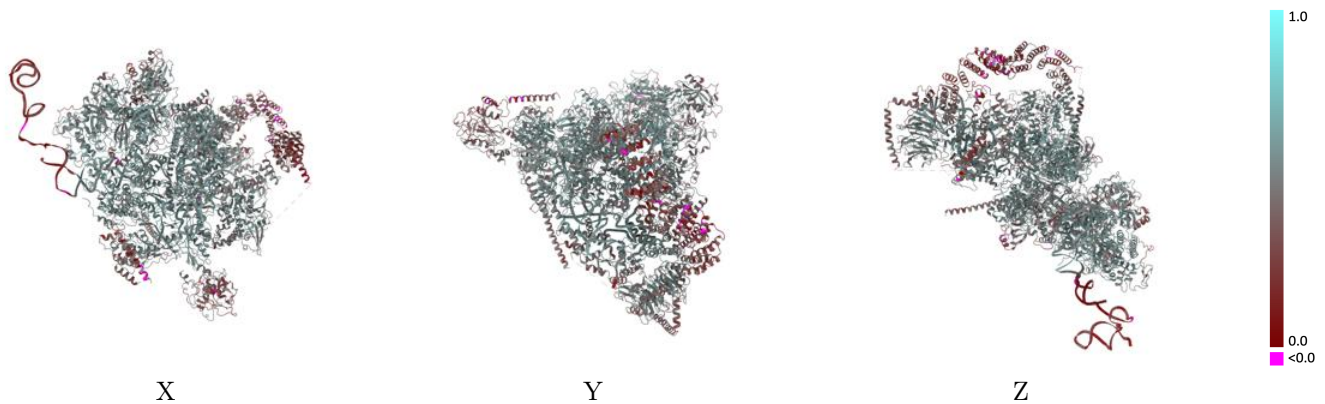
This section contains information regarding the fit between EMDB map EMD-18548 and PDB model 8QPE. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



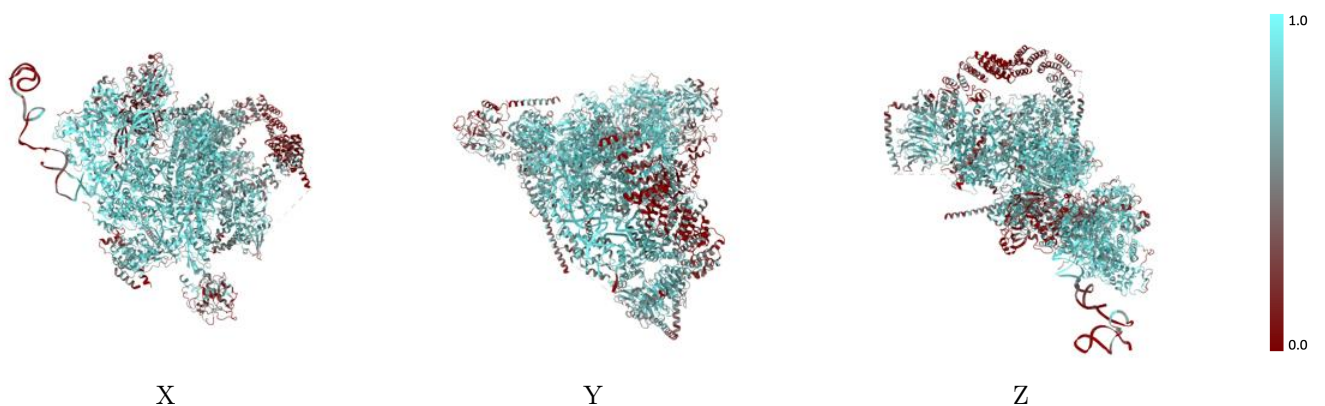
The images above show the 3D surface view of the map at the recommended contour level 0.085 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



