Full wwPDB EM Validation Report ⓘ

Oct 14, 2024 – 04:41 PM EDT

PDB ID	:	8UBE
EMDB ID	:	EMD-42084
Title	:	Diversity-generating retroelement (DGR) ribonucleoprotein reverse transcriptase - Resting State 1a
Authors	:	Biswas, T.; Handa, S.; Ghosh, P.
Deposited on	:	2023-09-22
Resolution	:	3.05 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

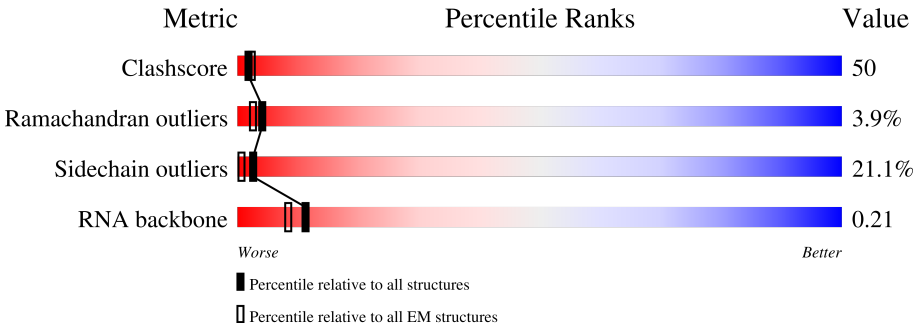
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 3.05 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	328	12% 27% 52% 16% • 5%
2	B	290	12% 26% • 58%
2	C	290	• 11% 22% • • 62%
2	D	290	• 9% 26% • 62%
2	E	290	• 11% 23% • • 62%
2	F	290	• 11% 22% • 62%
3	G	19	37% 16% 32% 5% 5% 42%

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Mol	Chain	Length	Quality of chain
4	H	36	
5	I	140	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 10613 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 Reverse transcriptase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	313	Total	C	N	O	S	0	0
			2562	1638	473	442	9		

- Molecule 2 is a protein called Avd.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	122	Total	C	N	O	S	0	0
			976	631	172	166	7		
2	C	111	Total	C	N	O	S	0	0
			888	578	157	148	5		
2	D	110	Total	C	N	O	S	0	0
			879	571	159	144	5		
2	E	110	Total	C	N	O	S	0	0
			876	569	156	146	5		
2	F	110	Total	C	N	O	S	0	0
			879	571	159	144	5		

- Molecule 3 is a RNA chain called Diversity-generating retroelement (DGR) RNA avd.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	11	Total	C	N	O	P	0	0
			243	107	48	77	11		

- Molecule 4 is a RNA chain called Diversity-generating retroelement (DGR) RNA TR.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	17	Total	C	N	O	P	0	0
			350	157	53	123	17		

- Molecule 5 is a RNA chain called Diversity-generating retroelement (DGR) RNA Sp.

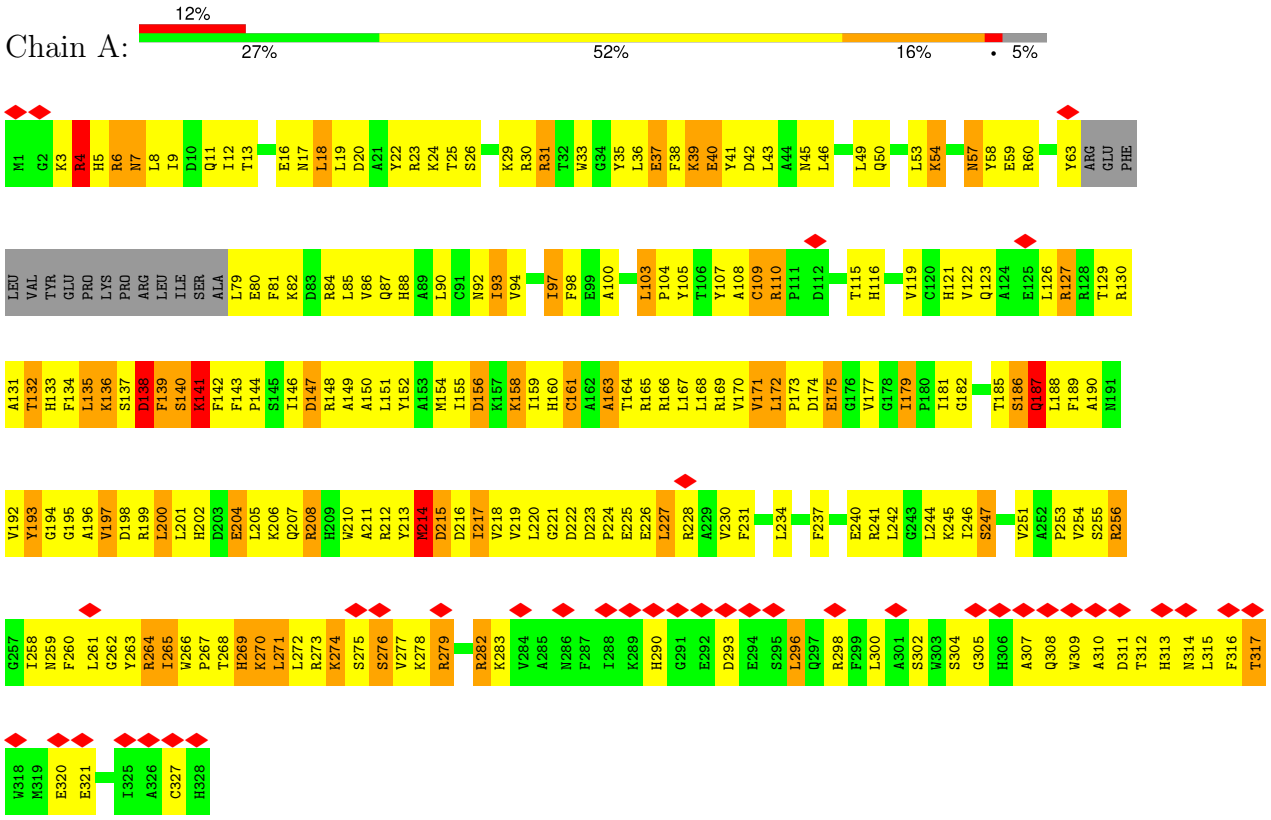
Mol	Chain	Residues	Atoms					AltConf	Trace
5	I	139	Total	C	N	O	P	0	0
			2960	1320	523	978	139		

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.

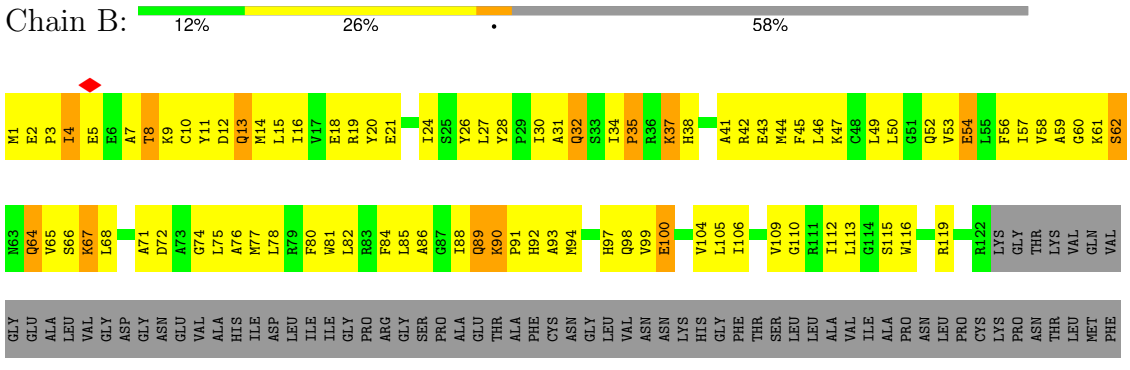
- Molecule 1: Reverse transcriptase

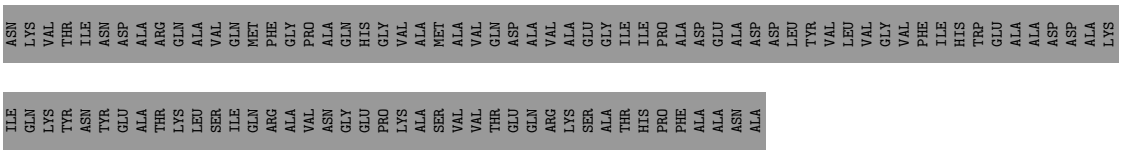
Chain A:



- Molecule 2: Avd

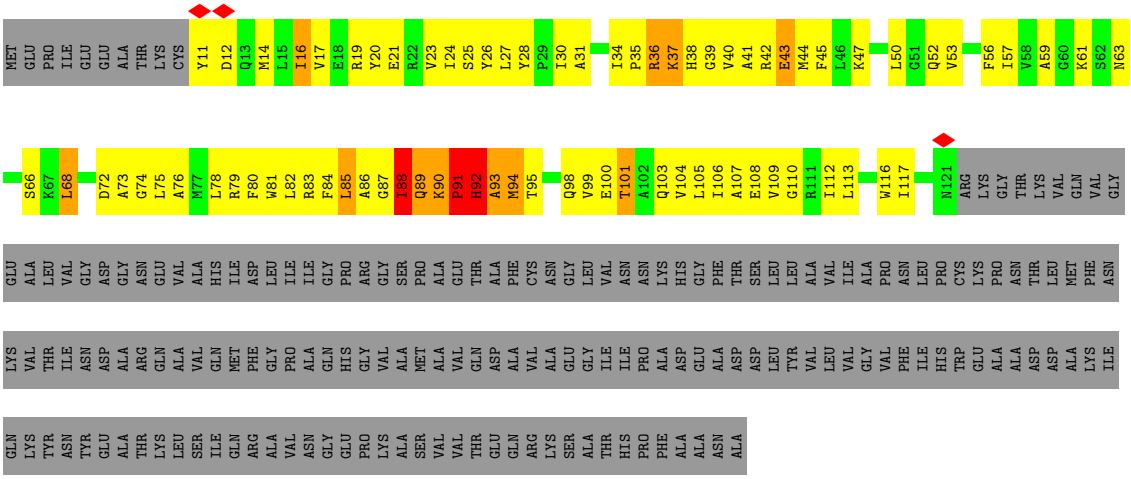
Chain B:





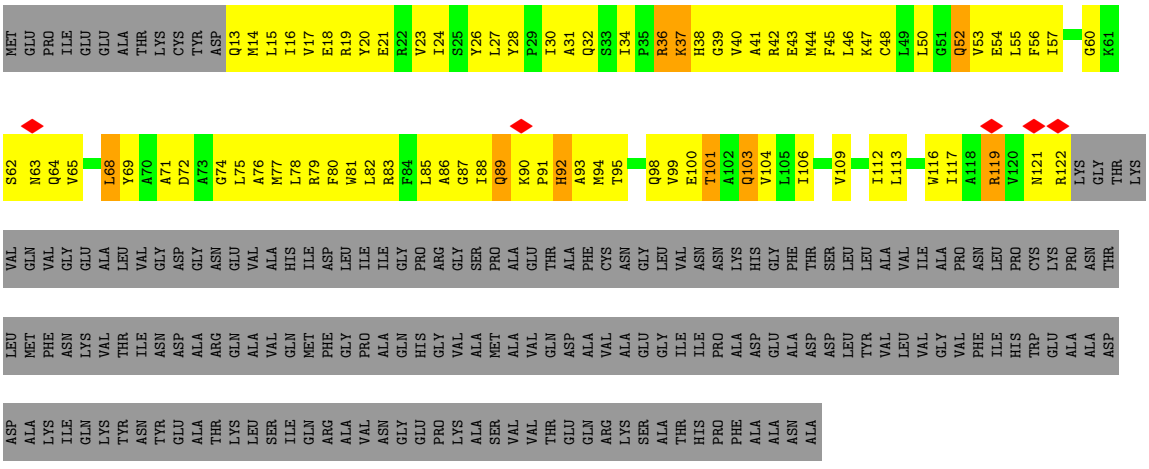
• Molecule 2: Avd

Chain C:



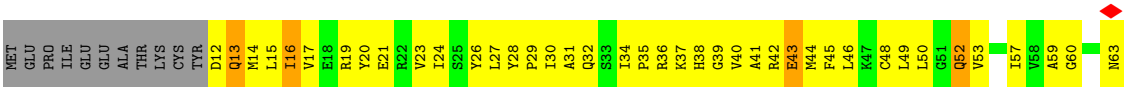
• Molecule 2: Avd

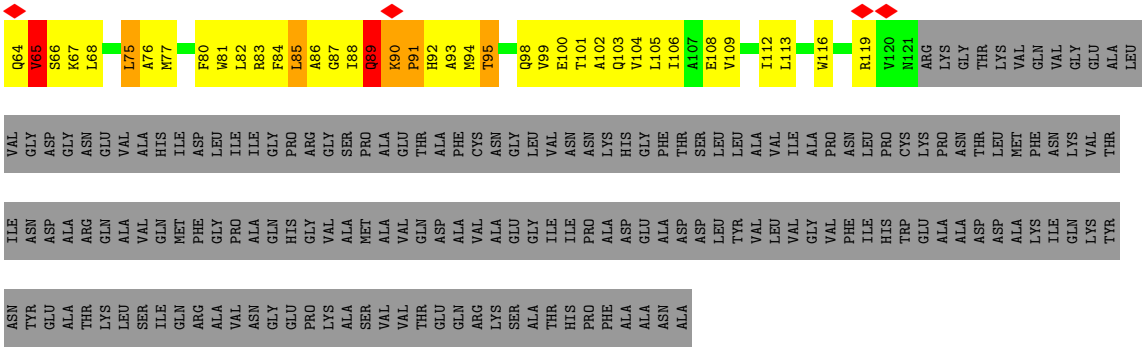
Chain D:



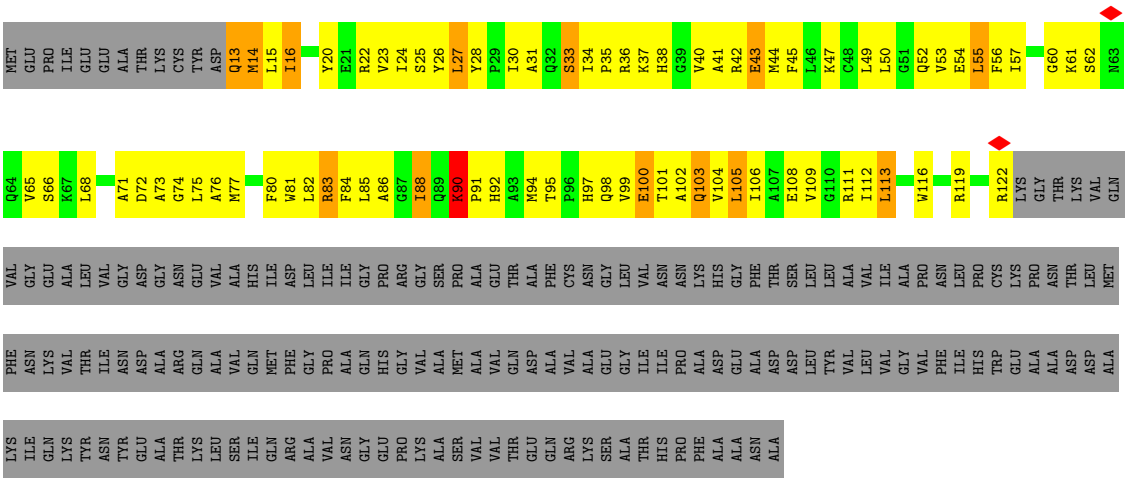
• Molecule 2: Avd

Chain E:

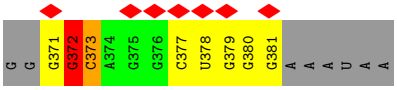




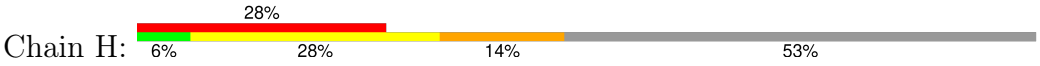
• Molecule 2: Avd

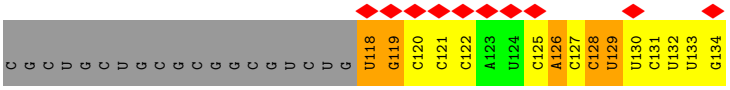


• Molecule 3: Diversity-generating retroelement (DGR) RNA avd

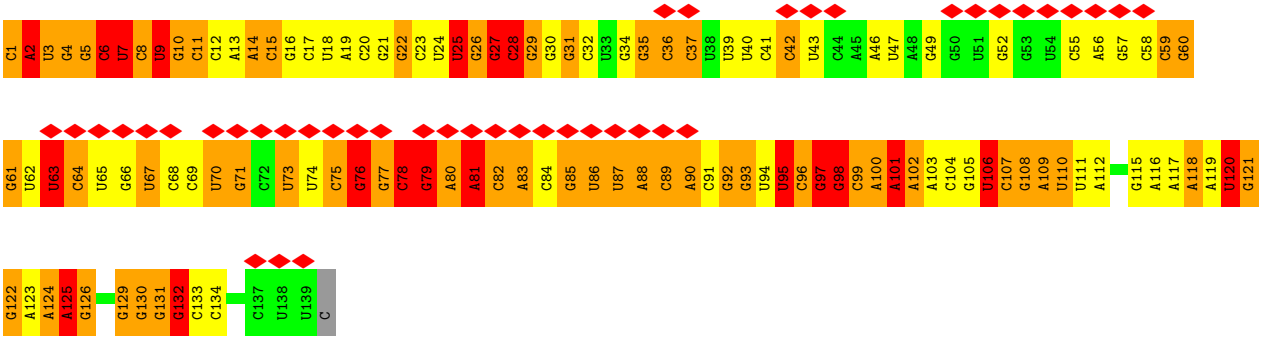


• Molecule 4: Diversity-generating retroelement (DGR) RNA TR





• Molecule 5: Diversity-generating retroelement (DGR) RNA Sp


C1 A2 U3 G4 G5 C6 U7 C8 U9 G10 C11 C12 A13 A14 C15 G16 C17 U18 A19 C20 G21 G22 C23 U24 U25 G26 G27 C28 G29 G30 G31 C32 U33 G34 G35 C36 C37 U38 U39 U40 C41 C42 U43 C44 A45 A46 U47 A48 C49 G50 U51 G52 G53 U54 C55 A56 G57 C58 C59 G60
G61 U62 U63 C64 U65 G66 U67 C68 C69 U70 G71 C72 U73 U74 C75 G76 G77 C78 G79 A80 A81 C82 A83 C84 G85 U86 U87 A88 C89 A90 C91 G92 G93 U94 U95 C96 G97 G98 C99 A100 A101 A102 A103 C104 G105 U106 C107 G108 A109 U110 U111 A112 G115 A116 A117 A118 A119 U120 G121
G122 A123 A124 A125 G126 G129 G130 G131 G132 C133 C134 C137 U138 U139 C

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	189678	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	55	Depositor
Minimum defocus (nm)	400	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.009	Depositor
Minimum map value	-1.325	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.030	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	320.0, 320.0, 320.0	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0, 1.0, 1.0	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	A	0.52	0/2628	0.86	0/3549
2	B	0.58	0/996	0.80	0/1345
2	C	0.61	0/907	0.90	1/1226 (0.1%)
2	D	0.58	0/897	0.79	0/1211
2	E	0.63	0/894	0.83	0/1208
2	F	0.59	0/897	0.83	0/1211
3	G	0.61	0/272	0.90	1/424 (0.2%)
4	H	0.64	0/387	0.98	2/598 (0.3%)
5	I	0.68	0/3306	1.25	38/5151 (0.7%)
All	All	0.61	0/11184	1.00	42/15923 (0.3%)

There are no bond length outliers.

