WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report (i)

Jun 1, 2025 – 02:27 PM EDT

PDB ID	:	3JD5 / pdb_00003jd5
EMDB ID	:	EMD-5941
Title	:	Cryo-EM structure of the small subunit of the mammalian mitochondrial ribosome
Authors	:	Kaushal, P.S.; Sharma, M.R.; Booth, T.M.; Haque, E.M.; Tung, C.S.; Sanbonmatsu, K.Y.; Spremulli, L.L.; Agrawal, R.K.
Deposited on	:	2016-04-08
Resolution	:	7.00 Å(reported)
Based on initial models	:	3J9M, 5AJ3

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 7.00 Å.

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

Metric	Percentile Ranks	Value
Clashscore		5
Ramachandran outliers		1.2%
Sidechain outliers		0.1%
RNA backbone		0.54

Worse — *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures
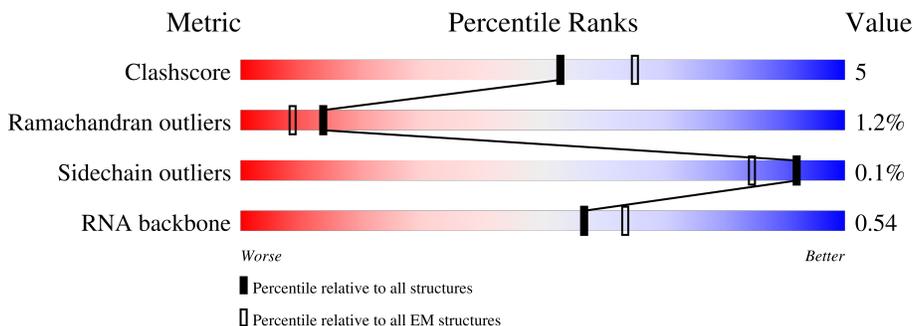
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	955	62% 33% 5%
2	B	293	10% / 64% 10% 26%
3	C	167	16% / 64% 15% 21%
4	E	430	13% / 63% 13% 24%
5	F	124	35% / 78% 21% •
6	G	242	13% / 77% 9% 14%
7	I	396	7% / 68% 11% 21%

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Mol	Chain	Length	Quality of chain
8	J	201	7% · 49% · 14% · 36%
9	K	197	5% · 57% · 12% · 31%
10	L	139	15% · 65% · 12% · 22%
11	N	128	· 62% · 17% · 21%
12	O	256	11% · 60% · 7% · 32%
13	P	135	10% · 72% · 14% · 14%
14	Q	130	13% · 73% · 11% · 16%
15	R	143	9% · 52% · 15% · 32%
16	U	87	10% · 87% · 11% ·
17	a	359	12% · 72% · 8% · 19%
18	b	190	14% · 63% · 8% · 29%
19	c	173	21% · 84% · 13% ·
20	d	205	7% · 78% · 8% · 14%
21	e	415	14% · 72% · 11% · 17%
22	f	189	7% · 48% · · 48%
23	g	397	7% · 74% · 11% · 15%
24	h	386	· 23% · 73%
25	i	106	6% · 80% · 12% · 8%
26	j	218	20% · 70% · 28% ·
27	k	325	10% · 71% · 12% · 15%
28	m	118	44% · 85% · 15%
29	n	199	5% · 31% · 5% · 64%
30	o	575	50% · 73% · 7% · 20%
31	p	258	7% · 64% · 8% · 28%
32	s	17	65% · 94% · 6%

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Mol	Chain	Length	Quality of chain
32	z	17	6% ██████ ██ 100%

2 Entry composition ⓘ

There are 32 unique types of molecules in this entry. The entry contains 64319 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 28S ribosomal RNA, mitochondial.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	952	Total	C	N	O	P	0	0
			20256	9090	3685	6529	952		

- Molecule 2 is a protein called 28S ribosomal protein S2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	217	Total	C	N	O	S	0	0
			1726	1102	319	298	7		

- Molecule 3 is a protein called 28S ribosomal protein S24, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	132	Total	C	N	O	S	0	0
			1072	692	197	179	4		

- Molecule 4 is a protein called 28S ribosomal protein S5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	328	Total	C	N	O	S	0	0
			2613	1634	494	474	11		

- Molecule 5 is a protein called 28S ribosomal protein S6, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	F	124	Total	C	N	O	S	0	0
			991	627	179	179	6		

- Molecule 6 is a protein called 28S ribosomal protein S7, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	208	Total	C	N	O	S	0	0
			1720	1093	313	301	13		

- Molecule 7 is a protein called 28S ribosomal protein S9, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	I	311	Total	C	N	O	S	0	0
			2541	1608	454	467	12		

- Molecule 8 is a protein called 28S ribosomal protein S10, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	J	128	Total	C	N	O	S	0	0
			1049	676	180	190	3		

- Molecule 9 is a protein called 28S ribosomal protein S11, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	K	136	Total	C	N	O	S	0	0
			1001	628	193	177	3		

- Molecule 10 is a protein called 28S ribosomal protein S12, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	L	109	Total	C	N	O	S	0	0
			853	534	175	140	4		

- Molecule 11 is a protein called 28S ribosomal protein S14, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	N	101	Total	C	N	O	S	0	0
			861	538	178	140	5		

- Molecule 12 is a protein called 28S ribosomal protein S15, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	O	173	Total	C	N	O	S	0	0
			1421	904	258	250	9		

- Molecule 13 is a protein called 28S ribosomal protein S16, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	P	116	Total	C	N	O	S	0	0
			916	580	180	151	5		

- Molecule 14 is a protein called 28S ribosomal protein S17, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	Q	109	Total 857	C 555	N 153	O 145	S 4	0	0