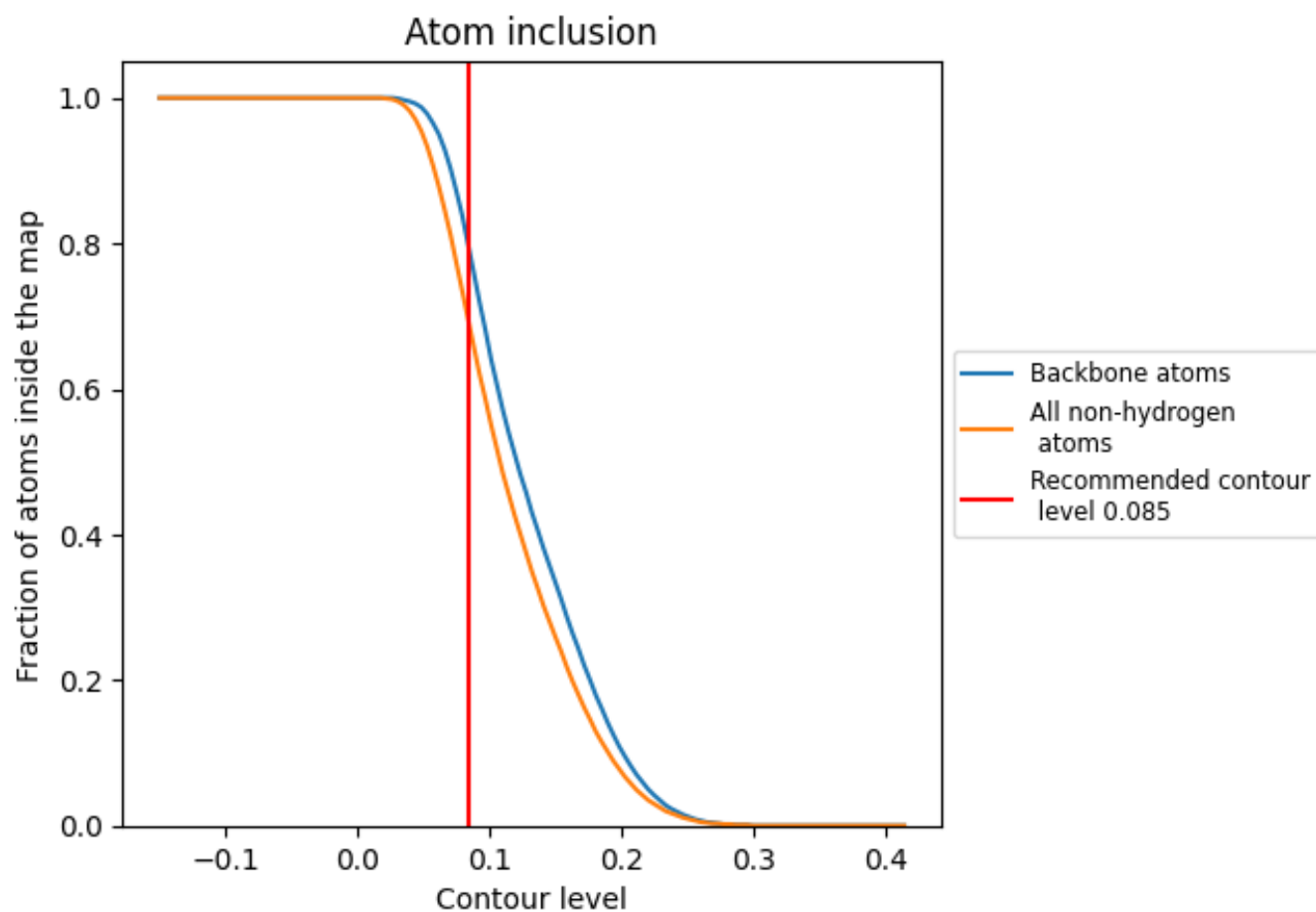
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.085).











































9.4 Atom inclusion [i](#)



At the recommended contour level, 79% of all backbone atoms, 69% 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 (0.085) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6880	 0.4950
4	 0.9140	 0.5610
5	 0.5940	 0.3690
6	 0.8790	 0.5290
7	 0.6710	 0.5000
A	 0.8010	 0.5370
C	 0.7790	 0.5290
D	 0.9300	 0.5950
F	 0.6700	 0.4770
I	 0.6840	 0.4810
J	 0.6300	 0.4570
K	 0.4090	 0.2530
L	 0.7200	 0.5040
M	 0.8320	 0.5570
N	 0.4990	 0.4000
S	 0.4900	 0.4290
U	 0.1980	 0.4540
X	 0.6320	 0.4670
r	 0.5890	 0.4630
z1	 0.9830	 0.6020
z2	 0.9330	 0.5430