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	I	28	C	P-O3'-C3'	-12.53	104.67	119.70
5	I	106	U	P-O3'-C3'	-12.13	105.15	119.70
5	I	107	C	P-O3'-C3'	-11.41	106.00	119.70
5	I	26	G	P-O3'-C3'	-10.64	106.94	119.70
5	I	78	C	P-O3'-C3'	-10.58	107.01	119.70
5	I	76	G	P-O3'-C3'	-10.51	107.08	119.70
5	I	27	G	P-O3'-C3'	-9.61	108.17	119.70
5	I	7	U	P-O3'-C3'	-8.87	109.06	119.70
5	I	79	G	P-O3'-C3'	-8.79	109.15	119.70
5	I	2	A	P-O3'-C3'	-8.15	109.92	119.70
5	I	25	U	P-O3'-C3'	-7.67	110.50	119.70
2	C	91	PRO	N-CA-CB	-7.56	94.23	103.30
5	I	125	A	P-O3'-C3'	-6.98	111.33	119.70
5	I	6	C	P-O3'-C3'	-6.75	111.59	119.70
5	I	101	A	P-O3'-C3'	-6.67	111.70	119.70
5	I	98	G	P-O3'-C3'	-6.65	111.72	119.70
5	I	122	G	P-O3'-C3'	-6.62	111.76	119.70
5	I	95	U	P-O3'-C3'	-6.55	111.84	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	I	10	G	P-O3'-C3'	-6.42	112.00	119.70
5	I	97	G	P-O3'-C3'	-6.25	112.19	119.70
5	I	96	C	P-O3'-C3'	-6.18	112.29	119.70
5	I	8	C	C3'-C2'-C1'	-6.06	96.65	101.50
5	I	121	G	P-O3'-C3'	-5.87	112.66	119.70
5	I	4	G	P-O3'-C3'	-5.85	112.69	119.70
5	I	108	G	P-O3'-C3'	-5.77	112.78	119.70
5	I	102	A	P-O3'-C3'	-5.73	112.83	119.70
5	I	81	A	C6-N1-C2	5.69	122.01	118.60
4	H	126	A	P-O3'-C3'	-5.66	112.91	119.70
5	I	88	A	P-O3'-C3'	5.64	126.47	119.70
5	I	67	U	P-O3'-C3'	-5.63	112.94	119.70
5	I	1	C	P-O3'-C3'	-5.61	112.97	119.70
5	I	81	A	C5-C6-N1	-5.57	114.91	117.70
5	I	120	U	C5-C4-O4	-5.55	122.57	125.90
5	I	70	U	P-O3'-C3'	-5.43	113.18	119.70
5	I	132	G	P-O3'-C3'	-5.40	113.22	119.70
4	H	118	U	OP1-P-OP2	-5.39	111.51	119.60
5	I	9	U	P-O3'-C3'	-5.29	113.35	119.70
5	I	120	U	N3-C4-C5	5.29	117.77	114.60
5	I	124	A	P-O3'-C3'	-5.18	113.48	119.70
5	I	63	U	C2'-C3'-O3'	5.01	121.72	113.70
3	G	372	G	C3'-C2'-C1'	5.01	105.50	101.50
5	I	118	A	C3'-C2'-C1'	-5.00	97.50	101.50

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2562	0	2550	383	0
2	B	976	0	1014	132	0
2	C	888	0	923	132	0
2	D	879	0	923	117	0
2	E	876	0	914	107	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	879	0	923	92	0
3	G	243	0	121	5	0
4	H	350	0	181	4	0
5	I	2960	0	1498	145	0
All	All	10613	0	9047	965	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 50.