- Molecule 15 is a protein called 28S ribosomal protein S18c, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	R	97	Total 788	C 507	N 136	O 138	S 7	0	0

- Molecule 16 is a protein called 28S ribosomal protein S21, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	U	86	Total 737	C 457	N 148	O 124	S 8	0	0

- Molecule 17 is a protein called 28S ribosomal protein S22, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	a	289	Total 2356	C 1505	N 400	O 443	S 8	0	0

- Molecule 18 is a protein called 28S ribosomal protein S23, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	b	135	Total 1108	C 717	N 195	O 194	S 2	0	0

- Molecule 19 is a protein called 28S ribosomal protein S25, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	c	168	Total 1374	C 878	N 246	O 241	S 9	0	0

- Molecule 20 is a protein called 28S ribosomal protein S26, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	d	176	Total 1463	C 899	N 290	O 272	S 2	0	0

- Molecule 21 is a protein called 28S ribosomal protein S27, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	e	344	Total 2822	C 1804	N 476	O 529	S 13	0	0

- Molecule 22 is a protein called 28S ribosomal protein S28, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	f	98	Total 775	C 493	N 135	O 143	S 4	0	0

- Molecule 23 is a protein called 28S ribosomal protein S29, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	g	338	Total 2754	C 1774	N 482	O 488	S 10	0	0

- Molecule 24 is a protein called 28S ribosomal protein S31, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	h	103	Total 871	C 566	N 141	O 161	S 3	0	0

- Molecule 25 is a protein called 28S ribosomal protein S33, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	i	98	Total 818	C 519	N 153	O 143	S 3	0	0

- Molecule 26 is a protein called 28S ribosomal protein S34, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	j	213	Total 1792	C 1132	N 346	O 309	S 5	0	0

- Molecule 27 is a protein called 28S ribosomal protein S35, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	k	275	Total 2227	C 1418	N 377	O 421	S 11	0	0

- Molecule 28 is a protein called Coiled-coil-helix-coiled-coil-helix domain containing 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	m	118	Total 945	C 587	N 185	O 164	S 9	0	0

- Molecule 29 is a protein called Aurora kinase A interacting protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	n	72	Total 642	C 409	N 142	O 89	S 2	0	0

- Molecule 30 is a protein called Pentatricopeptide repeat domain-containing protein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	o	461	Total 3273	C 2082	N 573	O 605	S 13	0	0

- Molecule 31 is a protein called 28S ribosomal protein S18b, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	p	187	Total 1531	C 968	N 288	O 267	S 8	0	0

- Molecule 32 is a protein called unknown.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	s	16	Total 80	C 48	N 16	O 16	0	0
32	z	17	Total 86	C 51	N 17	O 18	0	0

3   Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
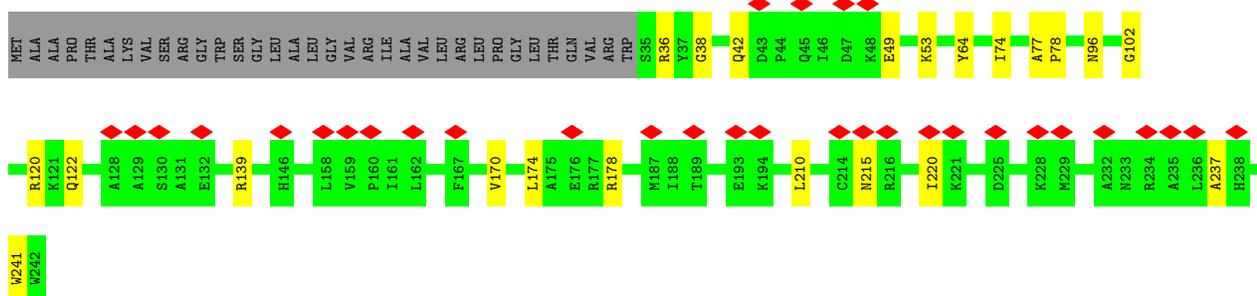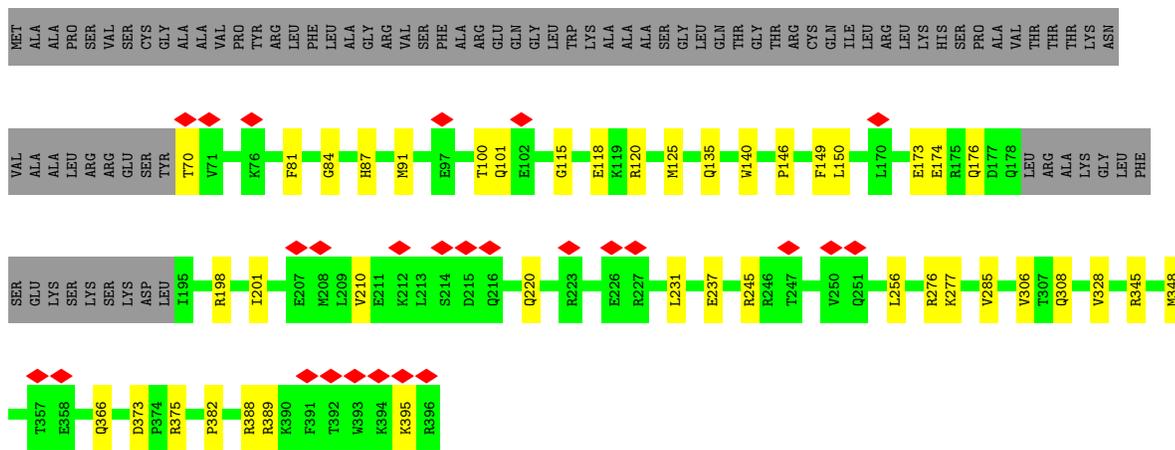
• Molecule 1: 28S ribosomal RNA, mitochondial