All (965) 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)
2:E:13:GLN:HB3	2:E:60:GLY:HA3	1.35	1.06
1:A:163:ALA:HB2	5:I:120:U:O4	1.57	1.02
1:A:115:THR:HG23	1:A:261:LEU:HD22	1.41	1.02
1:A:141:LYS:HA	1:A:308:GLN:HB2	1.41	1.02
1:A:196:ALA:HB3	1:A:242:LEU:HD11	1.46	0.98
1:A:18:LEU:HD11	1:A:53:LEU:HD12	1.42	0.97
2:D:75:LEU:HD22	2:D:106:ILE:HG23	1.46	0.97
1:A:213:TYR:CG	1:A:261:LEU:HD21	2.00	0.96
2:E:86:ALA:HB2	2:E:99:VAL:HG21	1.45	0.95
2:F:82:LEU:HD11	2:F:106:ILE:HD12	1.47	0.95
1:A:143:PHE:HZ	1:A:214:MET:HE2	1.31	0.94
2:C:82:LEU:HD11	2:C:106:ILE:HD12	1.49	0.94
1:A:168:LEU:HD22	1:A:189:PHE:HZ	1.36	0.90
2:E:53:VAL:HG11	2:F:80:PHE:CG	2.07	0.88
1:A:274:LYS:HD2	1:A:278:LYS:NZ	1.88	0.87
1:A:305:GLY:HA2	1:A:308:GLN:OE1	1.74	0.87
2:B:13:GLN:NE2	2:B:61:LYS:HD3	1.88	0.87
1:A:140:SER:HA	1:A:309:TRP:CE3	2.09	0.86
1:A:216:ASP:H	1:A:311:ASP:CG	1.79	0.86
1:A:182:GLY:HA3	1:A:320:GLU:OE1	1.76	0.86
2:E:53:VAL:HG11	2:F:80:PHE:CD1	2.11	0.85
1:A:11:GLN:HB2	1:A:93:ILE:HG12	1.58	0.84
1:A:200:LEU:HD13	1:A:237:PHE:CD1	2.13	0.83
2:C:82:LEU:HB3	2:C:99:VAL:HG13	1.61	0.83
2:F:75:LEU:HD12	2:F:113:LEU:HD12	1.61	0.83
2:B:34:ILE:HD11	2:B:85:LEU:HD13	1.59	0.82
2:D:82:LEU:HD11	2:D:106:ILE:HD12	1.60	0.82
1:A:146:ILE:HG12	1:A:193:TYR:HD2	1.44	0.81
2:D:24:ILE:HD11	2:D:53:VAL:CG2	2.09	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:61:LYS:HG3	2:C:73:ALA:HA	1.63	0.81
2:C:38:HIS:CE1	2:C:90:LYS:HD2	2.16	0.81
2:F:82:LEU:HB3	2:F:99:VAL:HG13	1.63	0.81
1:A:13:THR:HA	1:A:18:LEU:HD12	1.64	0.80
1:A:139:PHE:CZ	1:A:197:VAL:HG11	2.16	0.80
1:A:168:LEU:HD22	1:A:189:PHE:CZ	2.15	0.80
2:E:75:LEU:HD21	2:E:109:VAL:HG23	1.64	0.80
1:A:274:LYS:HD2	1:A:278:LYS:HZ3	1.47	0.79
2:B:13:GLN:HE21	2:B:61:LYS:HD3	1.47	0.79
2:B:68:LEU:HD21	2:B:116:TRP:CE2	2.17	0.79
1:A:151:LEU:HD13	1:A:193:TYR:HB2	1.63	0.79
1:A:202:HIS:HD1	1:A:210:TRP:HE1	1.31	0.79
2:B:88:ILE:HG23	2:F:25:SER:HA	1.64	0.78
2:C:59:ALA:HB1	2:C:68:LEU:HD23	1.64	0.78
5:I:22:G:H2'	5:I:23:C:O4'	1.84	0.78
1:A:212:ARG:HB2	1:A:217:ILE:HG23	1.65	0.78
1:A:213:TYR:CD2	1:A:261:LEU:HD21	2.18	0.78
1:A:104:PRO:HG3	5:I:130:G:H4'	1.66	0.77
2:D:43:GLU:HG2	2:E:40:VAL:HG22	1.65	0.77
1:A:256:ARG:HH12	5:I:78:C:H41	1.31	0.77
2:C:85:LEU:HB3	2:C:93:ALA:HB3	1.67	0.77
1:A:221:GLY:HA3	1:A:227:LEU:HD21	1.65	0.77
2:E:95:THR:HG21	5:I:18:U:H4'	1.66	0.77
5:I:101:A:H62	5:I:132:G:H21	1.31	0.76
2:F:27:LEU:HG	2:F:45:PHE:HZ	1.51	0.76
5:I:124:A:H2'	5:I:125:A:H8	1.51	0.76
2:C:57:ILE:HG21	2:D:76:ALA:HB3	1.68	0.76
1:A:29:LYS:HE3	1:A:321:GLU:HA	1.67	0.75
1:A:94:VAL:HG12	1:A:188:LEU:HD21	1.66	0.75
2:C:25:SER:HA	2:D:88:ILE:HG23	1.68	0.75
5:I:25:U:H2'	5:I:26:G:H8	1.52	0.75
2:D:86:ALA:HB2	2:D:99:VAL:HG21	1.69	0.75
1:A:219:VAL:HG11	1:A:230:VAL:HG11	1.67	0.74
2:B:21:GLU:OE2	2:C:83:ARG:HD2	1.86	0.74
2:E:86:ALA:HB2	2:E:99:VAL:CG2	2.17	0.74
2:E:34:ILE:HD13	2:E:85:LEU:HG	1.68	0.74
2:C:41:ALA:HB1	2:C:84:PHE:HE2	1.52	0.74
1:A:265:ILE:HG23	1:A:270:LYS:HB3	1.70	0.73
2:E:53:VAL:HG21	2:F:80:PHE:CZ	2.23	0.73
2:E:86:ALA:CB	2:E:99:VAL:HG21	2.18	0.73
2:C:82:LEU:HD11	2:C:106:ILE:CD1	2.18	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:97:HIS:O	2:F:101:THR:N	2.20	0.73
1:A:39:LYS:HA	1:A:42:ASP:HB3	1.69	0.73
1:A:141:LYS:CA	1:A:308:GLN:HB2	2.19	0.72
2:B:86:ALA:HB2	2:B:99:VAL:HG21	1.69	0.72
2:E:82:LEU:HB3	2:E:99:VAL:HG13	1.72	0.72
2:B:56:PHE:O	2:B:60:GLY:N	2.22	0.72
1:A:4:ARG:O	1:A:160:HIS:HB2	1.89	0.72
2:D:45:PHE:CD2	2:D:85:LEU:HD11	2.25	0.72
2:B:61:LYS:NZ	2:C:76:ALA:HB2	2.05	0.72
2:B:15:LEU:HG	2:B:112:ILE:HD13	1.70	0.71
2:B:45:PHE:CD2	2:B:85:LEU:HD11	2.25	0.71
2:B:84:PHE:CD2	2:B:85:LEU:HD23	2.26	0.71
1:A:140:SER:HA	1:A:309:TRP:CZ3	2.26	0.71
2:C:89:GLN:HG3	2:C:90:LYS:HG3	1.71	0.71
5:I:27:G:H3'	5:I:28:C:H6	1.55	0.71
1:A:313:HIS:O	1:A:317:THR:HG23	1.90	0.71
1:A:221:GLY:HA3	1:A:227:LEU:HD11	1.71	0.71
2:F:24:ILE:HD11	2:F:53:VAL:CG2	2.21	0.71
1:A:105:TYR:O	1:A:211:ALA:HA	1.90	0.70
2:B:84:PHE:HD2	2:B:85:LEU:HD23	1.56	0.70
5:I:124:A:H2'	5:I:125:A:C8	2.26	0.70
1:A:126:LEU:HD22	1:A:254:VAL:HG11	1.72	0.70
2:B:61:LYS:HZ3	2:C:76:ALA:HB2	1.56	0.70
1:A:6:ARG:NH1	5:I:122:G:N7	2.40	0.70
1:A:80:GLU:O	1:A:84:ARG:HG3	1.92	0.70
2:D:54:GLU:OE1	2:E:77:MET:HB2	1.92	0.70
2:D:38:HIS:NE2	2:D:91:PRO:HD2	2.07	0.70
1:A:163:ALA:CB	5:I:120:U:O4	2.39	0.70
2:C:82:LEU:HD22	2:C:94:MET:SD	2.32	0.70
1:A:136:LYS:HE2	1:A:216:ASP:HB2	1.72	0.69
2:C:40:VAL:HG23	5:I:3:U:O4	1.92	0.69
1:A:103:LEU:HD23	1:A:104:PRO:HD2	1.72	0.69
1:A:217:ILE:O	1:A:219:VAL:HG23	1.91	0.69
2:D:86:ALA:CB	2:D:99:VAL:HG21	2.22	0.69
2:C:53:VAL:HG11	2:D:80:PHE:CD1	2.27	0.69
2:B:81:TRP:HH2	2:F:50:LEU:HD13	1.57	0.69
5:I:5:G:H5"	5:I:5:G:H8	1.58	0.69
1:A:208:ARG:HG2	5:I:130:G:OP1	1.93	0.68
2:E:35:PRO:HD3	2:E:93:ALA:HA	1.76	0.68
1:A:36:LEU:HB3	2:B:14:MET:HB3	1.74	0.68
1:A:133:HIS:CD2	1:A:253:PRO:HB3	2.27	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:146:ILE:HG23	1:A:193:TYR:CD2	2.28	0.68
2:E:98:GLN:NE2	5:I:17:C:O3'	2.26	0.68
1:A:213:TYR:CD1	1:A:261:LEU:HD11	2.29	0.68
1:A:41:TYR:CE2	2:C:107:ALA:HA	2.29	0.68
1:A:134:PHE:CE1	1:A:258:ILE:HG12	2.28	0.68
2:C:38:HIS:HE1	2:C:90:LYS:HD2	1.59	0.68
2:E:21:GLU:OE2	2:F:83:ARG:HD2	1.94	0.68
1:A:147:ASP:HB2	1:A:193:TYR:OH	1.94	0.68
2:B:38:HIS:HA	2:F:28:TYR:OH	1.92	0.68
2:E:31:ALA:HA	2:E:34:ILE:HG13	1.75	0.68
2:F:23:VAL:HG22	2:F:105:LEU:HB3	1.76	0.68
1:A:126:LEU:HG	1:A:220:LEU:HD13	1.76	0.68
1:A:223:ASP:HB3	1:A:226:GLU:HB2	1.76	0.68
5:I:95:U:H2'	5:I:96:C:C6	2.28	0.68
5:I:25:U:H2'	5:I:26:G:C8	2.29	0.67
2:C:92:HIS:H	2:C:92:HIS:CD2	2.10	0.67
2:D:30:ILE:HG21	2:D:94:MET:HG3	1.76	0.67
2:D:86:ALA:HB2	2:D:99:VAL:CG2	2.25	0.67
2:B:34:ILE:HD11	2:B:85:LEU:CD1	2.25	0.67
2:C:24:ILE:HG22	2:D:88:ILE:HG21	1.77	0.67
2:D:57:ILE:HG21	2:E:76:ALA:HB3	1.75	0.67
1:A:159:ILE:O	1:A:160:HIS:HB2	1.93	0.67
2:D:52:GLN:HG2	2:D:55:LEU:HD12	1.75	0.67
2:B:82:LEU:HB3	2:B:99:VAL:HG13	1.76	0.67
1:A:98:PHE:HB2	1:A:188:LEU:HD11	1.77	0.67
1:A:53:LEU:HD21	1:A:86:VAL:HG22	1.76	0.66
1:A:213:TYR:CD1	1:A:261:LEU:HD21	2.30	0.66
1:A:143:PHE:CZ	1:A:214:MET:HE2	2.23	0.66
2:B:81:TRP:CH2	2:F:50:LEU:HD13	2.31	0.66
1:A:213:TYR:O	1:A:214:MET:HB2	1.96	0.66
2:E:92:HIS:CE1	5:I:19:A:C4	2.83	0.66
2:B:86:ALA:HB2	2:B:99:VAL:CG2	2.25	0.66
5:I:108:G:H3'	5:I:109:A:H5"	1.78	0.66
2:C:34:ILE:HD13	2:C:85:LEU:HD22	1.78	0.66
2:B:21:GLU:CD	2:C:83:ARG:HH11	1.99	0.66
1:A:8:LEU:HB2	1:A:164:THR:OG1	1.96	0.66
1:A:103:LEU:HD13	1:A:202:HIS:HB3	1.78	0.66
1:A:108:ALA:HB2	1:A:213:TYR:C	2.17	0.66
2:B:44:MET:HE1	2:F:47:LYS:HA	1.79	0.65
5:I:68:C:H2'	5:I:69:C:C6	2.32	0.65
2:B:68:LEU:HD21	2:B:116:TRP:CZ2	2.31	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:14:MET:CE	2:F:60:GLY:HA3	2.27	0.65
2:E:59:ALA:C	2:E:116:TRP:HH2	2.00	0.65
1:A:275:SER:O	1:A:279:ARG:HB2	1.96	0.65
1:A:272:LEU:HD22	5:I:83:A:H61	1.60	0.65
2:B:45:PHE:CD1	2:B:81:TRP:HB3	2.32	0.65
2:C:26:TYR:OH	2:C:98:GLN:HA	1.97	0.65
2:D:68:LEU:HD11	2:D:116:TRP:CE3	2.31	0.65
1:A:172:LEU:HD11	1:A:179:ILE:HG12	1.79	0.64
1:A:13:THR:HA	1:A:18:LEU:CD1	2.27	0.64
1:A:140:SER:O	1:A:142:PHE:N	2.31	0.64
1:A:36:LEU:HD12	2:B:11:TYR:CE1	2.33	0.64
1:A:263:TYR:O	1:A:265:ILE:HG13	1.98	0.64
2:D:24:ILE:HD11	2:D:53:VAL:HG22	1.78	0.64
1:A:4:ARG:HB3	1:A:6:ARG:HG2	1.80	0.64
1:A:12:ILE:HD11	1:A:164:THR:HG23	1.80	0.64
1:A:179:ILE:HD13	1:A:186:SER:HA	1.80	0.64
1:A:26:SER:O	1:A:30:ARG:HG3	1.98	0.63
1:A:94:VAL:HG12	1:A:188:LEU:CD2	2.27	0.63
1:A:187:GLN:HG3	1:A:313:HIS:ND1	2.12	0.63
2:F:27:LEU:HD21	2:F:82:LEU:HD21	1.79	0.63
2:B:34:ILE:O	2:B:42:ARG:NH1	2.32	0.63
2:B:41:ALA:HB2	2:F:28:TYR:CE1	2.33	0.63
2:C:24:ILE:HD11	2:C:53:VAL:CG2	2.28	0.63
1:A:228:ARG:HG3	1:A:251:VAL:HG21	1.81	0.63
2:C:53:VAL:HG11	2:D:80:PHE:CG	2.33	0.63
1:A:147:ASP:HB3	1:A:150:ALA:H	1.64	0.63
2:C:90:LYS:O	2:C:91:PRO:C	2.37	0.63
1:A:103:LEU:HD12	1:A:199:ARG:HG2	1.80	0.63
1:A:274:LYS:HB2	1:A:278:LYS:HD3	1.81	0.63
2:E:24:ILE:HD11	2:E:53:VAL:CG2	2.29	0.63
1:A:107:TYR:OH	1:A:121:HIS:HB2	1.98	0.62
1:A:155:ILE:HG22	1:A:155:ILE:O	1.99	0.62
5:I:124:A:O2'	5:I:125:A:H5'	1.98	0.62
2:F:82:LEU:HD11	2:F:106:ILE:CD1	2.27	0.62
1:A:256:ARG:NH2	5:I:77:G:N7	2.48	0.62
5:I:29:G:H5"	5:I:29:G:H8	1.65	0.62
1:A:119:VAL:O	1:A:265:ILE:HG21	2.00	0.62
1:A:41:TYR:CD2	2:B:4:ILE:HG21	2.34	0.62
1:A:90:LEU:HD13	1:A:168:LEU:HD23	1.80	0.62
2:B:27:LEU:HD11	2:B:82:LEU:HD21	1.82	0.62
5:I:95:U:H2'	5:I:96:C:H6	1.65	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:100:A:H4'	5:I:101:A:H8	1.65	0.62
1:A:172:LEU:HD22	1:A:189:PHE:HD2	1.65	0.62
1:A:313:HIS:O	1:A:316:PHE:N	2.33	0.61
2:F:97:HIS:CE1	2:F:101:THR:HG21	2.35	0.61
2:F:99:VAL:O	2:F:103:GLN:HB2	1.99	0.61
2:B:16:ILE:HD11	2:B:113:LEU:HB2	1.82	0.61
5:I:60:G:H2'	5:I:61:G:H8	1.65	0.61
1:A:216:ASP:N	1:A:311:ASP:OD1	2.31	0.61
2:B:89:GLN:HG2	2:B:93:ALA:HB2	1.82	0.61
1:A:276:SER:HA	5:I:70:U:H3	1.64	0.61
1:A:172:LEU:HD22	1:A:189:PHE:CD2	2.36	0.61
2:C:16:ILE:HD13	2:C:112:ILE:HB	1.82	0.61
1:A:98:PHE:CZ	1:A:155:ILE:HA	2.36	0.61
2:B:27:LEU:HD23	2:B:30:ILE:HD11	1.81	0.61
2:C:92:HIS:O	2:C:93:ALA:C	2.39	0.61
2:E:52:GLN:OE1	2:E:75:LEU:HD13	2.01	0.61
1:A:187:GLN:HG3	1:A:313:HIS:HD1	1.66	0.61
1:A:245:LYS:O	1:A:309:TRP:CZ3	2.54	0.61
2:E:45:PHE:CD1	2:E:81:TRP:HB3	2.36	0.61
1:A:136:LYS:HD2	1:A:218:VAL:HG22	1.83	0.60
1:A:187:GLN:CD	1:A:317:THR:HG21	2.21	0.60
1:A:274:LYS:CB	1:A:278:LYS:HD3	2.31	0.60
1:A:212:ARG:HG2	1:A:214:MET:H	1.65	0.60
2:C:27:LEU:HD11	2:C:82:LEU:HD21	1.83	0.60
2:D:68:LEU:HB3	2:D:117:ILE:CD1	2.32	0.60
1:A:138:ASP:OD1	1:A:216:ASP:HB3	2.01	0.60
1:A:138:ASP:OD2	1:A:310:ALA:HA	2.01	0.60
2:C:45:PHE:CD1	2:C:81:TRP:HB3	2.37	0.60
1:A:11:GLN:CB	1:A:93:ILE:HG12	2.28	0.60
1:A:100:ALA:O	5:I:105:G:H4'	2.00	0.60
2:E:23:VAL:CG1	2:E:27:LEU:HD12	2.32	0.60
2:B:85:LEU:HD22	2:B:89:GLN:NE2	2.16	0.60
2:D:82:LEU:HD11	2:D:106:ILE:CD1	2.29	0.60
1:A:49:LEU:HD23	1:A:85:LEU:HD22	1.83	0.60
1:A:105:TYR:CE2	1:A:202:HIS:HE1	2.20	0.60
2:E:82:LEU:HD11	2:E:106:ILE:HD12	1.83	0.60
1:A:213:TYR:O	1:A:311:ASP:HB3	2.01	0.59
1:A:272:LEU:HD22	5:I:83:A:N6	2.16	0.59
2:C:90:LYS:HD3	5:I:2:A:OP2	2.02	0.59
5:I:102:A:H2'	5:I:103:A:C8	2.37	0.59
2:B:82:LEU:HD11	2:B:106:ILE:HD12	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:45:PHE:CD1	2:D:81:TRP:HB3	2.37	0.59
1:A:212:ARG:HD2	1:A:214:MET:O	2.03	0.59
1:A:221:GLY:CA	1:A:227:LEU:HD21	2.32	0.59
2:C:82:LEU:CD1	2:C:106:ILE:HD12	2.30	0.59
2:C:100:GLU:O	2:C:104:VAL:HG23	2.01	0.59
1:A:199:ARG:NH2	5:I:105:G:O2'	2.35	0.59
2:E:36:ARG:O	2:E:39:GLY:N	2.35	0.59
2:C:34:ILE:HG22	2:C:38:HIS:HB2	1.84	0.59
1:A:274:LYS:HD2	1:A:278:LYS:HZ2	1.64	0.59
2:B:68:LEU:HD21	2:B:116:TRP:CD2	2.37	0.59
5:I:27:G:H3'	5:I:28:C:C6	2.36	0.59
2:B:38:HIS:HA	2:F:28:TYR:HH	1.68	0.59
1:A:41:TYR:CD1	2:B:4:ILE:HG22	2.38	0.58
1:A:192:VAL:C	1:A:194:GLY:H	2.03	0.58
2:B:80:PHE:CG	2:F:53:VAL:HG11	2.38	0.58
2:C:99:VAL:O	2:C:103:GLN:HB2	2.03	0.58
5:I:112:A:C4	5:I:123:A:C6	2.91	0.58
1:A:256:ARG:NH1	5:I:78:C:H41	2.00	0.58
5:I:109:A:N1	5:I:123:A:H5"	2.18	0.58
2:C:87:GLY:O	2:C:88:ILE:C	2.40	0.58
5:I:103:A:N6	5:I:130:G:H1	2.01	0.58
5:I:103:A:H61	5:I:130:G:H1	1.52	0.58
1:A:274:LYS:CD	1:A:278:LYS:HZ3	2.16	0.58
2:B:105:LEU:O	2:B:109:VAL:HG23	2.04	0.58
2:E:48:CYS:O	2:E:52:GLN:HB2	2.04	0.58
2:F:14:MET:HE1	2:F:60:GLY:HA3	1.86	0.58
1:A:127:ARG:HD2	1:A:267:PRO:HA	1.86	0.58
2:E:31:ALA:HB2	2:E:45:PHE:CE2	2.39	0.58
1:A:58:TYR:CE2	1:A:86:VAL:HG11	2.39	0.58
1:A:108:ALA:HA	1:A:213:TYR:CD1	2.38	0.58
5:I:100:A:C2	5:I:130:G:C8	2.91	0.58
5:I:109:A:H8	5:I:109:A:OP1	1.86	0.58
2:C:50:LEU:HD13	2:D:81:TRP:CH2	2.39	0.58
2:E:34:ILE:CD1	2:E:85:LEU:HG	2.34	0.58
1:A:245:LYS:O	1:A:309:TRP:HZ3	1.87	0.58
1:A:13:THR:OG1	1:A:54:LYS:HG3	2.04	0.57
1:A:221:GLY:CA	1:A:227:LEU:HD11	2.33	0.57
2:C:90:LYS:CB	2:C:91:PRO:HD2	2.33	0.57
2:D:16:ILE:HG12	2:D:109:VAL:HG23	1.86	0.57
2:E:34:ILE:HG23	2:E:93:ALA:HB1	1.84	0.57
3:G:372:G:H5"	5:I:82:C:H5'	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:18:LEU:HD13	1:A:50:GLN:HA	1.86	0.57
1:A:108:ALA:HA	1:A:213:TYR:CE1	2.38	0.57
2:B:13:GLN:CB	2:B:60:GLY:HA3	2.33	0.57
2:F:85:LEU:HD23	2:F:88:ILE:HD12	1.86	0.57
1:A:107:TYR:CZ	1:A:121:HIS:HB2	2.39	0.57
2:D:24:ILE:HD11	2:D:53:VAL:HG21	1.85	0.57
1:A:159:ILE:HG13	1:A:168:LEU:CD1	2.34	0.57
1:A:274:LYS:NZ	1:A:278:LYS:HZ3	2.01	0.57
2:D:26:TYR:CE2	2:D:30:ILE:HD11	2.40	0.57
1:A:60:ARG:HH12	1:A:173:PRO:HD3	1.70	0.57
1:A:139:PHE:HZ	1:A:197:VAL:HG11	1.69	0.57
2:F:68:LEU:HD21	2:F:116:TRP:CD2	2.40	0.57
1:A:126:LEU:HD11	1:A:258:ILE:HD12	1.85	0.57
1:A:274:LYS:NZ	1:A:278:LYS:NZ	2.52	0.57
2:B:86:ALA:CB	2:B:99:VAL:HG21	2.35	0.57
5:I:27:G:C8	5:I:27:G:H5"	2.39	0.57
5:I:29:G:H5"	5:I:29:G:C8	2.39	0.57
1:A:134:PHE:CD1	1:A:258:ILE:HG12	2.40	0.56
1:A:186:SER:O	1:A:187:GLN:C	2.42	0.56
1:A:115:THR:HA	1:A:261:LEU:HD13	1.87	0.56
1:A:216:ASP:N	1:A:311:ASP:OD2	2.37	0.56
1:A:231:PHE:HE1	1:A:246:ILE:HG21	1.69	0.56
1:A:247:SER:HB3	1:A:309:TRP:CH2	2.40	0.56
2:D:68:LEU:HD12	2:D:113:LEU:HD11	1.87	0.56
2:E:34:ILE:HD11	2:E:45:PHE:CD2	2.40	0.56
2:B:47:LYS:NZ	2:C:43:GLU:OE2	2.35	0.56
2:B:76:ALA:HB3	2:F:57:ILE:HG21	1.87	0.56
2:C:28:TYR:CE1	2:D:41:ALA:HB2	2.40	0.56
2:E:20:TYR:OH	2:E:49:LEU:HA	2.06	0.56
2:F:52:GLN:HE22	2:F:71:ALA:HA	1.69	0.56
5:I:110:U:H2'	5:I:122:G:O6	2.06	0.56
2:B:88:ILE:CG2	2:F:25:SER:HA	2.34	0.56
2:B:100:GLU:O	2:B:104:VAL:HG23	2.06	0.56
2:C:47:LYS:HA	2:D:44:MET:HE1	1.88	0.56
2:D:21:GLU:OE2	2:E:80:PHE:CD1	2.58	0.56
2:D:47:LYS:NZ	2:E:43:GLU:OE2	2.30	0.56
2:D:50:LEU:HD21	2:E:84:PHE:CZ	2.41	0.56
2:F:31:ALA:HA	2:F:34:ILE:HG13	1.87	0.56
2:B:5:GLU:HA	2:B:9:LYS:NZ	2.20	0.56
2:D:26:TYR:O	2:D:30:ILE:HG13	2.06	0.56
1:A:126:LEU:HD23	1:A:131:ALA:HB3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:27:LEU:HA	2:B:30:ILE:HG12	1.87	0.56
2:C:85:LEU:HD23	2:C:88:ILE:CD1	2.36	0.56
1:A:53:LEU:HD23	1:A:58:TYR:HB2	1.88	0.55
5:I:106:U:H2'	5:I:107:C:C6	2.41	0.55
1:A:143:PHE:CZ	1:A:313:HIS:CG	2.94	0.55
2:E:19:ARG:HG3	2:E:112:ILE:CD1	2.37	0.55
5:I:26:G:H2'	5:I:27:G:C8	2.41	0.55
2:B:88:ILE:HG21	2:F:24:ILE:HG22	1.87	0.55
2:C:36:ARG:O	2:C:39:GLY:N	2.39	0.55
2:D:13:GLN:NE2	2:D:119:ARG:HH12	2.04	0.55
2:D:31:ALA:HB2	2:D:45:PHE:CE2	2.41	0.55
2:D:32:GLN:NE2	5:I:7:U:H3	2.05	0.55
2:D:85:LEU:HD12	2:D:94:MET:CE	2.37	0.55
2:F:45:PHE:CD1	2:F:81:TRP:HB3	2.41	0.55
2:F:73:ALA:O	2:F:77:MET:N	2.28	0.55
1:A:141:LYS:O	1:A:142:PHE:C	2.44	0.55
2:C:52:GLN:OE1	2:C:75:LEU:N	2.39	0.55
5:I:5:G:H5"	5:I:5:G:C8	2.40	0.55
5:I:102:A:C6	5:I:103:A:C6	2.94	0.55
1:A:4:ARG:O	1:A:160:HIS:ND1	2.39	0.55
2:E:82:LEU:HD11	2:E:106:ILE:CD1	2.36	0.55
2:B:77:MET:HE1	2:F:50:LEU:O	2.06	0.55
2:B:61:LYS:HG3	2:C:73:ALA:CA	2.34	0.55
2:D:56:PHE:HE1	2:D:113:LEU:HD22	1.72	0.55
1:A:29:LYS:HG3	1:A:84:ARG:HH12	1.72	0.55
2:B:4:ILE:HD13	2:C:107:ALA:CB	2.38	0.55
1:A:142:PHE:O	1:A:146:ILE:HG13	2.07	0.54
1:A:186:SER:O	1:A:189:PHE:N	2.40	0.54
2:F:52:GLN:HA	2:F:55:LEU:HB2	1.89	0.54
1:A:41:TYR:CE1	2:B:4:ILE:HG22	2.42	0.54
1:A:277:VAL:HG13	1:A:315:LEU:HD11	1.89	0.54
2:C:52:GLN:OE1	2:C:74:GLY:C	2.46	0.54
2:E:16:ILE:HD11	2:E:116:TRP:CE3	2.42	0.54
5:I:1:C:O2'	5:I:2:A:H3'	2.07	0.54
2:B:4:ILE:HD13	2:C:107:ALA:HB2	1.90	0.54
1:A:12:ILE:CD1	1:A:164:THR:HG23	2.37	0.54
1:A:143:PHE:HB3	1:A:179:ILE:HG22	1.89	0.54
1:A:198:ASP:HB3	1:A:210:TRP:CH2	2.43	0.54
1:A:247:SER:HB3	1:A:309:TRP:CZ3	2.43	0.54
2:C:17:VAL:HG11	2:D:83:ARG:NH2	2.22	0.54
5:I:101:A:H62	5:I:132:G:N2	2.03	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:305:GLY:O	1:A:308:GLN:HG2	2.08	0.54
2:D:27:LEU:HD23	2:D:30:ILE:HD12	1.90	0.54
2:D:43:GLU:HG2	2:E:40:VAL:CG2	2.36	0.54
2:D:57:ILE:CG2	2:E:76:ALA:HB3	2.37	0.54
1:A:41:TYR:CG	2:B:4:ILE:HG21	2.42	0.54
1:A:136:LYS:HE2	1:A:216:ASP:CB	2.37	0.54
1:A:154:MET:SD	1:A:193:TYR:HA	2.47	0.54
1:A:187:GLN:H	1:A:313:HIS:HE1	1.56	0.54
3:G:372:G:H2'	3:G:373:C:C6	2.43	0.54
5:I:105:G:C6	5:I:106:U:C4	2.96	0.54
5:I:129:G:N2	5:I:131:G:N7	2.54	0.54
1:A:167:LEU:O	1:A:171:VAL:HB	2.08	0.54
2:D:69:TYR:OH	2:D:121:ASN:ND2	2.40	0.54
2:E:60:GLY:N	2:E:116:TRP:HH2	2.06	0.54
2:F:82:LEU:CD1	2:F:106:ILE:HD12	2.30	0.54
2:E:12:ASP:O	2:E:16:ILE:HG13	2.08	0.54
5:I:9:U:H2'	5:I:10:G:C8	2.43	0.54
1:A:137:SER:HB2	1:A:246:ILE:HG21	1.90	0.53
2:F:27:LEU:HB3	2:F:49:LEU:HD22	1.90	0.53
2:C:105:LEU:O	2:C:109:VAL:HG23	2.08	0.53
2:D:36:ARG:O	2:D:37:LYS:C	2.46	0.53
1:A:139:PHE:O	1:A:309:TRP:HA	2.08	0.53
1:A:143:PHE:N	1:A:143:PHE:CD1	2.76	0.53
1:A:200:LEU:HD22	1:A:237:PHE:CB	2.37	0.53
2:D:31:ALA:O	2:D:42:ARG:HG3	2.08	0.53
5:I:125:A:H2'	5:I:126:G:O4'	2.08	0.53
1:A:18:LEU:HD11	1:A:53:LEU:CD1	2.28	0.53
1:A:197:VAL:HG21	1:A:217:ILE:HD12	1.91	0.53
2:B:38:HIS:ND1	2:F:28:TYR:OH	2.40	0.53
1:A:104:PRO:HB3	5:I:131:G:H5'	1.89	0.53
2:C:36:ARG:O	2:C:37:LYS:C	2.47	0.53
5:I:30:G:H2'	5:I:31:G:C8	2.43	0.53
1:A:148:ARG:HB3	1:A:175:GLU:O	2.09	0.53
2:C:28:TYR:CZ	2:D:41:ALA:HB2	2.44	0.53
2:E:19:ARG:HG3	2:E:112:ILE:HD11	1.91	0.53
1:A:13:THR:HG22	1:A:53:LEU:HB2	1.89	0.53
2:B:80:PHE:CZ	2:F:24:ILE:HD13	2.43	0.53
2:C:90:LYS:HG2	5:I:2:A:OP1	2.09	0.53
1:A:308:GLN:CG	1:A:309:TRP:N	2.71	0.52
2:C:50:LEU:O	2:D:77:MET:HE1	2.09	0.52
2:F:52:GLN:OE1	2:F:74:GLY:HA3	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:126:LEU:HG	1:A:220:LEU:CD1	2.39	0.52
1:A:282:ARG:HH22	3:G:371:G:P	2.32	0.52
2:C:57:ILE:HG21	2:D:76:ALA:CB	2.39	0.52
1:A:24:LYS:HB3	1:A:88:HIS:CE1	2.44	0.52
2:C:75:LEU:HD12	2:C:113:LEU:CD2	2.40	0.52
2:C:88:ILE:O	2:C:89:GLN:C	2.47	0.52
2:C:92:HIS:H	2:C:92:HIS:HD2	1.58	0.52
2:E:85:LEU:CD1	2:E:88:ILE:HD12	2.40	0.52
1:A:94:VAL:HG13	1:A:98:PHE:CE2	2.45	0.52
1:A:135:LEU:HD13	1:A:231:PHE:HB2	1.90	0.52
1:A:159:ILE:HG13	1:A:168:LEU:HD11	1.91	0.52
2:E:27:LEU:HD21	2:E:102:ALA:CB	2.40	0.52
1:A:25:THR:OG1	1:A:85:LEU:HA	2.09	0.52
1:A:41:TYR:CE2	2:C:79:ARG:HD3	2.45	0.52
1:A:105:TYR:CE2	1:A:202:HIS:CE1	2.98	0.52
2:C:94:MET:HB3	2:C:99:VAL:HG22	1.90	0.52
1:A:41:TYR:CD1	2:B:4:ILE:CG2	2.92	0.52
1:A:103:LEU:HD22	1:A:202:HIS:CG	2.45	0.52
1:A:218:VAL:HG11	1:A:258:ILE:HD13	1.92	0.52
2:D:21:GLU:OE2	2:E:80:PHE:HD1	1.93	0.52
2:E:17:VAL:HG21	2:E:57:ILE:HG13	1.91	0.52
2:F:45:PHE:CG	2:F:85:LEU:HD11	2.44	0.52
5:I:14:A:N6	5:I:24:U:H3	2.07	0.52
1:A:108:ALA:O	1:A:110:ARG:HG2	2.10	0.52
1:A:133:HIS:CG	1:A:224:PRO:HB3	2.45	0.52
2:B:61:LYS:HB2	2:C:73:ALA:HB2	1.92	0.52
5:I:14:A:H61	5:I:24:U:H3	1.57	0.52
1:A:265:ILE:HA	1:A:270:LYS:HB3	1.92	0.51
1:A:266:TRP:O	1:A:267:PRO:C	2.47	0.51
2:D:68:LEU:HD11	2:D:116:TRP:CD2	2.45	0.51
1:A:87:GLN:HG2	1:A:171:VAL:HG22	1.91	0.51
1:A:212:ARG:HB2	1:A:217:ILE:CG2	2.37	0.51
1:A:215:ASP:N	1:A:215:ASP:OD1	2.42	0.51
1:A:271:LEU:HD11	5:I:86:U:H2'	1.92	0.51
2:C:24:ILE:HD13	2:D:80:PHE:CZ	2.45	0.51
2:F:75:LEU:CD1	2:F:113:LEU:HD12	2.36	0.51
1:A:141:LYS:HE3	1:A:144:PRO:HB2	1.91	0.51
1:A:204:GLU:O	1:A:205:LEU:HB2	2.10	0.51
2:D:85:LEU:HD22	2:D:89:GLN:NE2	2.24	0.51
5:I:24:U:C4	5:I:25:U:C4	2.98	0.51
1:A:39:LYS:CA	1:A:42:ASP:HB3	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:LEU:CD1	1:A:202:HIS:HB3	2.41	0.51
2:F:20:TYR:CG	2:F:56:PHE:HE2	2.27	0.51
1:A:13:THR:O	1:A:50:GLN:NE2	2.44	0.51
2:E:82:LEU:CD1	2:E:106:ILE:HD12	2.41	0.51
2:C:38:HIS:HB3	2:C:88:ILE:HD13	1.91	0.51
1:A:36:LEU:HD12	2:B:11:TYR:HE1	1.75	0.51
1:A:275:SER:OG	5:I:81:A:N1	2.44	0.51
2:F:98:GLN:O	2:F:102:ALA:N	2.44	0.51
1:A:139:PHE:CZ	1:A:197:VAL:HG21	2.46	0.51
1:A:139:PHE:HD1	1:A:246:ILE:HG12	1.76	0.51
1:A:274:LYS:HZ2	1:A:278:LYS:HZ3	1.57	0.51
1:A:123:GLN:HB2	1:A:265:ILE:CG2	2.41	0.51
2:D:53:VAL:HG11	2:E:80:PHE:CG	2.46	0.51
2:D:53:VAL:HG11	2:E:80:PHE:CD1	2.46	0.51
4:H:118:U:H2'	4:H:119:G:C8	2.45	0.51
1:A:49:LEU:HB2	2:B:1:MET:HE2	1.93	0.50
1:A:192:VAL:C	1:A:194:GLY:N	2.64	0.50
2:C:40:VAL:HA	2:C:43:GLU:HG2	1.93	0.50
2:D:17:VAL:O	2:D:21:GLU:HG2	2.11	0.50
1:A:223:ASP:O	1:A:226:GLU:N	2.44	0.50
2:D:27:LEU:HD11	2:D:82:LEU:HD21	1.93	0.50
1:A:213:TYR:CD2	1:A:213:TYR:O	2.65	0.50
1:A:218:VAL:CG1	1:A:258:ILE:HD13	2.42	0.50
2:C:21:GLU:OE1	2:D:88:ILE:HD11	2.12	0.50
2:C:34:ILE:HB	2:C:42:ARG:HB2	1.94	0.50
2:E:59:ALA:C	2:E:116:TRP:CH2	2.82	0.50
5:I:28:C:H2'	5:I:29:G:C8	2.46	0.50
2:C:16:ILE:HD12	2:C:109:VAL:HG13	1.92	0.50
1:A:265:ILE:HG23	1:A:270:LYS:CB	2.40	0.50
2:B:34:ILE:O	2:B:35:PRO:O	2.30	0.50
2:D:28:TYR:CE1	2:D:32:GLN:HG3	2.47	0.50
1:A:187:GLN:N	1:A:313:HIS:HE1	2.10	0.50
1:A:201:LEU:HG	1:A:234:LEU:HD11	1.94	0.50
2:B:38:HIS:ND1	2:F:28:TYR:CE2	2.78	0.50
2:D:30:ILE:HD13	2:D:98:GLN:HB3	1.94	0.50
2:E:38:HIS:CG	2:E:88:ILE:HD13	2.47	0.50
5:I:26:G:C4	5:I:27:G:C8	3.00	0.50
2:B:77:MET:CE	2:F:50:LEU:O	2.59	0.50
2:B:85:LEU:O	2:B:93:ALA:HB3	2.11	0.50
2:E:26:TYR:CZ	2:E:30:ILE:HD11	2.47	0.50
2:F:98:GLN:HA	2:F:101:THR:OG1	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:100:GLU:O	2:F:104:VAL:HG23	2.12	0.50
1:A:109:CYS:H	1:A:314:ASN:HD21	1.59	0.50
2:C:72:ASP:N	2:C:113:LEU:HD21	2.26	0.50
2:F:105:LEU:O	2:F:109:VAL:HG23	2.12	0.50
1:A:33:TRP:HH2	2:B:9:LYS:HB3	1.76	0.49
1:A:215:ASP:N	1:A:311:ASP:OD2	2.45	0.49
1:A:261:LEU:O	1:A:263:TYR:HD1	1.95	0.49
2:C:35:PRO:HG2	2:C:91:PRO:HB2	1.93	0.49
2:F:40:VAL:O	2:F:44:MET:HG3	2.12	0.49
5:I:101:A:H2'	5:I:102:A:C8	2.47	0.49
1:A:215:ASP:H	1:A:311:ASP:CG	2.15	0.49
2:D:28:TYR:CZ	2:D:32:GLN:NE2	2.81	0.49
2:E:26:TYR:CE2	2:E:101:THR:HB	2.47	0.49
5:I:96:C:H2'	5:I:97:G:C8	2.47	0.49
1:A:311:ASP:OD1	1:A:311:ASP:N	2.46	0.49
2:C:75:LEU:HD12	2:C:113:LEU:HD23	1.95	0.49
2:D:91:PRO:O	2:D:93:ALA:N	2.46	0.49
2:F:68:LEU:HD21	2:F:116:TRP:CE2	2.47	0.49
1:A:109:CYS:N	1:A:314:ASN:HD21	2.11	0.49
2:C:87:GLY:O	2:C:89:GLN:N	2.45	0.49
2:C:95:THR:OG1	2:C:98:GLN:HG3	2.12	0.49
2:D:68:LEU:HD21	2:D:116:TRP:CE2	2.47	0.49
2:F:34:ILE:HG22	2:F:38:HIS:HB2	1.95	0.49
1:A:5:HIS:HB3	1:A:8:LEU:HD21	1.94	0.49
1:A:109:CYS:H	1:A:314:ASN:ND2	2.10	0.49
2:C:17:VAL:O	2:C:21:GLU:HG2	2.12	0.49
2:D:36:ARG:O	2:D:39:GLY:N	2.45	0.49
1:A:33:TRP:HH2	2:B:9:LYS:CB	2.25	0.49
1:A:134:PHE:HB2	1:A:220:LEU:HD23	1.94	0.49
2:D:40:VAL:O	2:D:44:MET:HG3	2.12	0.49
1:A:50:GLN:O	1:A:54:LYS:HB2	2.12	0.49
1:A:139:PHE:HB2	1:A:215:ASP:HB3	1.93	0.49
1:A:264:ARG:HB2	1:A:266:TRP:HZ3	1.78	0.49
2:B:5:GLU:HA	2:B:9:LYS:HZ1	1.78	0.49
2:D:90:LYS:O	2:D:92:HIS:N	2.45	0.49
2:E:100:GLU:O	2:E:104:VAL:HG23	2.13	0.49
1:A:45:ASN:OD1	2:B:3:PRO:HA	2.13	0.49
1:A:58:TYR:CE1	1:A:86:VAL:HG21	2.47	0.49
1:A:107:TYR:CZ	1:A:121:HIS:CB	2.95	0.49
1:A:141:LYS:CB	1:A:308:GLN:HB2	2.43	0.49
1:A:182:GLY:HA3	1:A:320:GLU:CD	2.33	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:53:VAL:HG11	2:C:80:PHE:CG	2.47	0.49
1:A:105:TYR:CE1	1:A:121:HIS:CE1	3.01	0.49
1:A:146:ILE:HG12	1:A:193:TYR:CD2	2.36	0.49
2:D:87:GLY:N	2:D:92:HIS:HB3	2.27	0.49
5:I:35:G:C5	5:I:36:C:H2'	2.48	0.49
1:A:30:ARG:HA	1:A:35:TYR:CD2	2.48	0.48
2:B:59:ALA:HA	2:B:67:LYS:HB2	1.94	0.48
2:C:34:ILE:HG12	2:C:93:ALA:HB2	1.94	0.48
3:G:372:G:H5"	5:I:82:C:C5'	2.42	0.48
1:A:194:GLY:O	1:A:197:VAL:HG22	2.13	0.48
2:B:57:ILE:HG21	2:C:76:ALA:HB3	1.95	0.48
2:D:16:ILE:HD11	2:D:113:LEU:HB2	1.95	0.48
1:A:33:TRP:CH2	2:B:9:LYS:HB3	2.47	0.48
2:C:88:ILE:O	2:C:88:ILE:HG22	2.14	0.48
1:A:105:TYR:CD1	1:A:121:HIS:NE2	2.82	0.48
1:A:213:TYR:O	1:A:214:MET:CB	2.61	0.48
2:B:80:PHE:CZ	2:B:84:PHE:HB2	2.48	0.48
2:D:52:GLN:OE1	2:D:75:LEU:HG	2.14	0.48
5:I:76:G:C5	5:I:77:G:H1'	2.48	0.48
1:A:271:LEU:HD21	5:I:87:U:H5'	1.96	0.48
2:C:90:LYS:HD2	2:C:90:LYS:H	1.78	0.48
1:A:53:LEU:HD21	1:A:86:VAL:CG2	2.44	0.48
1:A:189:PHE:O	1:A:192:VAL:HB	2.14	0.48
2:B:72:ASP:N	2:B:113:LEU:HD21	2.29	0.48
2:F:13:GLN:HE21	2:F:116:TRP:HB2	1.78	0.48
2:F:27:LEU:HD12	2:F:30:ILE:HD11	1.95	0.48
1:A:94:VAL:O	1:A:97:ILE:HG12	2.13	0.48
1:A:207:GLN:CD	1:A:230:VAL:HG21	2.33	0.48
2:B:60:GLY:HA2	2:B:116:TRP:HZ2	1.78	0.48
1:A:166:ARG:O	1:A:170:VAL:HG23	2.14	0.48
2:B:27:LEU:O	2:B:31:ALA:N	2.47	0.48
2:D:34:ILE:HG21	2:D:89:GLN:NE2	2.28	0.48
2:E:89:GLN:HB3	2:E:91:PRO:HD2	1.96	0.48
2:C:81:TRP:O	2:C:85:LEU:HD12	2.13	0.48
2:C:85:LEU:HD23	2:C:88:ILE:HD11	1.96	0.48
2:F:30:ILE:HG21	2:F:98:GLN:NE2	2.28	0.48
5:I:10:G:C6	5:I:11:C:C4	3.02	0.48
1:A:271:LEU:CD1	5:I:86:U:H2'	2.44	0.47
2:C:26:TYR:HH	2:C:101:THR:HG1	1.62	0.47
2:F:27:LEU:HB3	2:F:49:LEU:CD2	2.43	0.47
2:F:30:ILE:HA	2:F:33:SER:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:104:C:O2	5:I:130:G:N2	2.47	0.47
1:A:296:LEU:O	1:A:300:LEU:HB2	2.14	0.47
2:D:19:ARG:HG3	2:D:112:ILE:HD11	1.95	0.47
2:F:52:GLN:HE22	2:F:71:ALA:CA	2.26	0.47
2:B:38:HIS:ND1	2:F:28:TYR:HE2	2.12	0.47
2:C:43:GLU:HG3	2:C:44:MET:N	2.30	0.47
2:D:28:TYR:CD2	2:E:84:PHE:HZ	2.32	0.47
5:I:5:G:C2'	5:I:6:C:H5'	2.43	0.47
1:A:31:ARG:O	2:B:11:TYR:OH	2.31	0.47
1:A:187:GLN:HG3	1:A:313:HIS:CE1	2.50	0.47
2:B:82:LEU:HD11	2:B:106:ILE:CD1	2.44	0.47
2:D:113:LEU:O	2:D:117:ILE:HG12	2.14	0.47
2:F:34:ILE:HB	2:F:42:ARG:HB2	1.95	0.47
2:F:35:PRO:HG3	2:F:92:HIS:CD2	2.49	0.47
2:C:89:GLN:HG2	5:I:42:C:O4'	2.13	0.47
2:D:68:LEU:HD12	2:D:113:LEU:CD1	2.45	0.47
2:E:20:TYR:OH	2:E:49:LEU:HD12	2.13	0.47
5:I:98:G:C2	5:I:134:C:C2	3.02	0.47
1:A:63:TYR:CE1	1:A:79:LEU:HG	2.49	0.47
1:A:108:ALA:HB2	1:A:213:TYR:CA	2.44	0.47
1:A:123:GLN:HB2	1:A:265:ILE:HG21	1.96	0.47
2:B:24:ILE:HD11	2:B:53:VAL:CG2	2.45	0.47
2:D:87:GLY:HA2	2:D:92:HIS:ND1	2.29	0.47
2:E:34:ILE:HG23	2:E:93:ALA:CB	2.44	0.47
1:A:107:TYR:N	1:A:212:ARG:O	2.42	0.47
1:A:152:TYR:CE2	1:A:172:LEU:HD23	2.50	0.47
1:A:228:ARG:HA	1:A:251:VAL:HG21	1.97	0.47
1:A:304:SER:HA	1:A:316:PHE:HZ	1.80	0.47
2:B:13:GLN:HB3	2:B:60:GLY:HA3	1.95	0.47
2:B:18:GLU:O	2:B:21:GLU:HB2	2.15	0.47
2:D:87:GLY:O	2:D:92:HIS:ND1	2.46	0.47
2:E:64:GLN:C	2:E:66:SER:H	2.18	0.47
2:E:99:VAL:O	2:E:103:GLN:HG2	2.15	0.47
2:F:41:ALA:HB1	2:F:84:PHE:HE2	1.79	0.47
5:I:10:G:C6	5:I:29:G:C6	3.03	0.47
5:I:104:C:H2'	5:I:105:G:O4'	2.15	0.47
2:C:92:HIS:CD2	2:C:92:HIS:N	2.80	0.47
2:E:37:LYS:HE3	5:I:7:U:O2	2.15	0.47
1:A:126:LEU:HD21	1:A:220:LEU:HD22	1.97	0.47
1:A:155:ILE:CG2	1:A:168:LEU:HD13	2.45	0.47
1:A:187:GLN:N	1:A:313:HIS:CE1	2.82	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:274:LYS:O	1:A:275:SER:HB3	2.14	0.47
2:B:26:TYR:OH	2:B:98:GLN:HG2	2.15	0.47
2:C:50:LEU:O	2:D:77:MET:CE	2.63	0.47
2:E:27:LEU:CD1	2:E:82:LEU:HD21	2.45	0.47
1:A:13:THR:HG22	1:A:53:LEU:CB	2.45	0.47
1:A:143:PHE:HD2	1:A:179:ILE:CG2	2.27	0.47
1:A:151:LEU:HD21	1:A:189:PHE:CD2	2.50	0.47
2:D:95:THR:O	2:D:99:VAL:HG23	2.15	0.47
5:I:11:C:H2'	5:I:12:C:O4'	2.14	0.47
1:A:109:CYS:HB3	1:A:314:ASN:OD1	2.15	0.46
5:I:79:G:H2'	5:I:80:A:C8	2.50	0.46
1:A:197:VAL:CG2	1:A:217:ILE:HD12	2.46	0.46
1:A:221:GLY:HA3	1:A:227:LEU:CD2	2.39	0.46
2:D:46:LEU:HB2	2:E:40:VAL:HG11	1.97	0.46
2:F:42:ARG:O	2:F:43:GLU:C	2.50	0.46
5:I:15:C:N4	5:I:24:U:O2'	2.47	0.46
1:A:103:LEU:HD13	1:A:202:HIS:CB	2.43	0.46
1:A:119:VAL:HG11	1:A:263:TYR:CD1	2.50	0.46
1:A:212:ARG:HA	1:A:216:ASP:O	2.15	0.46
2:C:85:LEU:HB2	2:C:94:MET:HE3	1.98	0.46
2:D:82:LEU:HB3	2:D:99:VAL:HG13	1.98	0.46
2:E:23:VAL:HG12	2:E:27:LEU:HD12	1.96	0.46
5:I:69:C:H2'	5:I:70:U:C6	2.50	0.46
5:I:109:A:O3'	5:I:110:U:H4'	2.15	0.46
2:C:85:LEU:HB3	2:C:93:ALA:CB	2.43	0.46
1:A:4:ARG:NH2	5:I:111:U:O4	2.45	0.46
1:A:141:LYS:HA	1:A:308:GLN:CB	2.27	0.46
2:B:106:ILE:O	2:B:110:GLY:N	2.46	0.46
2:C:31:ALA:O	2:C:42:ARG:HG3	2.14	0.46
2:D:99:VAL:HG12	2:D:103:GLN:OE1	2.16	0.46
5:I:105:G:H1'	5:I:129:G:N2	2.31	0.46
1:A:19:LEU:HD21	1:A:43:LEU:HD22	1.98	0.46
1:A:25:THR:HG22	1:A:81:PHE:CE1	2.50	0.46
1:A:42:ASP:HA	1:A:45:ASN:HB2	1.98	0.46
1:A:200:LEU:HD13	1:A:237:PHE:CG	2.49	0.46
2:B:44:MET:CE	2:F:47:LYS:HA	2.45	0.46
5:I:25:U:C2	5:I:26:G:C8	3.03	0.46
1:A:8:LEU:HD12	1:A:159:ILE:HG23	1.97	0.46
1:A:109:CYS:CA	1:A:314:ASN:HD21	2.29	0.46
1:A:139:PHE:CZ	1:A:217:ILE:HD11	2.50	0.46
2:B:50:LEU:HD21	2:C:84:PHE:CE1	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:26:G:H2'	5:I:27:G:H8	1.81	0.46
1:A:187:GLN:CA	1:A:313:HIS:CE1	2.98	0.46
2:C:34:ILE:CG2	2:C:38:HIS:HB2	2.46	0.46
2:E:53:VAL:HG12	2:E:57:ILE:HD12	1.98	0.46
5:I:77:G:H5"	5:I:77:G:C8	2.50	0.46
1:A:8:LEU:CD1	1:A:159:ILE:HD12	2.45	0.46
1:A:192:VAL:O	1:A:195:GLY:N	2.49	0.46
1:A:217:ILE:O	1:A:218:VAL:C	2.52	0.46
2:B:84:PHE:HA	2:B:88:ILE:HD12	1.98	0.46
2:C:50:LEU:HD13	2:D:81:TRP:HH2	1.81	0.46
2:C:89:GLN:CG	2:C:90:LYS:HE2	2.46	0.46
1:A:185:THR:O	1:A:186:SER:C	2.54	0.46
1:A:271:LEU:HD13	1:A:272:LEU:H	1.80	0.46
1:A:273:ARG:HD2	1:A:273:ARG:HA	1.78	0.46
2:D:85:LEU:HB2	2:D:94:MET:HE3	1.98	0.46
1:A:41:TYR:CZ	2:C:79:ARG:NH1	2.84	0.45
1:A:202:HIS:NE2	5:I:129:G:O2'	2.34	0.45
2:C:16:ILE:HG21	2:C:116:TRP:HZ3	1.80	0.45
2:C:90:LYS:HB3	2:C:91:PRO:HD2	1.96	0.45
2:E:77:MET:O	2:E:81:TRP:CD1	2.69	0.45
2:F:34:ILE:O	2:F:42:ARG:NH1	2.49	0.45
1:A:190:ALA:C	1:A:192:VAL:H	2.19	0.45
1:A:206:LYS:HZ2	1:A:208:ARG:NH2	2.13	0.45
2:B:16:ILE:HG12	2:B:109:VAL:HG13	1.98	0.45
2:B:56:PHE:CD1	2:B:71:ALA:HB1	2.51	0.45
2:E:37:LYS:HA	5:I:7:U:O4'	2.16	0.45
5:I:107:C:H2'	5:I:108:G:O4'	2.15	0.45
2:B:57:ILE:O	2:B:61:LYS:HG2	2.16	0.45
2:D:28:TYR:OH	2:D:32:GLN:NE2	2.50	0.45
2:D:50:LEU:HD21	2:E:84:PHE:CE1	2.51	0.45
5:I:73:U:H2'	5:I:75:C:C4	2.51	0.45
1:A:38:PHE:HZ	1:A:46:LEU:HD23	1.81	0.45
1:A:219:VAL:HG12	1:A:219:VAL:O	2.16	0.45
2:E:31:ALA:O	2:E:42:ARG:HG3	2.16	0.45
4:H:128:C:N3	5:I:46:A:H2	2.15	0.45
5:I:100:A:H4'	5:I:101:A:C8	2.47	0.45
1:A:140:SER:CA	1:A:309:TRP:CZ3	2.97	0.45
1:A:274:LYS:O	1:A:276:SER:N	2.40	0.45
2:B:60:GLY:HA2	2:B:116:TRP:CZ2	2.50	0.45
2:B:37:LYS:HB2	2:B:37:LYS:HE2	1.78	0.45
2:B:49:LEU:HA	2:B:78:LEU:HD13	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:106:ILE:O	2:C:110:GLY:N	2.44	0.45
1:A:4:ARG:O	1:A:160:HIS:CB	2.62	0.45
1:A:105:TYR:CD1	1:A:121:HIS:CE1	3.05	0.45
2:D:56:PHE:CD1	2:D:71:ALA:HB1	2.51	0.45
2:F:20:TYR:HA	2:F:109:VAL:HG21	1.99	0.45
1:A:41:TYR:OH	2:C:79:ARG:NH1	2.50	0.45
1:A:60:ARG:H	1:A:170:VAL:CG1	2.30	0.45
1:A:154:MET:C	1:A:156:ASP:H	2.20	0.45
1:A:208:ARG:HE	5:I:129:G:H5'	1.82	0.45
2:D:28:TYR:CE2	2:D:50:LEU:HD11	2.52	0.45
2:D:37:LYS:HE3	2:D:37:LYS:HB3	1.54	0.45
1:A:19:LEU:O	1:A:20:ASP:C	2.56	0.45
1:A:103:LEU:CD2	1:A:104:PRO:HD2	2.43	0.45
1:A:141:LYS:O	1:A:144:PRO:HD2	2.16	0.45
2:B:75:LEU:HD21	2:B:109:VAL:HG12	1.99	0.45
5:I:125:A:C2	5:I:126:G:H1'	2.52	0.45
2:B:38:HIS:NE2	2:B:91:PRO:HD3	2.32	0.45
2:D:28:TYR:CZ	2:E:88:ILE:HD11	2.52	0.45
2:D:98:GLN:HA	2:D:101:THR:HG23	1.98	0.45
2:E:15:LEU:HG	2:E:112:ILE:HD13	1.99	0.45
2:E:26:TYR:CE2	2:E:30:ILE:HD11	2.52	0.44
5:I:71:G:N2	5:I:79:G:H1'	2.33	0.44
1:A:152:TYR:OH	1:A:172:LEU:HB3	2.18	0.44
1:A:188:LEU:O	1:A:192:VAL:HG23	2.18	0.44
1:A:190:ALA:C	1:A:192:VAL:N	2.70	0.44
1:A:269:HIS:HB3	5:I:90:A:H61	1.82	0.44
2:B:52:GLN:OE1	2:B:74:GLY:HA3	2.17	0.44
2:B:84:PHE:CE1	2:F:50:LEU:HD21	2.52	0.44
2:B:90:LYS:HD3	2:B:90:LYS:HA	1.48	0.44
2:F:108:GLU:O	2:F:112:ILE:HG13	2.18	0.44
1:A:139:PHE:CD1	1:A:246:ILE:HG12	2.52	0.44
2:B:12:ASP:HB3	2:B:116:TRP:CG	2.52	0.44
2:C:35:PRO:HD2	2:C:38:HIS:HD2	1.82	0.44
2:F:94:MET:HG3	2:F:98:GLN:HB2	1.99	0.44
2:E:28:TYR:HB3	2:E:29:PRO:HD3	2.00	0.44
2:F:83:ARG:O	2:F:86:ALA:HB3	2.18	0.44
2:C:82:LEU:CD2	2:C:94:MET:SD	3.03	0.44
2:C:91:PRO:O	2:C:93:ALA:N	2.50	0.44
2:E:80:PHE:CE1	2:E:84:PHE:HB2	2.52	0.44
2:F:27:LEU:HG	2:F:45:PHE:CZ	2.41	0.44
2:F:31:ALA:HB2	2:F:45:PHE:CE2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:105:G:H2'	5:I:106:U:O4'	2.17	0.44
2:B:80:PHE:CE1	2:B:84:PHE:HB2	2.52	0.44
2:C:31:ALA:HB2	2:C:45:PHE:CE2	2.53	0.44
1:A:3:LYS:O	1:A:4:ARG:HB2	2.18	0.44
1:A:7:ASN:N	1:A:161:CYS:HB2	2.32	0.44
1:A:241:ARG:HB3	1:A:242:LEU:HD23	1.98	0.44
1:A:260:PHE:HB3	1:A:265:ILE:HD11	1.99	0.44
1:A:273:ARG:C	1:A:274:LYS:HG3	2.37	0.44
2:C:34:ILE:CD1	2:C:85:LEU:HD22	2.46	0.44
1:A:41:TYR:CG	2:B:4:ILE:CG2	3.01	0.44
2:B:72:ASP:CA	2:B:113:LEU:HD21	2.48	0.44
2:B:82:LEU:CD1	2:B:106:ILE:HD12	2.47	0.44
5:I:29:G:H3'	5:I:30:G:H8	1.83	0.44
5:I:76:G:C2	5:I:77:G:C8	3.06	0.44
1:A:4:ARG:NH2	5:I:110:U:O2'	2.47	0.44
1:A:5:HIS:O	1:A:159:ILE:O	2.36	0.44
1:A:107:TYR:HE2	1:A:121:HIS:CD2	2.36	0.44
1:A:305:GLY:HA2	1:A:308:GLN:CD	2.37	0.44
2:B:56:PHE:O	2:B:59:ALA:HB3	2.17	0.44
2:D:75:LEU:HD11	2:D:109:VAL:HG13	1.99	0.44
2:D:75:LEU:HD23	2:D:75:LEU:HA	1.86	0.44
5:I:23:C:H2'	5:I:24:U:O4'	2.17	0.44
5:I:112:A:C2	5:I:123:A:C2	3.06	0.44
1:A:41:TYR:CZ	2:C:79:ARG:HD3	2.53	0.43
1:A:46:LEU:HD21	1:A:85:LEU:HD11	2.00	0.43
1:A:98:PHE:CE1	1:A:158:LYS:HB3	2.52	0.43
2:C:23:VAL:HG11	2:C:78:LEU:HD21	1.99	0.43
2:C:24:ILE:HD11	2:C:53:VAL:HG22	1.99	0.43
2:E:20:TYR:HA	2:E:109:VAL:HG11	2.00	0.43
5:I:27:G:C5	5:I:28:C:C4	3.06	0.43
5:I:77:G:H5"	5:I:77:G:H8	1.81	0.43
1:A:41:TYR:CD2	2:C:107:ALA:HB2	2.53	0.43
1:A:60:ARG:HB2	1:A:170:VAL:HG12	2.00	0.43
1:A:221:GLY:HA3	1:A:227:LEU:CD1	2.44	0.43
1:A:266:TRP:CD1	1:A:268:THR:HB	2.54	0.43
2:E:40:VAL:O	2:E:44:MET:HG3	2.18	0.43
1:A:108:ALA:O	1:A:109:CYS:C	2.56	0.43
1:A:126:LEU:CD2	1:A:254:VAL:HG11	2.43	0.43
2:F:27:LEU:HD12	2:F:27:LEU:HA	1.75	0.43
1:A:17:ASN:HD21	1:A:92:ASN:HB2	1.82	0.43
1:A:200:LEU:HG	1:A:200:LEU:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:24:ILE:HD13	2:C:80:PHE:CZ	2.53	0.43
2:E:27:LEU:HD21	2:E:102:ALA:HB2	1.98	0.43
2:E:27:LEU:HD23	2:E:27:LEU:HA	1.74	0.43
1:A:9:ILE:N	1:A:164:THR:OG1	2.51	0.43
2:D:38:HIS:NE2	2:D:91:PRO:CD	2.79	0.43
1:A:36:LEU:HD13	2:B:15:LEU:N	2.32	0.43
1:A:123:GLN:O	1:A:126:LEU:HB2	2.19	0.43
2:B:31:ALA:HB2	2:B:45:PHE:CE2	2.54	0.43
2:B:54:GLU:O	2:B:58:VAL:HG22	2.19	0.43
2:C:37:LYS:O	5:I:3:U:C4	2.72	0.43
2:D:100:GLU:O	2:D:104:VAL:HG23	2.19	0.43
2:E:46:LEU:HD23	2:E:46:LEU:HA	1.79	0.43
2:F:26:TYR:HH	2:F:101:THR:HG1	1.64	0.43
5:I:9:U:H2'	5:I:10:G:H8	1.81	0.43
1:A:126:LEU:HD13	1:A:267:PRO:HD3	2.01	0.43
1:A:137:SER:HB2	1:A:246:ILE:CG2	2.48	0.43
1:A:262:GLY:O	1:A:273:ARG:N	2.51	0.43
2:C:34:ILE:HG12	2:C:93:ALA:CB	2.49	0.43
2:E:94:MET:HE2	2:E:99:VAL:HG22	2.00	0.43
5:I:85:G:H1'	5:I:89:C:N4	2.33	0.43
1:A:122:VAL:HB	1:A:265:ILE:HD13	2.01	0.43
2:B:27:LEU:CD1	2:B:82:LEU:HD21	2.47	0.43
2:C:30:ILE:HD12	2:C:98:GLN:OE1	2.18	0.43
2:D:74:GLY:O	2:D:78:LEU:N	2.45	0.43
2:D:85:LEU:CD2	2:D:89:GLN:NE2	2.82	0.43
2:D:91:PRO:O	2:D:92:HIS:C	2.56	0.43
4:H:128:C:H2'	4:H:129:U:O4'	2.19	0.43
1:A:169:ARG:HG2	1:A:174:ASP:HB2	2.01	0.43
2:E:19:ARG:HH21	2:E:108:GLU:HG3	1.82	0.43
1:A:278:LYS:HB2	1:A:278:LYS:HE2	1.56	0.43
2:B:20:TYR:OH	2:B:49:LEU:HD12	2.18	0.43
2:B:20:TYR:CE2	2:B:52:GLN:HB3	2.54	0.43
2:B:82:LEU:HD22	2:B:94:MET:HE1	2.00	0.43
2:F:23:VAL:HG11	2:F:106:ILE:HG12	2.01	0.43
5:I:29:G:C6	5:I:30:G:C5	3.07	0.43
1:A:256:ARG:HH22	5:I:78:C:N4	2.17	0.42
2:E:37:LYS:HD2	5:I:7:U:O4'	2.19	0.42
2:E:87:GLY:N	5:I:19:A:H61	2.17	0.42
5:I:15:C:H2'	5:I:16:G:O4'	2.19	0.42
1:A:133:HIS:CD2	1:A:224:PRO:HB3	2.53	0.42
1:A:259:ASN:ND2	1:A:264:ARG:HG2	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:7:ALA:CB	2:C:117:ILE:HD13	2.49	0.42
2:F:102:ALA:O	2:F:106:ILE:HG13	2.19	0.42
5:I:26:G:C2	5:I:27:G:C4	3.07	0.42
1:A:179:ILE:HD11	1:A:189:PHE:HB3	2.02	0.42
1:A:192:VAL:O	1:A:194:GLY:N	2.53	0.42
1:A:200:LEU:HD22	1:A:237:PHE:HB3	2.02	0.42
2:E:65:VAL:HA	2:E:68:LEU:HD13	2.02	0.42
5:I:112:A:H1'	5:I:123:A:N6	2.35	0.42
1:A:275:SER:CB	5:I:81:A:N1	2.83	0.42
2:B:57:ILE:CG2	2:C:76:ALA:HB3	2.49	0.42
2:B:94:MET:HE2	2:B:94:MET:HB3	1.98	0.42
2:C:57:ILE:HD12	2:D:76:ALA:HB1	2.00	0.42
2:D:13:GLN:N	2:D:60:GLY:HA3	2.34	0.42
2:D:90:LYS:HD3	2:D:90:LYS:HA	1.85	0.42
2:E:85:LEU:HD12	2:E:88:ILE:HD12	2.00	0.42
5:I:115:G:N2	5:I:117:A:H3'	2.34	0.42
1:A:109:CYS:SG	1:A:214:MET:HE1	2.60	0.42
1:A:264:ARG:HB2	1:A:266:TRP:CZ3	2.54	0.42
2:E:13:GLN:HG3	2:E:14:MET:N	2.34	0.42
2:F:72:ASP:HA	2:F:113:LEU:CD1	2.49	0.42
3:G:372:G:H1	5:I:67:U:H3	1.67	0.42
5:I:102:A:H3'	5:I:103:A:C8	2.54	0.42
5:I:112:A:C4	5:I:123:A:C5	3.08	0.42
1:A:7:ASN:HA	5:I:120:U:O2	2.19	0.42
1:A:146:ILE:O	1:A:148:ARG:N	2.53	0.42
1:A:187:GLN:HA	1:A:313:HIS:CE1	2.54	0.42
1:A:187:GLN:O	1:A:214:MET:HE3	2.19	0.42
1:A:264:ARG:NH1	1:A:271:LEU:HB3	2.35	0.42
1:A:264:ARG:NH1	1:A:266:TRP:HH2	2.17	0.42
2:B:75:LEU:HD22	2:B:113:LEU:HD22	2.01	0.42
2:C:35:PRO:HG2	2:C:91:PRO:CB	2.50	0.42
2:C:56:PHE:HZ	2:C:75:LEU:HD21	1.84	0.42
5:I:26:G:C6	5:I:27:G:C5	3.08	0.42
5:I:99:C:N3	5:I:132:G:O6	2.53	0.42
1:A:271:LEU:HG	5:I:86:U:H2'	2.01	0.42
2:C:20:TYR:HA	2:C:109:VAL:HG21	2.01	0.42
2:D:28:TYR:CD2	2:D:46:LEU:HD22	2.55	0.42
1:A:12:ILE:HG21	1:A:167:LEU:CD2	2.49	0.42
1:A:33:TRP:O	1:A:37:GLU:HB3	2.20	0.42
1:A:123:GLN:NE2	1:A:269:HIS:O	2.52	0.42
1:A:261:LEU:HD23	1:A:261:LEU:HA	1.70	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:53:VAL:HG21	2:C:80:PHE:CZ	2.55	0.42
2:D:44:MET:HE2	2:D:44:MET:HB3	1.92	0.42
2:E:30:ILE:HG12	2:E:98:GLN:NE2	2.35	0.42
2:E:34:ILE:HD13	2:E:34:ILE:HG21	1.79	0.42
5:I:9:U:H3	5:I:29:G:H1	1.68	0.42
5:I:123:A:H2'	5:I:124:A:O4'	2.20	0.42
1:A:29:LYS:CE	1:A:321:GLU:HG2	2.50	0.42
1:A:258:ILE:O	1:A:264:ARG:HA	2.19	0.42
1:A:263:TYR:HE2	4:H:118:U:OP2	2.02	0.42
2:B:7:ALA:HB3	2:C:117:ILE:HD13	2.02	0.42
2:F:36:ARG:HB2	5:I:5:G:OP1	2.20	0.42
2:F:73:ALA:HA	2:F:76:ALA:HB3	2.02	0.42
1:A:159:ILE:HG22	1:A:165:ARG:HD3	2.01	0.42
1:A:218:VAL:HG21	1:A:260:PHE:HB2	2.01	0.42
1:A:275:SER:HB2	5:I:81:A:N1	2.35	0.42
1:A:313:HIS:O	1:A:314:ASN:C	2.58	0.42
2:B:32:GLN:HE21	2:B:32:GLN:HB3	1.40	0.42
2:B:43:GLU:HA	2:C:40:VAL:HG21	2.02	0.42
2:B:68:LEU:HD23	2:B:68:LEU:HA	1.91	0.42
2:E:30:ILE:HD13	2:E:98:GLN:HB3	2.01	0.42
2:E:90:LYS:O	2:E:92:HIS:N	2.53	0.42
1:A:142:PHE:HZ	1:A:194:GLY:CA	2.33	0.41
1:A:147:ASP:HB2	1:A:193:TYR:CZ	2.55	0.41
1:A:159:ILE:O	1:A:160:HIS:CB	2.63	0.41
2:B:13:GLN:HB3	2:B:60:GLY:CA	2.49	0.41
2:D:27:LEU:O	2:D:31:ALA:N	2.44	0.41
2:E:36:ARG:O	2:E:38:HIS:N	2.53	0.41
2:F:16:ILE:HG13	2:F:116:TRP:CE3	2.55	0.41
5:I:31:G:H2'	5:I:32:C:O4'	2.20	0.41
1:A:146:ILE:HG22	1:A:148:ARG:H	1.84	0.41
1:A:308:GLN:HG3	1:A:309:TRP:N	2.34	0.41
1:A:315:LEU:O	1:A:315:LEU:HD23	2.20	0.41
2:E:85:LEU:HB3	2:E:94:MET:HG3	2.01	0.41
1:A:201:LEU:HG	1:A:234:LEU:CD1	2.50	0.41
2:B:88:ILE:HG12	2:F:25:SER:HB2	2.02	0.41
2:D:20:TYR:CD2	2:D:53:VAL:HG22	2.55	0.41
2:D:45:PHE:CG	2:D:85:LEU:HD11	2.54	0.41
2:D:46:LEU:HD23	2:D:46:LEU:HA	1.75	0.41
2:F:81:TRP:O	2:F:85:LEU:HG	2.20	0.41
1:A:256:ARG:HH11	1:A:256:ARG:HB3	1.84	0.41
2:C:26:TYR:O	2:C:30:ILE:HG12	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:56:PHE:CE1	2:D:71:ALA:HB1	2.55	0.41
2:D:75:LEU:O	2:D:79:ARG:N	2.41	0.41
2:E:60:GLY:HA2	2:E:116:TRP:CZ2	2.55	0.41
2:F:45:PHE:CD2	2:F:85:LEU:HD11	2.56	0.41
1:A:29:LYS:HZ1	1:A:321:GLU:HG2	1.85	0.41
1:A:141:LYS:HB3	1:A:308:GLN:HB2	2.02	0.41
1:A:187:GLN:HA	1:A:313:HIS:ND1	2.36	0.41
2:C:45:PHE:CG	2:C:85:LEU:HD11	2.55	0.41
2:D:19:ARG:HG3	2:D:112:ILE:CD1	2.50	0.41
2:F:20:TYR:OH	2:F:49:LEU:HD12	2.19	0.41
2:B:7:ALA:O	2:B:8:THR:C	2.59	0.41
2:B:27:LEU:HD23	2:B:27:LEU:HA	1.83	0.41
2:B:31:ALA:O	2:B:42:ARG:HD3	2.21	0.41
2:C:23:VAL:CG2	2:C:109:VAL:HG21	2.51	0.41
2:D:48:CYS:O	2:D:52:GLN:HB2	2.20	0.41
2:E:30:ILE:HD13	2:E:30:ILE:HG21	1.86	0.41
5:I:105:G:C4	5:I:129:G:C2	3.09	0.41
5:I:112:A:C5	5:I:123:A:C5	3.08	0.41
1:A:146:ILE:C	1:A:148:ARG:N	2.73	0.41
1:A:202:HIS:CD2	5:I:129:G:HO2'	2.34	0.41
2:B:62:SER:O	2:B:64:GLN:N	2.53	0.41
2:C:16:ILE:HD13	2:C:16:ILE:HA	1.77	0.41
2:D:43:GLU:HA	2:E:40:VAL:HG21	2.03	0.41
2:E:90:LYS:HD3	2:E:90:LYS:HA	1.29	0.41
2:E:106:ILE:HA	2:E:109:VAL:HG22	2.01	0.41
1:A:57:ASN:HD22	1:A:57:ASN:HA	1.47	0.41
1:A:223:ASP:C	1:A:225:GLU:N	2.74	0.41
2:E:81:TRP:HE3	2:E:85:LEU:HD22	1.86	0.41
2:E:99:VAL:O	2:E:103:GLN:CG	2.69	0.41
5:I:63:U:H2'	5:I:64:C:C6	2.55	0.41
1:A:98:PHE:CE1	1:A:158:LYS:CB	3.04	0.41
1:A:198:ASP:CG	1:A:212:ARG:HE	2.24	0.41
1:A:304:SER:O	1:A:308:GLN:HB3	2.21	0.41
1:A:310:ALA:HB3	1:A:312:THR:HG23	2.02	0.41
2:B:28:TYR:HH	2:C:38:HIS:HA	1.86	0.41
2:B:43:GLU:HG2	2:C:40:VAL:HG22	2.02	0.41
2:C:19:ARG:HD2	2:C:108:GLU:CG	2.50	0.41
2:C:39:GLY:HA2	2:C:42:ARG:HB3	2.03	0.41
2:D:81:TRP:O	2:D:85:LEU:HG	2.20	0.41
2:E:37:LYS:HA	2:E:37:LYS:HD2	1.74	0.41
5:I:37:C:H6	5:I:37:C:H2'	1.70	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:59:C:H6	5:I:60:G:H1'	1.85	0.41
5:I:77:G:H3'	5:I:78:C:H6	1.85	0.41
5:I:92:G:H3'	5:I:93:G:H4'	2.03	0.41
5:I:132:G:C6	5:I:133:C:C4	3.09	0.41
2:D:28:TYR:CE2	2:E:41:ALA:HB2	2.56	0.41
2:E:27:LEU:HD23	2:E:30:ILE:HD12	2.03	0.41
2:F:30:ILE:HG21	2:F:98:GLN:HE22	1.85	0.41
2:F:90:LYS:HB3	2:F:91:PRO:HD2	2.03	0.41
2:F:97:HIS:NE2	2:F:101:THR:HG21	2.36	0.41
1:A:135:LEU:HD23	1:A:219:VAL:HB	2.03	0.40
2:C:108:GLU:O	2:C:112:ILE:HG13	2.21	0.40
5:I:116:A:H2'	5:I:117:A:O4'	2.21	0.40
1:A:132:THR:C	1:A:254:VAL:HG23	2.41	0.40
1:A:152:TYR:HE2	1:A:172:LEU:HD23	1.85	0.40
1:A:260:PHE:CE2	1:A:261:LEU:HD12	2.56	0.40
2:C:20:TYR:CG	2:C:56:PHE:HE2	2.39	0.40
2:E:32:GLN:OE1	2:F:37:LYS:O	2.39	0.40
2:C:38:HIS:HE1	2:C:90:LYS:CD	2.30	0.40
2:D:28:TYR:CE1	2:D:32:GLN:CG	3.04	0.40
2:D:34:ILE:HG22	2:D:38:HIS:HB2	2.04	0.40
2:E:57:ILE:HD13	2:F:77:MET:HA	2.02	0.40
1:A:19:LEU:O	1:A:22:TYR:N	2.55	0.40
1:A:116:HIS:O	1:A:119:VAL:HG22	2.22	0.40
2:F:94:MET:CG	2:F:98:GLN:HB2	2.52	0.40
5:I:121:G:C6	5:I:122:G:C4	3.09	0.40
1:A:39:LYS:O	1:A:40:GLU:C	2.60	0.40
1:A:307:ALA:HB1	1:A:312:THR:HG21	2.03	0.40
2:B:46:LEU:HA	2:B:46:LEU:HD23	1.77	0.40
2:C:88:ILE:HG22	2:C:90:LYS:O	2.21	0.40
2:D:23:VAL:HG12	2:D:27:LEU:HD12	2.04	0.40
2:D:72:ASP:N	2:D:113:LEU:HD21	2.37	0.40
2:E:20:TYR:CE2	2:E:49:LEU:O	2.75	0.40
2:E:102:ALA:HA	2:E:105:LEU:HD12	2.04	0.40
2:F:82:LEU:HD22	2:F:94:MET:SD	2.62	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	309/328 (94%)	228 (74%)	63 (20%)	18 (6%)	1 6
2	B	120/290 (41%)	108 (90%)	8 (7%)	4 (3%)	3 14
2	C	109/290 (38%)	99 (91%)	3 (3%)	7 (6%)	1 5
2	D	108/290 (37%)	97 (90%)	10 (9%)	1 (1%)	14 40
2	E	108/290 (37%)	97 (90%)	8 (7%)	3 (3%)	4 17
2	F	108/290 (37%)	100 (93%)	7 (6%)	1 (1%)	14 40
All	All	862/1778 (48%)	729 (85%)	99 (12%)	34 (4%)	4 11