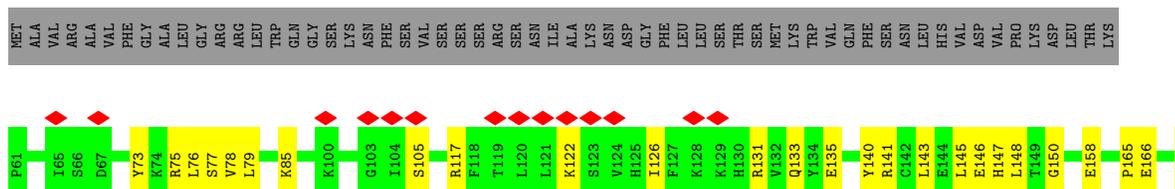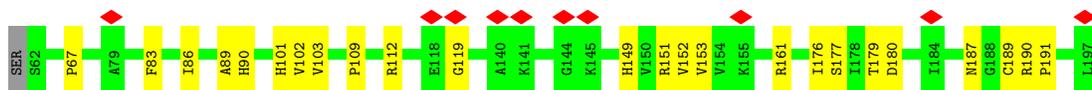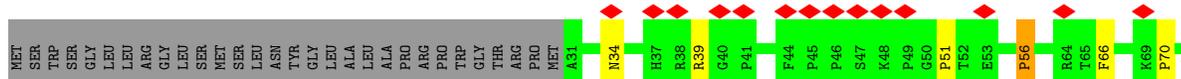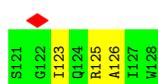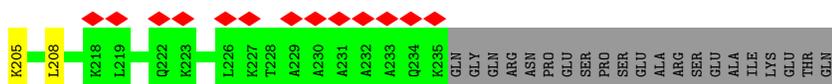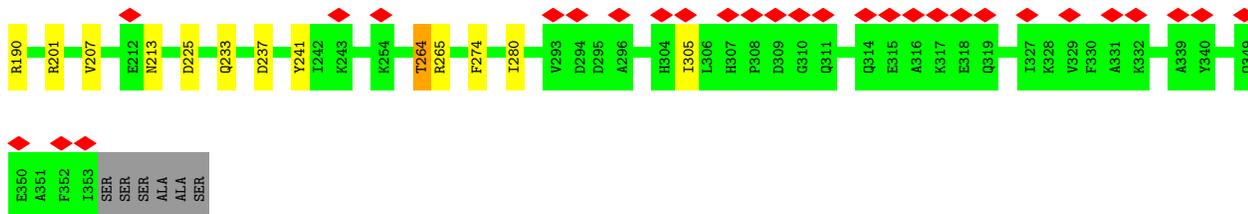• Molecule 2: 28S ribosomal protein S2, mitochondrial

• Molecule 3: 28S ribosomal protein S24, mitochondrial

• Molecule 4: 28S ribosomal protein S5, mitochondrial

• Molecule 5: 28S ribosomal protein S6, mitochondrial

M1 P2 R3 L6 A7 K11 A12 M13 Q14 R15 P16 E17 A28 D31 R32 L39 E40 N41 T46 K50 M51 S52 A53 H54 S55 Q56 R57 H58 T59 R60 L65 V66 A70 P71 T72 T73 T74 S77 I78 M79 E80 S83 R84 D85 I86 R90 P91 N92

V93 T99 Q100 E101 V102 E106 G107 I108 V109 P110 V111 P112 L113 E114 E115 K116 L117 Y118 S119 T120 K121 K122 R123 K124

• Molecule 6: 28S ribosomal protein S7, mitochondrial

Chain G:

13% | 77% | 9% | 14%

MET ALA ALA PRO THR ALA LYS SER ARG GLY TRP SER GLY LEU ALA LEU GLY VAL ARG ILE ALA VAL LEU ARG LEU PRO GLY LEU THR GLN VAL ARG TRP S35 R36 Y37 G38 Q42 D43 P44 Q45 I46 D47 K48 E49 K53 Y64 I74 A77 P78 N96 G102

R120 K121 Q122 A128 A129 S130 A131 E132 R139 H146 L158 V159 P160 I161 L162 F167 V170 L174 A175 E176 R177 R178 M187 I188 T189 E193 K194 L210 C214 N215 R216 I220 K221 D225 K228 M229 A232 N233 R234 A235 L236 A237 H238

W241 W242

• Molecule 7: 28S ribosomal protein S9, mitochondrial

Chain I:

7% | 68% | 11% | 21%

MET ALA ALA PRO SER VAL SER CYS GLY ALA ALA VAL PRO TYR ARG LEU PHE LEU ALA GLY ARG VAL SER PHE ALA ARG GLU GLN GLY LEU TRP LYS ALA ALA SER GLY LEU GLN THR GLY THR ARG CYS GLN ILE LEU ARG LEU LYS HIS SER PRO ALA VAL THR THR THR LYS ASN

VAL ALA LEU ARG ARG GLU SER TYR T70 V71 K76 F81 G84 H87 M91 E97 T100 Q101 E102 G115 E118 K119 R120 M125 Q135 W140 P146 F149 L150 L170 E173 E174 R175 Q176 D177 Q178 LEU ARG ALA LYS GLY LEU PHE

SER GLU LYS SER SER LYS SER ASP LEU I195 R198 I201 E207 M208 L209 V210 E211 K212 L213 S214 D215 Q216 Q220 R223 E226 R227 L231 E237 R245 R246 T247 V250 Q251 L256 R276 K277 V285 V306 T307 Q308 V328 R345 M348

T357 E358 Q366 D373 P374 R375 P382 R388 R389 K390 F391 T392 W393 K394 K395 R396

• Molecule 8: 28S ribosomal protein S10, mitochondrial

Chain J:

7% | 49% | 14% | 36%

MET ALA VAL ARG ALA VAL PHE GLY ALA LEU GLY LEU ARG ARG LEU TRP GLN GLY GLY SER LYS ASN PHE SER VAL SER SER ARG SER ASN ILE ALA LYS ASN ASP GLY PHE LEU LEU SER THR SER MET LYS TRP VAL GLN PHE SER ASN LEU HIS VAL ASP VAL PRO LYS ASP LEU THR LYS

P61 I65 S66 D67 Y73 K74 R75 L76 S77 V78 L79 K85 K100 G103 I104 S105 R117 F118 T119 L120 L121 K122 S123 V124 H125 I126 F127 K128 K129 H130 R131 V132 Q133 Y134 E135 Y140 R141 C142 L143 E144 L145 H147 L148 T149 G150 E158 P165 E166 T173
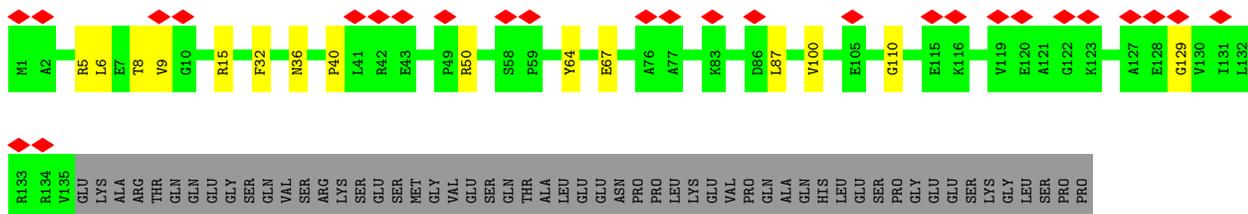
K174 T175 E182 K186 P187 V188 TRP GLU THR THR PRO GLU GLU LYS GLY ASP SER LYS SER

• Molecule 9: 28S ribosomal protein S11, mitochondrial

Chain K:

5%

57%   12%   31%

MET GLN VAL LEU ARG ASN SER GLY SER TRP LEU LEU ARG SER TRP ALA TRP PRO PRO THR THR ARG VAL VAL ALA GLY VAL PRO ALA PRO THR ILE HIS MET SER ALA GLN GLN MET GLN ASP ALA ALA ALA LYS GLU GLU VAL GLU LYS ALA GLU THR PRO PRO ALA PRO SER ARG

SER S62 P67 A79 F83 I86 A89 H90 H101 V102 V103 P109 R112 E118 G119 A140 K141 G144 K145 H149 V150 R151 V152 V153 V154 K155 R161 I176 S177 I178 T179 D180 I184 N187 G188 C189 R190 P191 L197

• Molecule 10: 28S ribosomal protein S12, mitochondrial

Chain L:

15%

65%   12%   22%

MET SER TRP GLY LEU LEU ARG GLY LEU SER MET SER LEU ASN TYR GLY LEU ALA LEU ALA PRO ARG PRO TRP GLY THR ARG PRO MET A31 N34 H37 R38 R39 G40 P41 F44 P45 P46 S47 K48 P49 G50 P51 T52 E53 P56 R64 T65 F66 K69 P70

N74 S75 A76 N77 R78 R82 T87 G88 R89 N101 L102 Q103 E104 H105 L109 V110 D117 K122 V125 V126 R127 G128 K129 C132 G133 H134 K139

• Molecule 11: 28S ribosomal protein S14, mitochondrial

Chain N:

62%   17%   21%

MET ALA THR SER MET LEU GLY SER LEU LEU ARG ILE VAL ARG GLN VAL VAL PRO SER SER ALA SER GLY GLN ALA ARG SER Y28 Y29 M34 N60 L63 L67 R80 V85 R86 C91 V92 M93 T94 S95 R96 P97 R98 R105 L106 S107 R108 A115 L120

S121 G122 I123 Q124 R125 A126 I127 W128

• Molecule 12: 28S ribosomal protein S15, mitochondrial

Chain O:

11%

60%   7%   32%

MET LEU ARG ALA ALA TRP ARG ALA ALA LEU SER SER ILE ARG THR GLN ALA VAL THR GLN PRO PRO VAL LEU GLY LEU PRO GLY GLY GLY CYS ALA LYS LEU LEU SER VAL GLN ARG ASP LEU PRO SER SER LEU ILE LEU GLN ALA ALA ARG GLY TYR ALA THR GLN LYS PRO VAL GLN GLN

SER GLN E63 D64 D65 P66 P67 P68 L71 G80 D86 K89 E95 K99 L110 E116 V129 K134 E139 Q143 K147 R153 Y154 I159 K164 T172 N173 Y174 P175 G185 I186 E187 P191 P192 P193 K197 I198 L202

K205 L208 K218 L219 Q222 K223 L226 K227 T228 A229 A230 A231 A232 A233 Q234 K235 GLN GLY GLN ARG ASN PRO GLU SER PRO SER GLU ALA ARG SER GLU ALA ILE LYS GLU THR GLN

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• Molecule 13: 28S ribosomal protein S16, mitochondrial

Chain P:

• Molecule 14: 28S ribosomal protein S17, mitochondrial

Chain Q:

• Molecule 15: 28S ribosomal protein S18c, mitochondrial
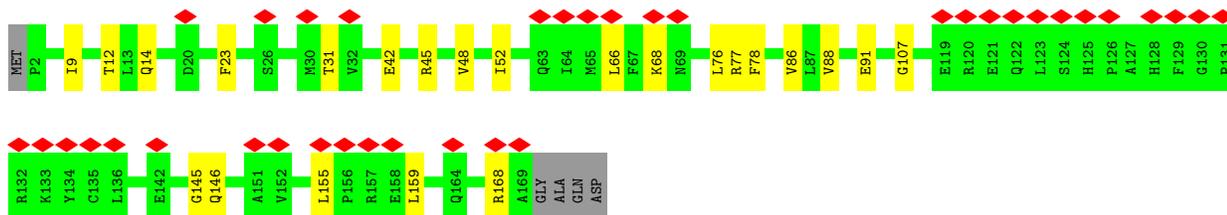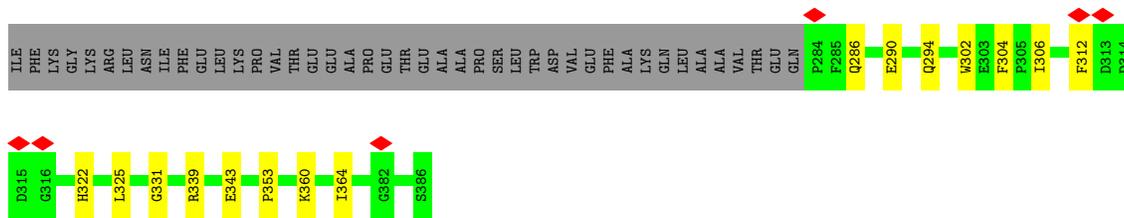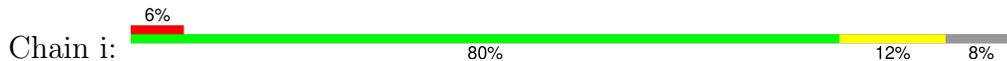
Chain R:

• Molecule 16: 28S ribosomal protein S21, mitochondrial

Chain U:

• Molecule 17: 28S ribosomal protein S22, mitochondrial

Chain a:

R190 R201 V207 E212 N213 D225 Q233 D237 Y241 I242 K243 K254 T264 R265 F274 I280 V293 D294 D295 A296 H304 I305 L306 H307 P308 D309 G310 Q311 Q314 E315 A316 K317 E318 Q319 I327 K328 V329 F330 A331 K332 A339 Y340 Q349

E350 A351 F352 I353 SER SER ALA SER

• Molecule 18: 28S ribosomal protein S23, mitochondrial

Chain b:

14%

63% 8% 29%

M1 A2 R5 L6 E7 T8 V9 G10 R15 F32 N36 P40 L41 R42 E43 P49 R50 S58 P59 Y64 E67 A76 A77 K83 D86 L87 V100 E105 G110 E115 K116 V119 E120 A121 G122 K123 A127 E128 G129 V130 I131 L132

R133 R134 V135 GLU LYS ALA ARG THR GLN GLN GLU GLY SER GLN VAL SER GLU ARG LYS SER GLU SER MET GLY VAL GLU GLN THR ALA LEU GLU GLU ASN PRO PRO LEU LYS GLU VAL PRO GLN ALA GLN HIS LEU GLU GLU PRO GLY GLU SER LYS GLY LEU LEU SER PRO PRO

• Molecule 19: 28S ribosomal protein S25, mitochondrial

Chain c:

21%

84% 13% •

MET P2 I9 T12 L13 Q14 D20 F23 S26 M30 T31 V32 E42 R45 V48 I52 Q63 I64 M65 L66 F67 K68 N69 L76 R77 F78 V86 L87 V88 E91 G107 E119 R120 E121 Q122 L123 S124 H125 P126 A127 H128 F129 G130 P131

R132 K133 Y134 C135 L136 E142 G145 Q146 A151 V152 L155 P156 R157 E158 L159 Q164 R168 A169 GLY ALA GLN ASP

• Molecule 20: 28S ribosomal protein S26, mitochondrial

Chain d:

7%

78% 8% 14%

MET LEU ARG ALA LEU SER THR LEU GLY ALA ARG PRO LEU GLY ARG PRO PRO ALA GLN PHE LEU LEU LEU ALA ARG GLY R27 H31 D32 P33 K36 G40 A43 P46 F53 R64 R68 Q72 E77 A100 Q110 R123 A128 Q131 E132

Q133 W134 E138 Q159 T169 R170 E171 N172 D182 K185 S186 Y187 H202 LYS GLY SER

• Molecule 21: 28S ribosomal protein S27, mitochondrial

Chain e:

14%

72% 11% • 17%

MET ALA ALA PRO MET VAL ARG ARG ALA ILE PHE LEU ALA ARG ASN VAL LEU LEU PRO GLN LEU SER LEU ALA GLY LYS ARG TYR LEU LEU SER ALA ALA TYR GLU ASP S37 R38 E41 A42 R43 A44 K45 E46 D47 C48 H49 D58 K59 T60 Y61 E62 R63 K64 L65 P66 D77

- Molecule 22: 28S ribosomal protein S28, mitochondrial

Chain f:

- Molecule 23: 28S ribosomal protein S29, mitochondrial

Chain g:

- Molecule 24: 28S ribosomal protein S31, mitochondrial

Chain h:

ILE PHE LYS GLY LYS ARG LEU ASN ILE PHE GLU LEU LYS PRO VAL THR GLU GLU ALA PRO GLU THR GLU ALA ALA PRO SER LEU TRP ASP VAL GLU PHE ALA LYS GLN LEU ALA ALA VAL THR GLU GLN **P284 F285 Q286 E290 Q294 W302 E303 F304 P305 I306 F312 D313 D314**

D315 G316 H322 L325 G331 R339 E343 P353 K360 I364 G382 S386

- Molecule 25: 28S ribosomal protein S33, mitochondrial

Chain i:

6%

80%　　　　　12%　　　8%

MET SER SER **L4 L14 R17 K29 K32 L42 T48 H55 N56 T57 R66 H75 K87 L88 R89 G90 K91 V92 K96 G97 E98 R101** ALA ALA LYS LYS

- Molecule 26: 28S ribosomal protein S34, mitochondrial

Chain j:

20%

70%　　　　　28%　　　·

M1 A2 R3 R4 K5 V6 R7 R25 Y38 E39 R43 P44 H45 R48 K49 L50 P51 L52 R53 A54 W55 R59 R63 Q66 L71 P72 G75 L76 G77 R78 L79 V80 K83 L86 W87 Q88 H89 D90 W95 R96 L97 T98 R99 V100 R101 P102 D103 Y104

T105 A106 Q107 N108 L109 D110 H111 G112 W115 G122 A128 Q133 V134 M135 H136 H137 D138 W139 R140 L141 V142 P143 K144 H145 E146 E147 A148 S152 P155 A156 P157 E158 R162 P163 P167 P168 L169 L170 R171 A172 M173 E177 R178 N181 G182 D183 P184 S185 T186 E187

E188 R195 I196 R197 T198 D199 P204 E205 N206 Q207 E208 A209 K210 K211 K212 T213 LYS GLY THR ALA VAL

- Molecule 27: 28S ribosomal protein S35, mitochondrial

Chain k:

10%

71%　　　　　12%　·　15%

MET ALA ALA PRO SER LEU PRO ALA TRP LEU ALA LEU GLN THR ARG ALA ARG THR LEU ARG ALA PHE SER THR ALA VAL SER PRO VAL THR GLY ALA GLN LEU ARG LEU SER PRO PRO THR THR GLU ARG THR SER LYS HIS GLU ARG ALA PRO **R51 R52 K53 A54 L55 P56 P57 R58 T59 E60**

K61 M62 S63 Q66 D67 W68 P77 F78 K79 P80 S81 L85 P86 V93 K94 R95 G96 V97 P98 M99 E102 G103 F113 L114 H115 L116 T117 K122 E134 A137 D140 S141 D142 I151 E152 I153 S160 S164 R171 R176 V177 V196 G197 D198

K202 S203 T204 L207 L216 N220 Y221 L231 E239 E240 W241 K244 K245 M250 E251 W255 K256 T267 L268 F269 A273 K276 N277 T278 E279 L280 S281 T288 K295 D306 N307 E308 N309 L324 M325

- Molecule 28: Coiled-coil-helix-coiled-coil-helix domain containing 1

Chain m:

44%

85%　　　　　15%

• Molecule 29: Aurora kinase A interacting protein 1

Chain n:

• Molecule 30: Pentatricopeptide repeat domain-containing protein 3, mitochondrial

Chain o:

F640 S641 LEU PRO ILE CYS GLU GLY LEU GLY LEU THR GLN ARG LEU THR ALA ASP PHE THR LEU SER GLN GLU GLN LYS GLU ALA LEU GLY ASP LEU THR ALA LEU THR SER ASP SER GLU SER ASP SER ASP ASP THR SER LYS ASP LYS
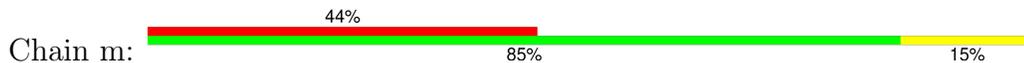
• Molecule 31: 28S ribosomal protein S18b, mitochondrial

Chain p:

7%

64%   8%   •   28%

MET ALA ALA SER VAL LEU ASN VAL LEU LEU ARG ARG LEU PRO TYR PHE SER PRO PHE ARG GLY ALA TYR GLY VAL GLN VAL PRO LEU GLN THR LEU CYS THR LYS ALA PRO PRO GLU ASP ASP SER LEU PRO ILE PRO VAL SER PRO Y51 E62 R78 K82 G83 Q88

R91 K92 M93 C94 I95 R96 A101 G102 K112 K121 V127 K145 L163 I167 P168 Q169 L175 H181 A186 T187 P188 V194 S195 G196 D197 R215 L216 Q221 G222 H223 S228 G229 P230 P231 P232 E233 S234 M235 P236 K237 VAL PRO LEU THR ALA

PRO ASN GLU ALA THR SER THR GLU GLN ALA GLY PRO GLN SER. ALA LEU

• Molecule 32: unknown

Chain s:

65%

94%   6%

X2360 X2361 X2362 X2363 X2364 X2365 X2366 X2367 X2368 X2369 X2370 X2371 X2375 UNK

• Molecule 32: unknown

Chain z:

6%

100%

X692 X708

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	307556	Depositor
Resolution determination method	Not provided	
CTF correction method	CTFFIND3	Depositor
Microscope	JEOL 3200FS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	9.0	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	4500	Depositor
Magnification	59717	Depositor
Image detector	GATAN ULTRASCAN 1000 (2k x 2k)	Depositor
Maximum map value	0.001	Depositor
Minimum map value	-0.000	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.000	Depositor
Recommended contour level	0.00017	Depositor
Map size (Å)	438.74997, 438.74997, 438.74997	wwPDB
Map dimensions	375, 375, 375	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.17, 1.17, 1.17	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	0.04	0/22681	0.07	0/35318
2	B	0.09	0/1766	0.25	0/2392
3	C	0.08	0/1100	0.24	0/1487
4	E	0.09	0/2664	0.26	0/3578
5	F	0.09	0/1009	0.24	0/1362
6	G	0.08	0/1760	0.25	0/2366
7	I	0.08	0/2598	0.24	0/3490
8	J	0.08	0/1071	0.23	0/1447
9	K	0.09	0/1021	0.26	0/1380
10	L	0.08	0/872	0.26	0/1171
11	N	0.09	0/878	0.28	0/1179
12	O	0.06	0/1443	0.20	0/1927
13	P	0.08	0/937	0.26	0/1262
14	Q	0.07	0/874	0.22	0/1183
15	R	0.08	0/805	0.24	0/1082
16	U	0.08	0/748	0.26	0/995
17	a	0.07	0/2403	0.23	0/3246
18	b	0.08	0/1135	0.26	0/1528
19	c	0.08	0/1406	0.24	0/1894
20	d	0.08	0/1489	0.25	0/2008
21	e	0.08	0/2881	0.25	0/3893
22	f	0.07	0/787	0.22	0/1059
23	g	0.08	0/2819	0.24	0/3814
24	h	0.09	0/899	0.20	0/1209
25	i	0.07	0/834	0.24	0/1112
26	j	0.10	0/1841	0.30	0/2493
27	k	0.07	0/2275	0.21	0/3075
28	m	0.10	0/961	0.30	0/1284
29	n	0.10	0/654	0.34	0/862
30	o	0.09	0/2605	0.25	0/3526
31	p	0.08	0/1583	0.25	0/2149
All	All	0.07	0/66799	0.20	0/94771