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	7	ASN
1	A	109	CYS
1	A	138	ASP
1	A	214	MET
1	A	255	SER
2	C	86	ALA
2	C	88	ILE
2	C	89	GLN
2	C	91	PRO
2	C	93	ALA
1	A	139	PHE
1	A	141	LYS
1	A	149	ALA
1	A	163	ALA
1	A	222	ASP
2	B	4	ILE
2	B	92	HIS
2	E	65	VAL
1	A	187	GLN
1	A	269	HIS

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Mol	Chain	Res	Type
2	B	35	PRO
2	D	92	HIS
2	E	89	GLN
1	A	4	ARG
1	A	140	SER
1	A	186	SER
2	C	12	ASP
1	A	40	GLU
1	A	103	LEU
1	A	193	TYR
2	B	2	GLU
2	F	90	LYS
2	C	92	HIS
2	E	91	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	264/278 (95%)	202 (76%)	62 (24%)	0	2
2	B	102/232 (44%)	84 (82%)	18 (18%)	1	6
2	C	92/232 (40%)	75 (82%)	17 (18%)	1	5
2	D	91/232 (39%)	75 (82%)	16 (18%)	1	6
2	E	91/232 (39%)	75 (82%)	16 (18%)	1	6
2	F	91/232 (39%)	66 (72%)	25 (28%)	0	1
All	All	731/1438 (51%)	577 (79%)	154 (21%)	2	3

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	ARG
1	A	6	ARG
1	A	16	GLU
1	A	18	LEU

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Mol	Chain	Res	Type
1	A	23	ARG
1	A	31	ARG
1	A	37	GLU
1	A	39	LYS
1	A	54	LYS
1	A	57	ASN
1	A	59	GLU
1	A	82	LYS
1	A	93	ILE
1	A	97	ILE
1	A	110	ARG
1	A	127	ARG
1	A	129	THR
1	A	130	ARG
1	A	132	THR
1	A	135	LEU
1	A	136	LYS
1	A	138	ASP
1	A	141	LYS
1	A	147	ASP
1	A	156	ASP
1	A	158	LYS
1	A	161	CYS
1	A	171	VAL
1	A	172	LEU
1	A	175	GLU
1	A	177	VAL
1	A	179	ILE
1	A	181	ILE
1	A	187	GLN
1	A	197	VAL
1	A	200	LEU
1	A	204	GLU
1	A	208	ARG
1	A	214	MET
1	A	215	ASP
1	A	217	ILE
1	A	227	LEU
1	A	240	GLU
1	A	244	LEU
1	A	247	SER
1	A	256	ARG

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Mol	Chain	Res	Type
1	A	264	ARG
1	A	265	ILE
1	A	270	LYS
1	A	271	LEU
1	A	274	LYS
1	A	276	SER
1	A	279	ARG
1	A	282	ARG
1	A	283	LYS
1	A	290	HIS
1	A	293	ASP
1	A	296	LEU
1	A	298	ARG
1	A	302	SER
1	A	317	THR
1	A	327	CYS
2	B	8	THR
2	B	10	CYS
2	B	13	GLN
2	B	19	ARG
2	B	32	GLN
2	B	37	LYS
2	B	54	GLU
2	B	62	SER
2	B	64	GLN
2	B	65	VAL
2	B	66	SER
2	B	67	LYS
2	B	89	GLN
2	B	90	LYS
2	B	97	HIS
2	B	100	GLU
2	B	115	SER
2	B	119	ARG
2	C	11	TYR
2	C	14	MET
2	C	16	ILE
2	C	36	ARG
2	C	37	LYS
2	C	43	GLU
2	C	61	LYS
2	C	63	ASN

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Mol	Chain	Res	Type
2	C	66	SER
2	C	68	LEU
2	C	85	LEU
2	C	88	ILE
2	C	90	LYS
2	C	91	PRO
2	C	92	HIS
2	C	94	MET
2	C	101	THR
2	D	14	MET
2	D	15	LEU
2	D	18	GLU
2	D	36	ARG
2	D	37	LYS
2	D	52	GLN
2	D	62	SER
2	D	63	ASN
2	D	64	GLN
2	D	65	VAL
2	D	68	LEU
2	D	89	GLN
2	D	101	THR
2	D	103	GLN
2	D	119	ARG
2	D	122	ARG
2	E	13	GLN
2	E	16	ILE
2	E	43	GLU
2	E	50	LEU
2	E	52	GLN
2	E	63	ASN
2	E	65	VAL
2	E	67	LYS
2	E	75	LEU
2	E	83	ARG
2	E	85	LEU
2	E	89	GLN
2	E	90	LYS
2	E	95	THR
2	E	113	LEU
2	E	119	ARG
2	F	13	GLN

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Mol	Chain	Res	Type
2	F	14	MET
2	F	15	LEU
2	F	16	ILE
2	F	22	ARG
2	F	27	LEU
2	F	33	SER
2	F	43	GLU
2	F	54	GLU
2	F	55	LEU
2	F	61	LYS
2	F	62	SER
2	F	65	VAL
2	F	66	SER
2	F	83	ARG
2	F	88	ILE
2	F	90	LYS
2	F	95	THR
2	F	100	GLU
2	F	103	GLN
2	F	105	LEU
2	F	111	ARG
2	F	113	LEU
2	F	119	ARG
2	F	122	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	57	ASN
1	A	121	HIS
1	A	187	GLN
1	A	314	ASN
2	B	32	GLN
2	B	89	GLN
2	C	13	GLN
2	C	32	GLN
2	C	92	HIS
2	C	121	ASN
2	D	13	GLN
2	D	32	GLN
2	D	52	GLN
2	D	121	ASN

Continued on next page...

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Mol	Chain	Res	Type
2	E	52	GLN
2	E	97	HIS
2	F	13	GLN
2	F	92	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	G	10/19 (52%)	6 (60%)	1 (10%)
4	H	16/36 (44%)	14 (87%)	2 (12%)
5	I	138/140 (98%)	84 (60%)	11 (7%)
All	All	164/195 (84%)	104 (63%)	14 (8%)

All (104) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	G	372	G
3	G	373	C
3	G	377	C
3	G	378	U
3	G	379	G
3	G	381	G
4	H	119	G
4	H	120	C
4	H	121	C
4	H	122	C
4	H	125	C
4	H	126	A
4	H	127	C
4	H	128	C
4	H	129	U
4	H	130	U
4	H	131	C
4	H	132	U
4	H	133	U
4	H	134	G
5	I	2	A
5	I	3	U
5	I	4	G
5	I	5	G
5	I	6	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
5	I	7	U
5	I	8	C
5	I	9	U
5	I	11	C
5	I	13	A
5	I	14	A
5	I	15	C
5	I	20	C
5	I	21	G
5	I	22	G
5	I	25	U
5	I	27	G
5	I	28	C
5	I	29	G
5	I	31	G
5	I	34	G
5	I	35	G
5	I	36	C
5	I	37	C
5	I	39	U
5	I	40	U
5	I	41	C
5	I	42	C
5	I	43	U
5	I	47	U
5	I	49	G
5	I	52	G
5	I	55	C
5	I	56	A
5	I	57	G
5	I	58	C
5	I	59	C
5	I	60	G
5	I	61	G
5	I	62	U
5	I	63	U
5	I	64	C
5	I	65	U
5	I	66	G
5	I	71	G
5	I	73	U
5	I	74	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
5	I	75	C
5	I	76	G
5	I	77	G
5	I	78	C
5	I	79	G
5	I	80	A
5	I	81	A
5	I	82	C
5	I	83	A
5	I	84	C
5	I	85	G
5	I	86	U
5	I	87	U
5	I	88	A
5	I	89	C
5	I	90	A
5	I	91	C
5	I	92	G
5	I	93	G
5	I	94	U
5	I	95	U
5	I	97	G
5	I	98	G
5	I	99	C
5	I	101	A
5	I	106	U
5	I	109	A
5	I	110	U
5	I	118	A
5	I	119	A
5	I	120	U
5	I	125	A
5	I	126	G
5	I	129	G
5	I	130	G
5	I	131	G
5	I	132	G

All (14) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	G	380	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	H	127	C
4	H	129	U
5	I	7	U
5	I	20	C
5	I	27	G
5	I	42	C
5	I	63	U
5	I	74	U
5	I	81	A
5	I	88	A
5	I	91	C
5	I	94	U
5	I	100	A

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

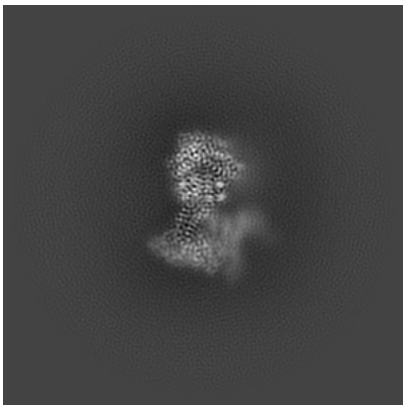
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-42084. These allow visual inspection of the internal detail of the map and identification of artifacts.