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2　Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	20256	0	10258	176	0
2	B	1726	0	1747	18	0
3	C	1072	0	1091	19	0
4	E	2613	0	2638	37	0
5	F	991	0	1034	17	0
6	G	1720	0	1751	16	0
7	I	2541	0	2499	33	0
8	J	1049	0	1088	17	0
9	K	1001	0	1041	15	0
10	L	853	0	904	11	0
11	N	861	0	890	17	0
12	O	1421	0	1526	15	0
13	P	916	0	944	12	0
14	Q	857	0	920	9	0
15	R	788	0	823	20	0
16	U	737	0	759	9	0
17	a	2356	0	2371	19	0
18	b	1108	0	1124	9	0
19	c	1374	0	1395	14	0
20	d	1463	0	1438	15	0
21	e	2822	0	2816	26	0
22	f	775	0	793	6	0
23	g	2754	0	2793	26	0
24	h	871	0	814	8	0
25	i	818	0	845	9	0
26	j	1792	0	1810	44	0
27	k	2227	0	2267	28	0
28	m	945	0	984	13	0
29	n	642	0	718	7	0
30	o	3273	0	2695	22	0
31	p	1531	0	1495	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	s	80	0	18	0	0
32	z	86	0	19	0	0
All	All	64319	0	54308	546	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (546) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:29:A:H61	1:A:270:C:H42	1.41	0.67
17:a:175:GLU:OE2	17:a:181:ARG:NH1	2.30	0.64
23:g:347:TYR:HB2	23:g:385:ARG:HB2	1.79	0.64
8:J:76:LEU:HB2	8:J:145:LEU:HB2	1.79	0.64
15:R:116:GLN:HE21	15:R:121:MET:HE3	1.62	0.64
1:A:190:A:H5'	13:P:20:ARG:HB2	1.79	0.64
1:A:299:A:H62	1:A:392:G:H21	1.45	0.64
27:k:68:TRP:HE1	27:k:114:LEU:HB3	1.63	0.63
1:A:416:C:N4	1:A:434:C:N3	2.46	0.63
30:o:67:LYS:HG2	30:o:68:VAL:HG23	1.80	0.62
23:g:265:ASN:HB3	23:g:317:LYS:HE3	1.81	0.62
26:j:83:LYS:HE2	26:j:140:ARG:HH21	1.64	0.62
26:j:144:LYS:O	26:j:145:HIS:ND1	2.32	0.62
8:J:77:SER:HB2	8:J:173:THR:HB	1.82	0.62
26:j:102:PRO:HA	26:j:112:GLY:HA3	1.83	0.61
14:Q:44:ASN:HD21	19:c:66:LEU:HD12	1.66	0.61
12:O:198:ILE:HA	12:O:202:LEU:HD23	1.83	0.61
1:A:528:C:H42	1:A:826:G:H1	1.49	0.60
21:e:323:THR:HG22	21:e:325:GLN:H	1.66	0.60
28:m:31:ASN:HB3	28:m:109:GLN:HG2	1.84	0.60
1:A:628:C:H4'	4:E:210:PRO:HG3	1.83	0.60
26:j:63:ARG:NH1	26:j:135:MET:SD	2.74	0.60
1:A:295:G:O2'	12:O:153:ARG:NH2	2.34	0.60
26:j:43:ARG:HD3	26:j:48:ARG:HD2	1.84	0.60
1:A:309:C:N4	1:A:385:A:N1	2.49	0.60
7:I:173:GLU:HB2	7:I:231:LEU:HB2	1.84	0.59
1:A:395:G:H5"	12:O:197:LYS:HB2	1.84	0.59
21:e:66:PRO:HB3	21:e:99:PRO:HD2	1.85	0.59
13:P:33:ARG:HA	13:P:53:SER:HA	1.84	0.59
3:C:72:HIS:HE1	11:N:120:LEU:HA	1.66	0.59
15:R:86:SER:HB3	15:R:90:GLY:H	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:531:U:H3	1:A:823:G:H1	1.51	0.59
1:A:757:A:N1	11:N:80:ARG:NH2	2.51	0.58
2:B:126:PHE:O	2:B:253:ARG:NH1	2.36	0.58
1:A:597:A:N3	4:E:136:ARG:NH2	2.51	0.58
5:F:40:GLU:HB2	5:F:65:LEU:HB2	1.83	0.58
2:B:96:PHE:HB2	2:B:106:ASP:HB2	1.84	0.58
4:E:412:LYS:HG3	4:E:417:MET:HB2	1.85	0.58
13:P:20:ARG:NH2	13:P:41:CYS:SG	2.76	0.58
20:d:68:ARG:HH11	26:j:196:ILE:HG22	1.68	0.58
4:E:425:LEU:HB3	31:p:88:GLN:HE22	1.69	0.58
26:j:162:ARG:H	26:j:163:PRO:HD2	1.67	0.58