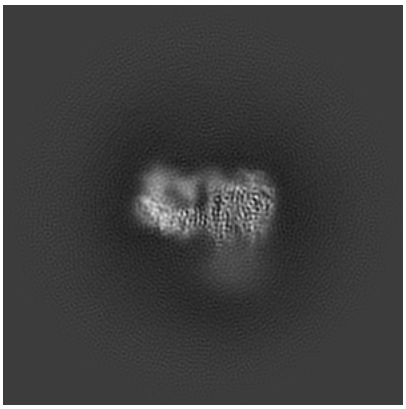
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

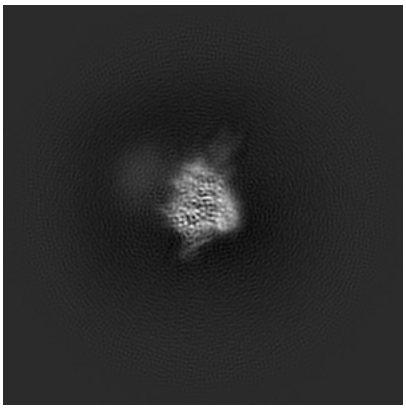
6.1.1 Primary map



X

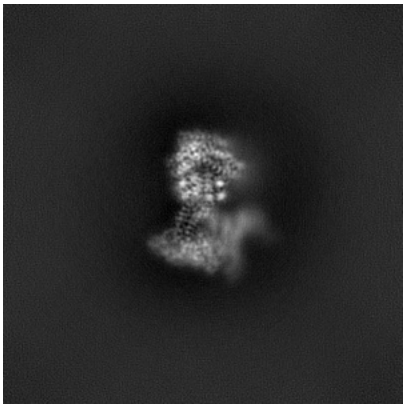


Y

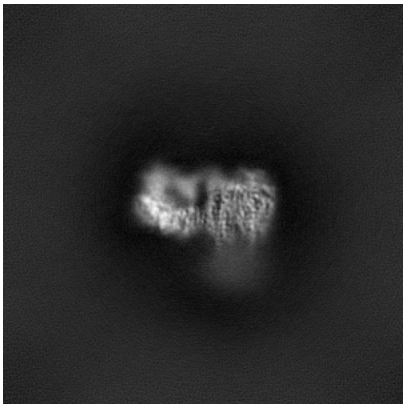


Z

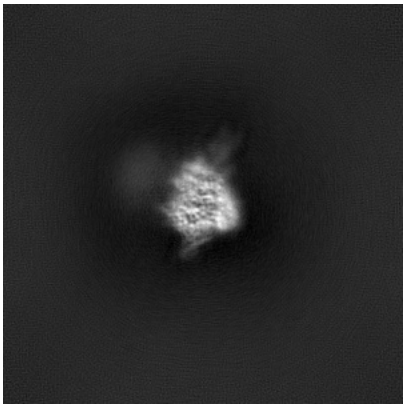
6.1.2 Raw map



X



Y

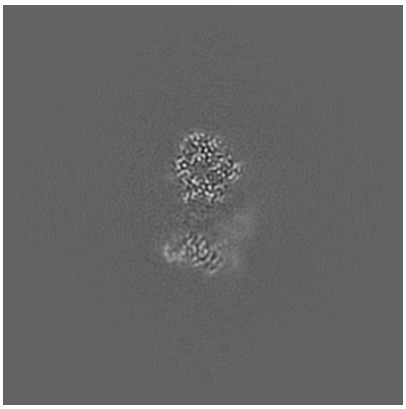


Z

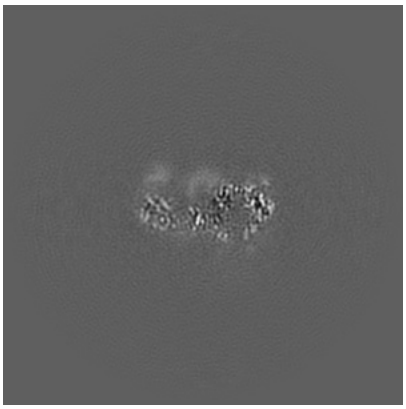
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

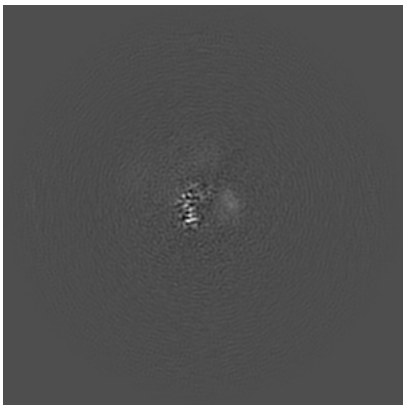
6.2.1 Primary map



X Index: 160

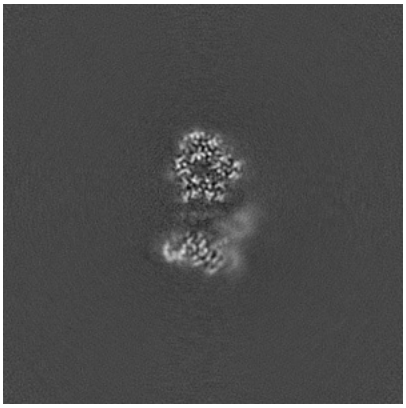


Y Index: 160

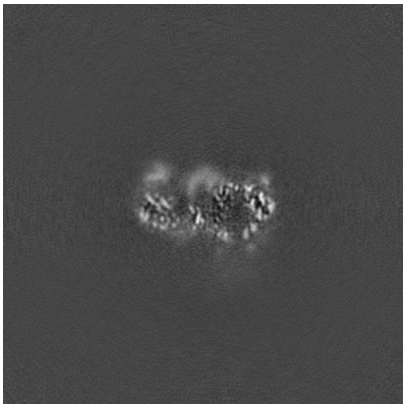


Z Index: 160

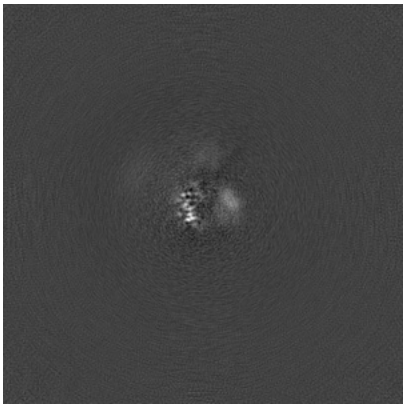
6.2.2 Raw map



X Index: 160



Y Index: 160

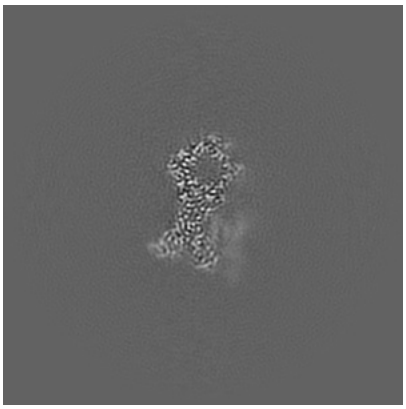


Z Index: 160

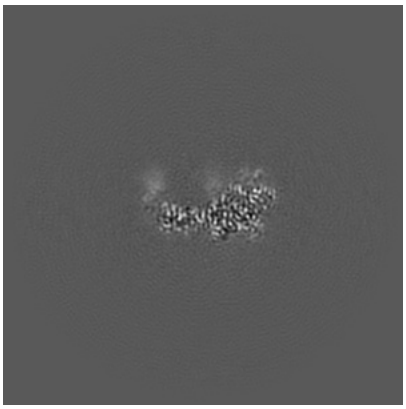
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

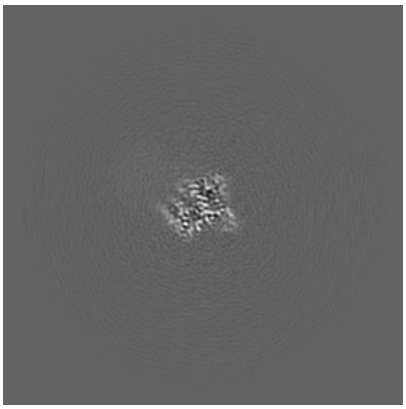
6.3.1 Primary map



X Index: 151

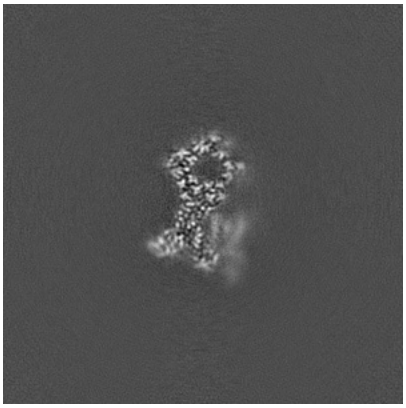


Y Index: 148

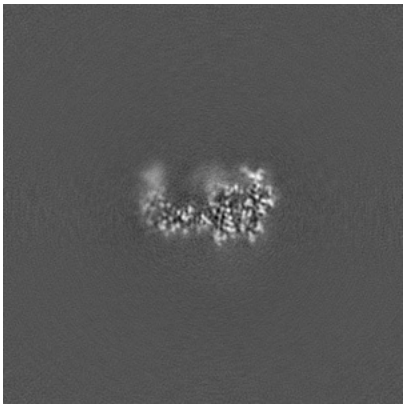


Z Index: 199

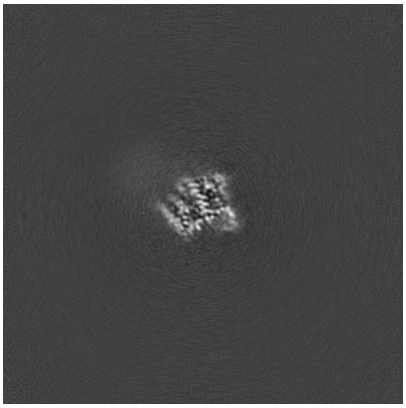
6.3.2 Raw map



X Index: 150



Y Index: 151

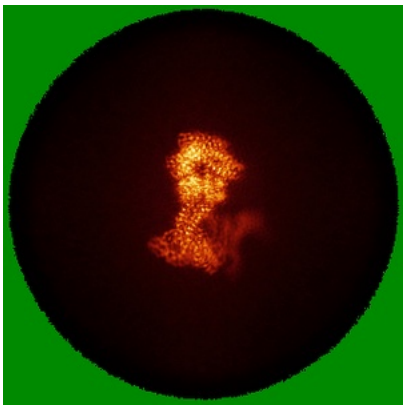


Z Index: 199

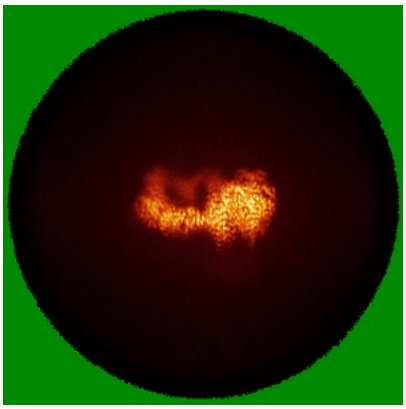
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

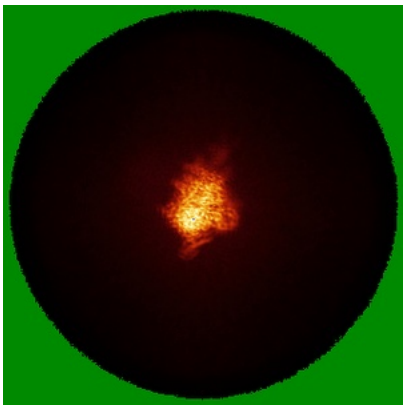
6.4.1 Primary map



X

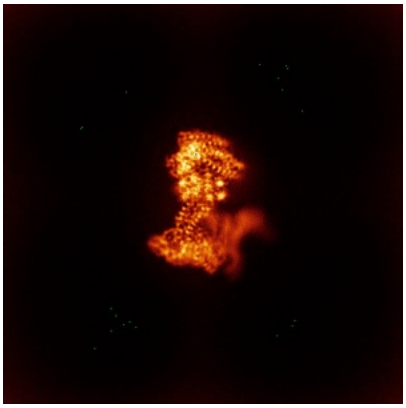


Y

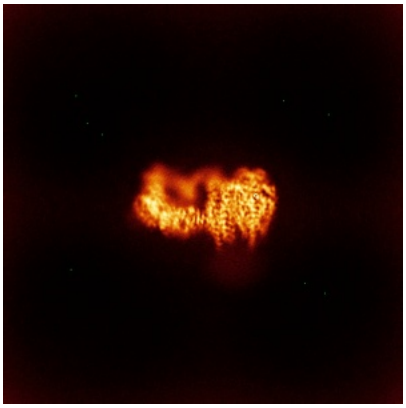


Z

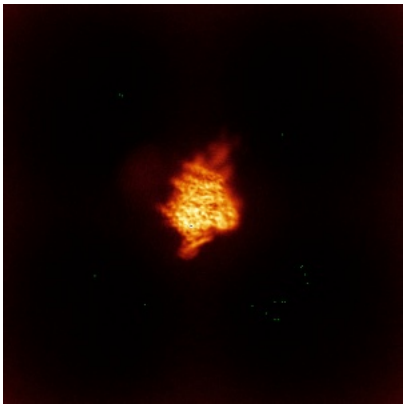
6.4.2 Raw map



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

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.2. 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

X Y Z

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.

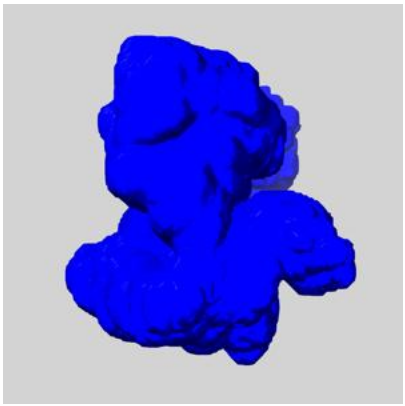
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

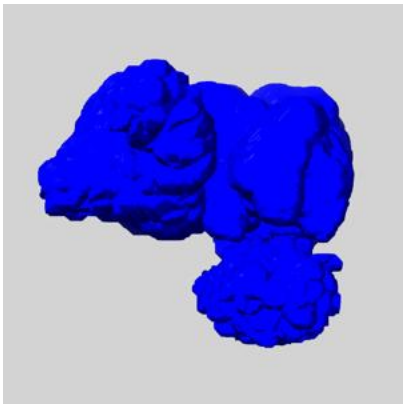
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

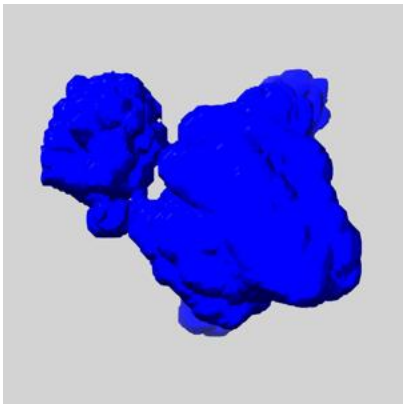
6.6.1 emd_42084_msk_1.map (i)



X



Y

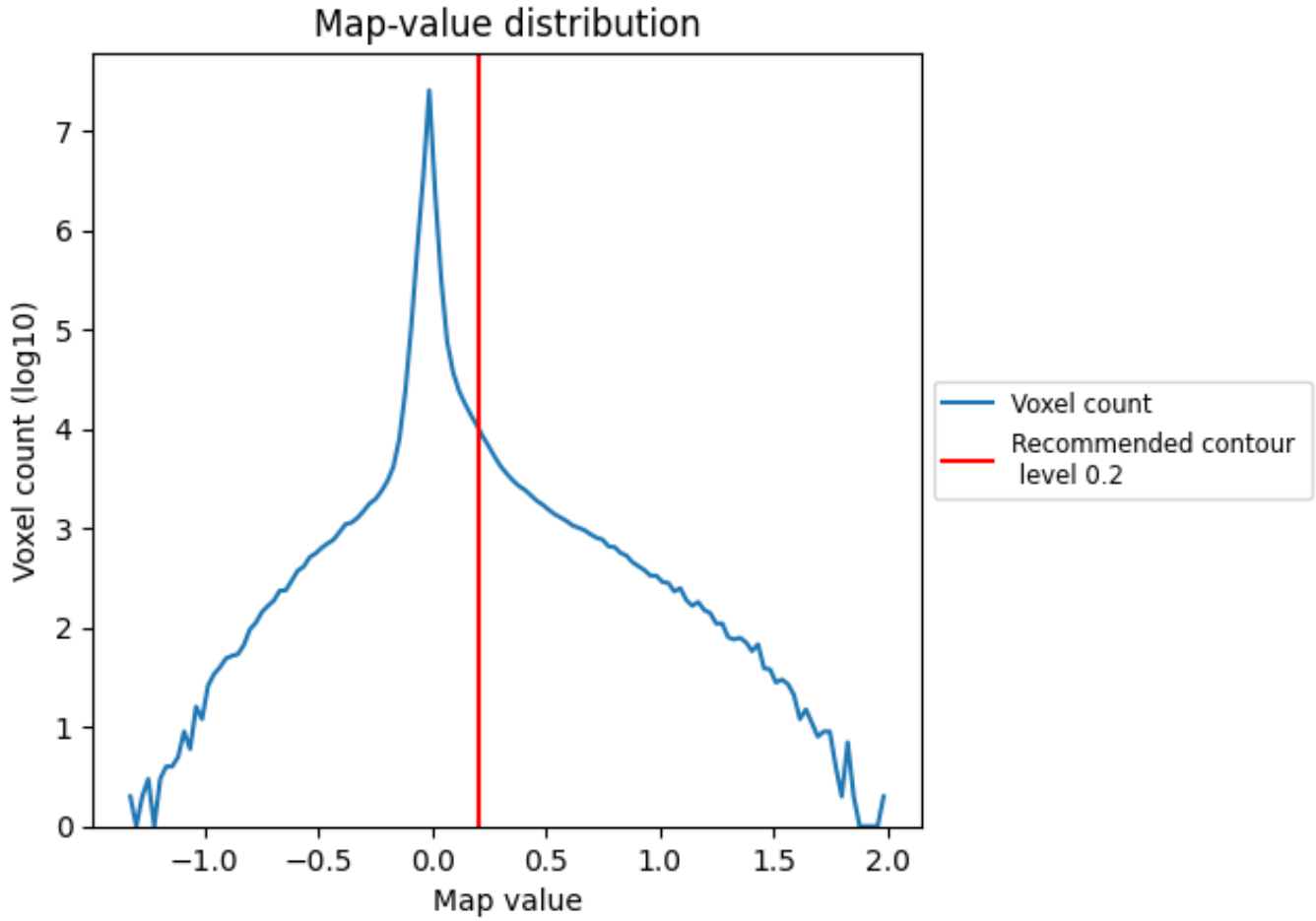


Z

7 Map analysis

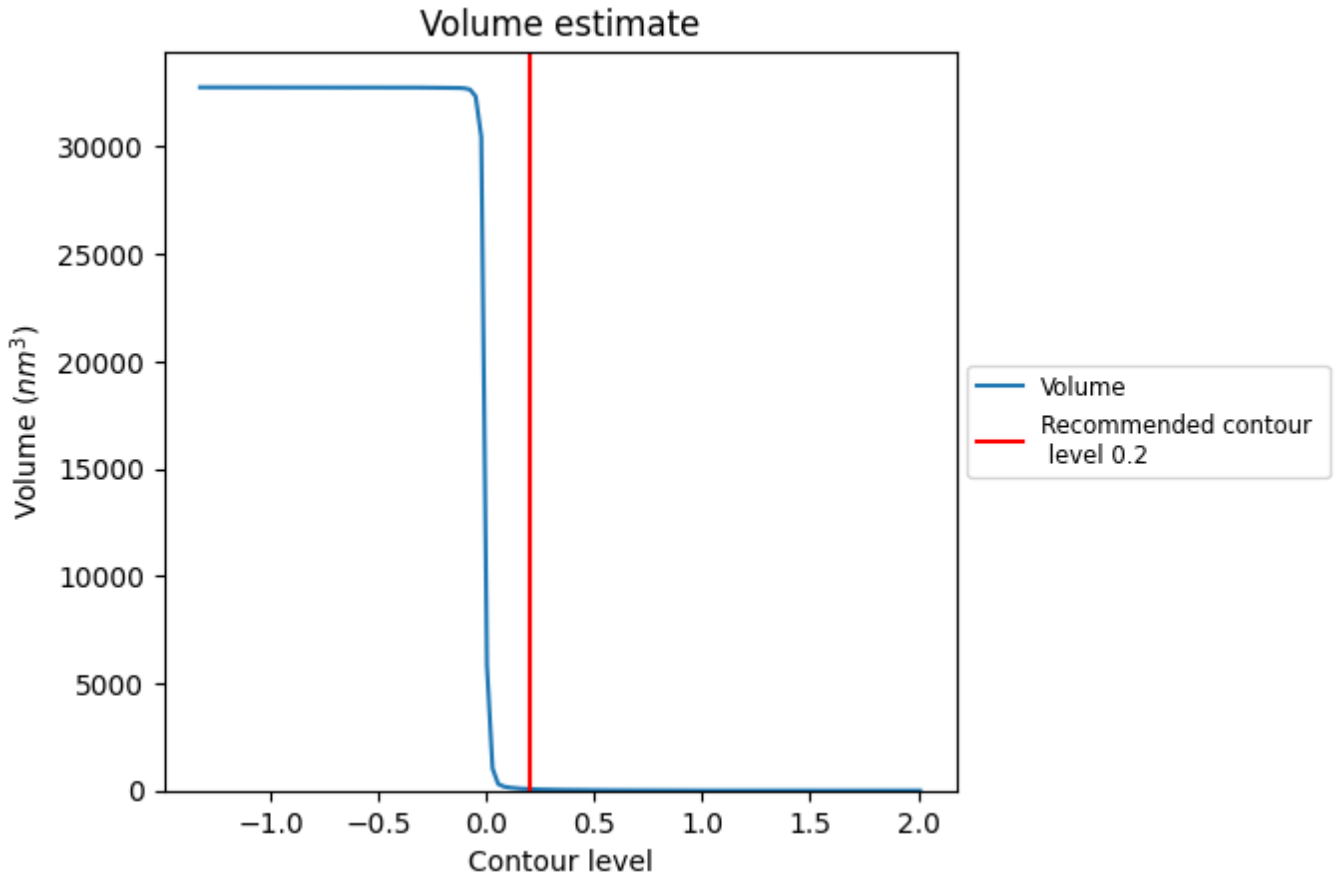
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

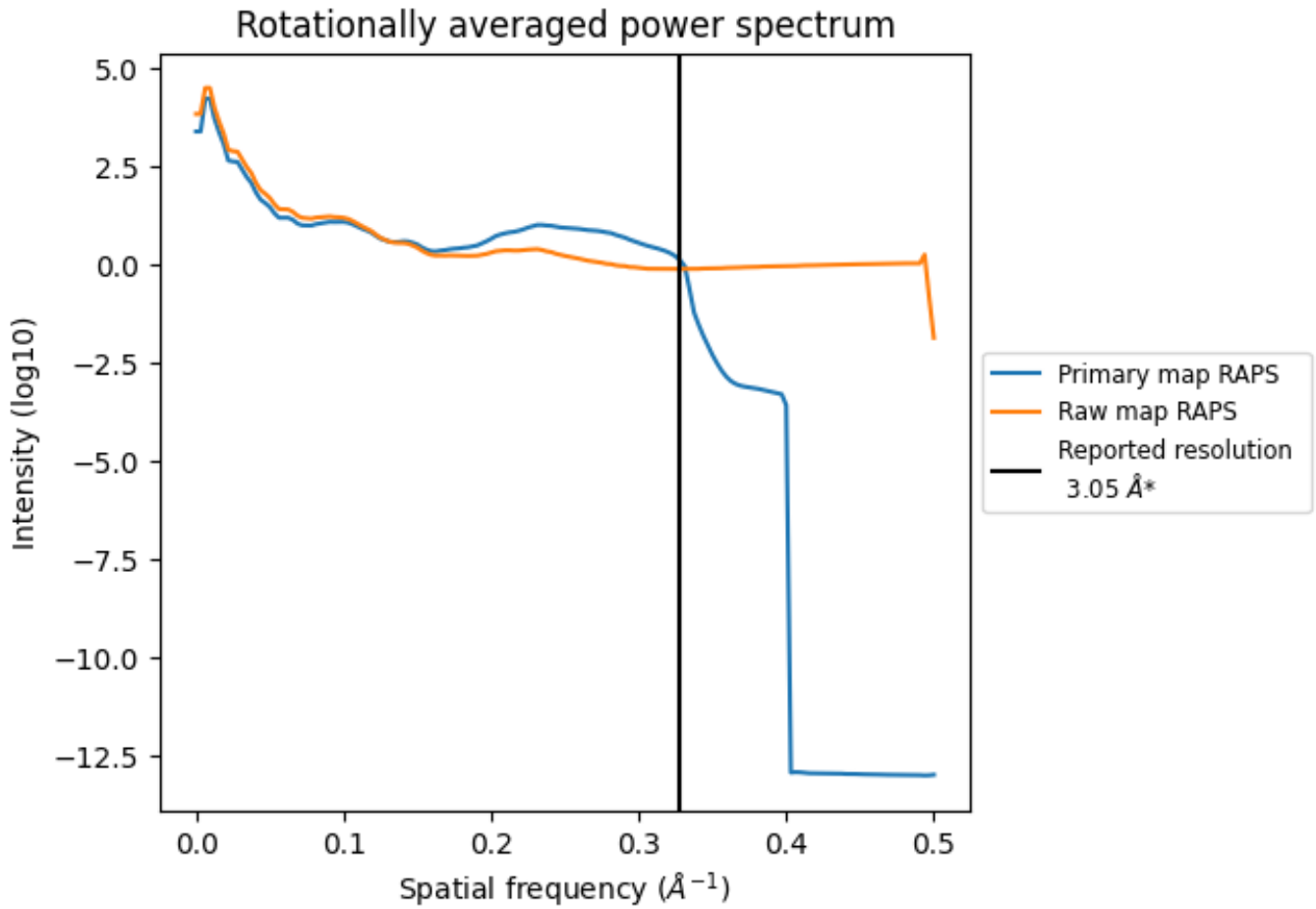
7.2 Volume estimate (i)



The volume at the recommended contour level is 69 nm^3; this corresponds to an approximate mass of 63 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)

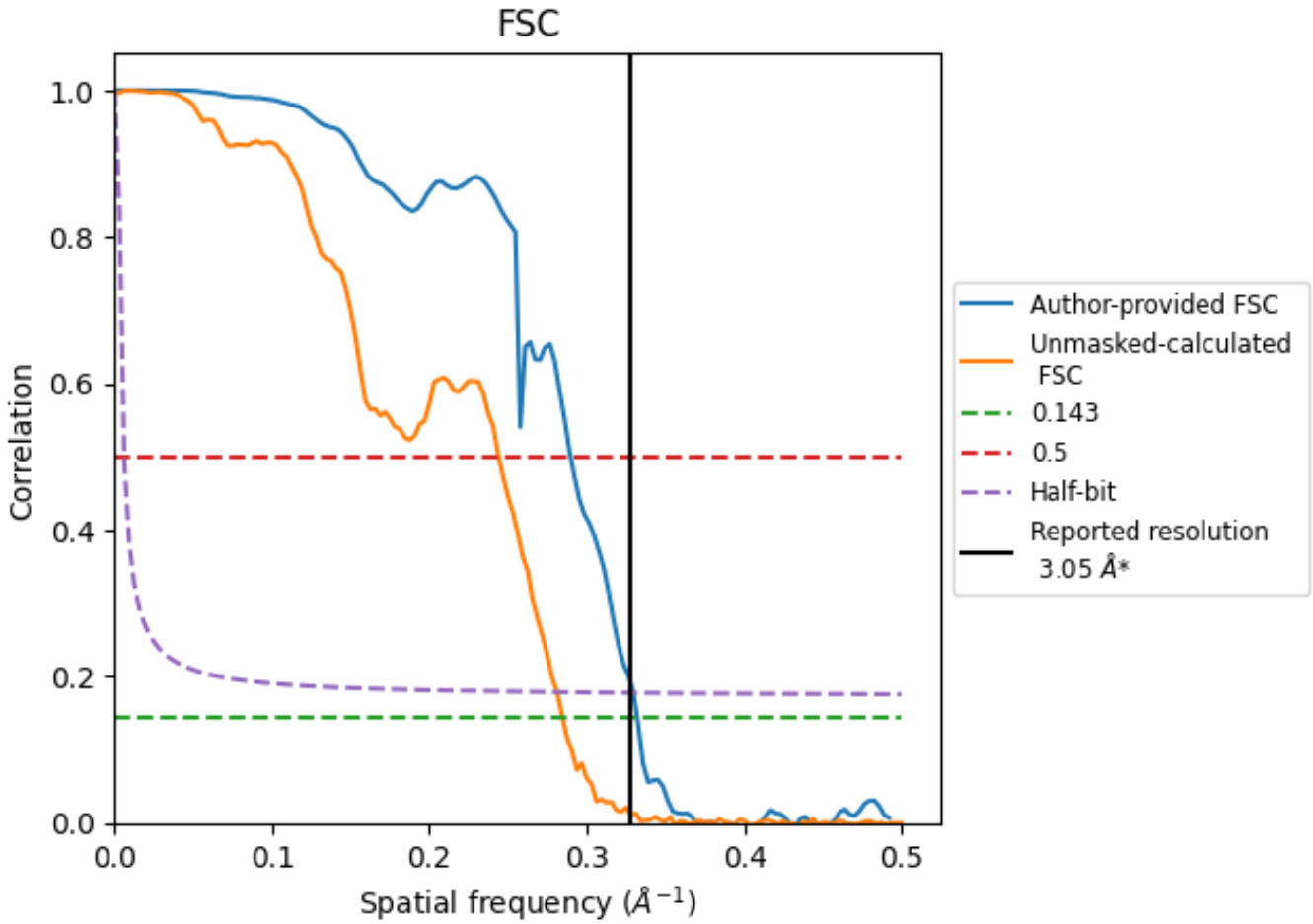


*Reported resolution corresponds to spatial frequency of 0.328 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.328 Å^{-1}

8.2 Resolution estimates (i)

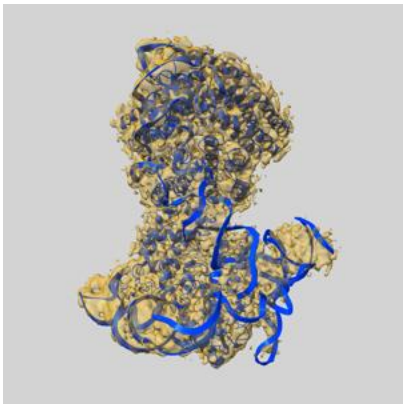
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.05	-	-
Author-provided FSC curve	3.01	3.45	3.03
Unmasked-calculated*	3.51	4.10	3.55

*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 3.51 differs from the reported value 3.05 by more than 10 %

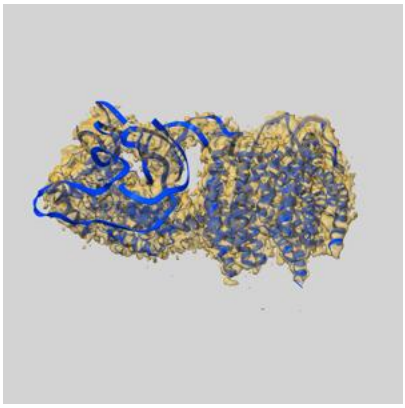
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-42084 and PDB model 8UBE. Per-residue inclusion information can be found in section 3 on page 6.

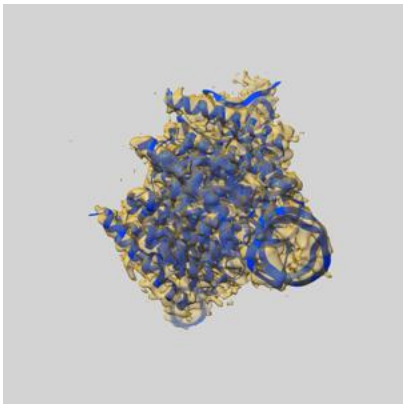
9.1 Map-model overlay



X



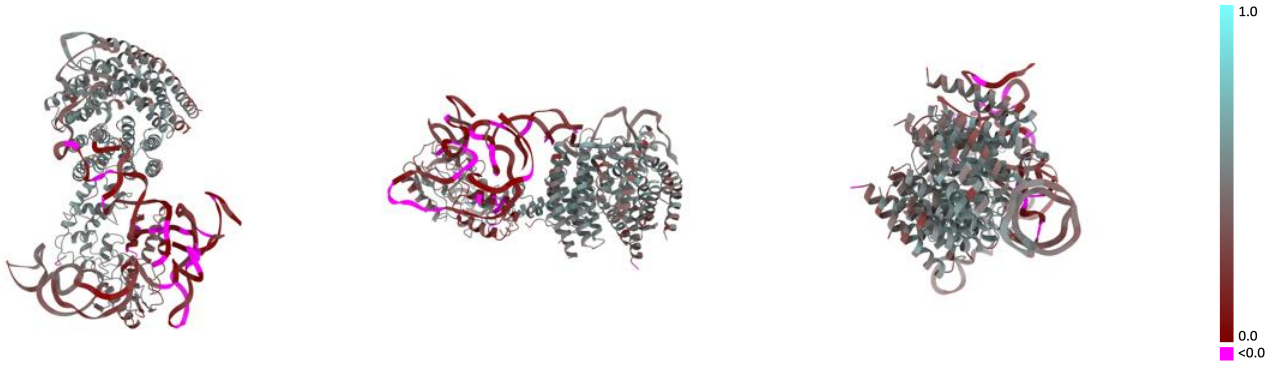
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.2 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.

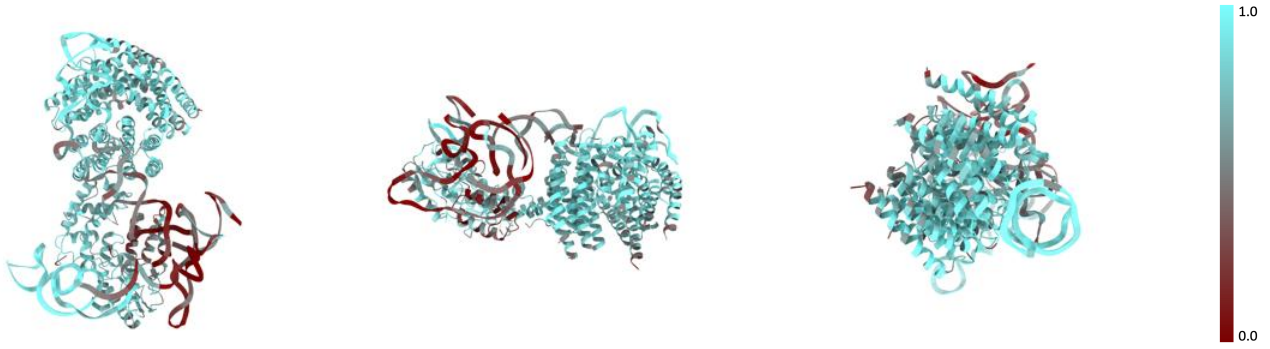
9.2 Q-score mapped to coordinate model



X Y Z

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

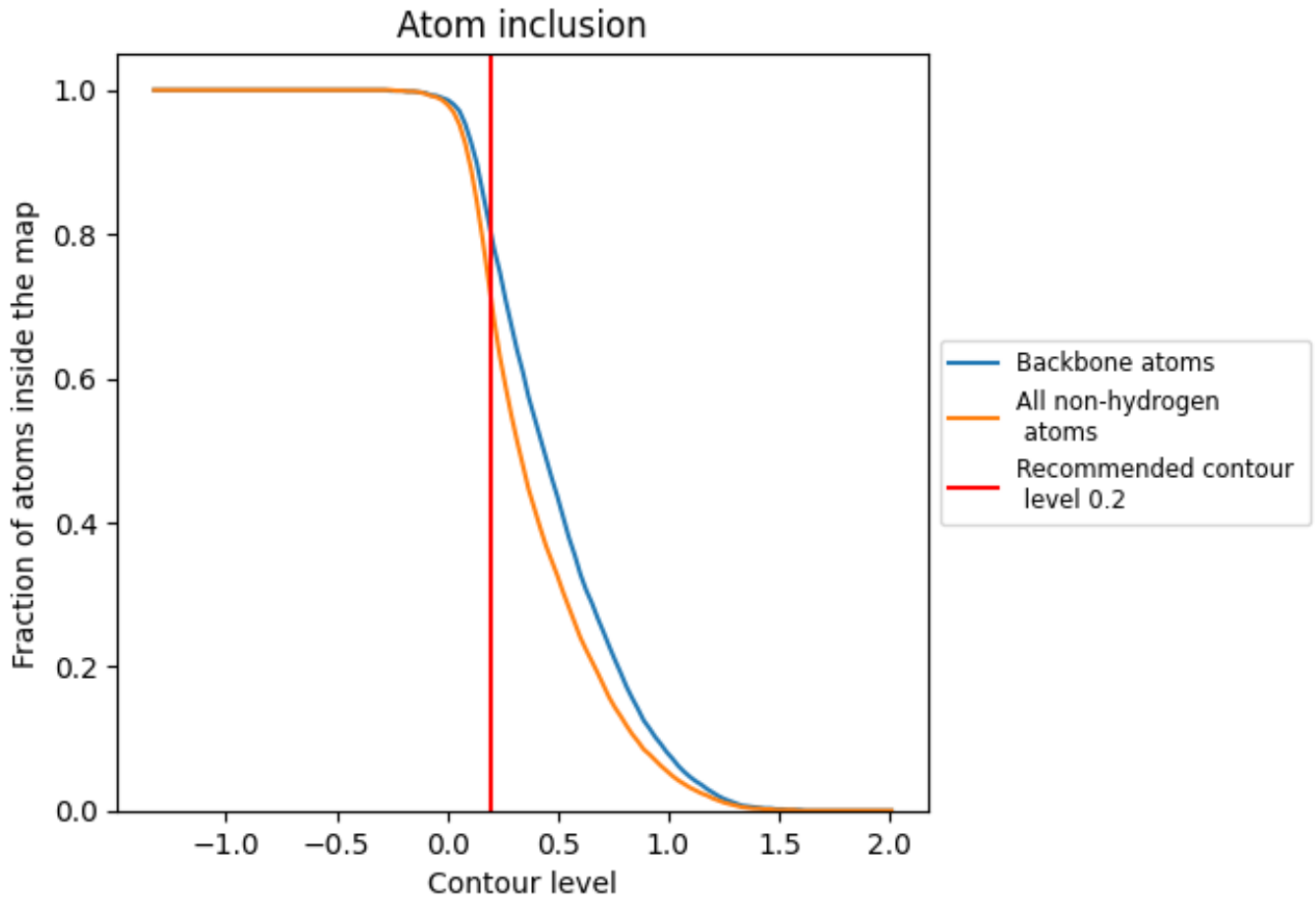
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.2).

9.4 Atom inclusion (i)



At the recommended contour level, 80% of all backbone atoms, 71% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7060	0.3700
A	0.6960	0.3980
B	0.8370	0.4950
C	0.8600	0.4930
D	0.8220	0.4570
E	0.8160	0.4650
F	0.8300	0.4690
G	0.3290	0.0680
H	0.3230	0.0880
I	0.6030	0.2440