1:A:531:U:OP2	1:A:819:C:N4	2.37	0.58
18:b:6:LEU:H	18:b:15:ARG:HH11	1.52	0.58
26:j:77:GLY:HA3	26:j:97:LEU:HB2	1.85	0.58
11:N:60:ASN:HD22	11:N:63:LEU:H	1.51	0.58
3:C:86:THR:HG21	11:N:106:LEU:HD21	1.86	0.57
30:o:455:PRO:HG2	30:o:458:ASN:HD21	1.69	0.57
6:G:215:ASN:HA	6:G:220:ILE:HG13	1.86	0.57
9:K:153:VAL:HG12	9:K:179:THR:HB	1.87	0.57
1:A:642:A:N6	16:U:78:LYS:O	2.37	0.57
7:I:198:ARG:HH22	7:I:201:ILE:HD11	1.70	0.57
1:A:285:C:OP1	1:A:466:A:N6	2.38	0.57
15:R:116:GLN:HB3	15:R:123:VAL:HG22	1.87	0.57
1:A:331:U:O2'	9:K:112:ARG:NH2	2.37	0.56
4:E:230:ASN:HB3	4:E:238:LYS:HB3	1.86	0.56
24:h:339:ARG:NH1	24:h:343:GLU:OE2	2.38	0.56
26:j:53:ARG:HH21	31:p:223:HIS:HB2	1.69	0.56
1:A:360:A:O2'	16:U:51:ARG:NH1	2.38	0.56
1:A:610:A:H61	1:A:685:U:H3	1.53	0.56
1:A:880:A:O3'	26:j:99:ARG:NH2	2.38	0.56
11:N:91:CYS:SG	11:N:92:VAL:N	2.75	0.56
17:a:207:VAL:O	17:a:213:ASN:ND2	2.37	0.56
23:g:103:PRO:HG2	23:g:344:VAL:HG13	1.87	0.56
30:o:523:GLY:O	30:o:527:ARG:NH1	2.37	0.56
27:k:152:GLU:HB2	27:k:176:ARG:HB2	1.87	0.56
3:C:111:LYS:HB3	8:J:166:GLU:HG2	1.88	0.56
7:I:276:ARG:HA	7:I:373:ASP:HB3	1.88	0.56
21:e:131:ASN:O	21:e:133:VAL:N	2.39	0.56
1:A:168:G:N2	1:A:202:G:O2'	2.38	0.56
2:B:202:ALA:O	18:b:15:ARG:NH2	2.39	0.56
20:d:40:GLY:O	26:j:49:LYS:NZ	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:h:353:PRO:O	27:k:171:ARG:NH1	2.39	0.56
1:A:112:C:N3	1:A:137:C:N4	2.43	0.56
1:A:529:U:OP1	28:m:37:ARG:NH1	2.39	0.55
27:k:239:GLU:OE1	27:k:241:TRP:NE1	2.39	0.55
11:N:96:ARG:NH1	11:N:98:ARG:O	2.39	0.55
1:A:63:C:OP1	13:P:13:ARG:NH1	2.40	0.55
1:A:414:A:N6	1:A:435:U:OP2	2.39	0.55
9:K:89:ALA:HB3	9:K:152:VAL:HA	1.88	0.55
1:A:115:G:OP1	12:O:205:LYS:NZ	2.40	0.55
8:J:147:HIS:HE1	27:k:140:ASP:HA	1.72	0.55
18:b:32:PHE:O	18:b:36:ASN:ND2	2.36	0.55
1:A:465:U:OP2	18:b:50:ARG:NH2	2.38	0.55
24:h:312:PHE:HD2	27:k:216:LEU:HD13	1.72	0.55
1:A:243:C:H41	10:L:78:ARG:HH21	1.55	0.55
1:A:664:C:H1'	6:G:38:GLY:HA2	1.89	0.55
3:C:145:HIS:HA	30:o:140:LEU:HD13	1.89	0.55
15:R:87:PRO:HA	15:R:126:LYS:HZ1	1.71	0.55
30:o:448:ARG:HE	30:o:457:ARG:HB3	1.72	0.55
1:A:138:G:OP2	26:j:4:ARG:NH2	2.40	0.54
4:E:304:LYS:HB3	4:E:335:LYS:HB3	1.90	0.54
4:E:134:GLU:O	25:i:66:ARG:NH1	2.40	0.54
5:F:6:LEU:HB3	5:F:66:VAL:HB	1.88	0.54
6:G:139:ARG:NH2	23:g:363:ASN:O	2.40	0.54
21:e:254:GLY:O	21:e:258:ARG:NH1	2.41	0.54
1:A:744:G:N1	1:A:770:A:OP2	2.41	0.54
15:R:66:CYS:SG	15:R:67:ILE:N	2.80	0.54
1:A:743:C:OP2	1:A:769:A:N6	2.41	0.54
2:B:169:PRO:HG3	4:E:211:ASN:HA	1.89	0.54
4:E:307:LYS:NZ	17:a:102:TYR:OH	2.40	0.54
1:A:166:C:O2	1:A:169:C:N4	2.40	0.54
1:A:756:G:OP2	25:i:32:LYS:NZ	2.41	0.54
16:U:72:ILE:HG12	28:m:108:LEU:HD21	1.88	0.54
17:a:65:LYS:N	17:a:305:ILE:O	2.41	0.54
29:n:189:TRP:NE1	29:n:191:THR:OG1	2.40	0.54
1:A:154:C:OP1	1:A:158:A:N6	2.35	0.54
1:A:486:G:H1	1:A:509:C:H42	1.56	0.54
20:d:134:TRP:NE1	20:d:138:GLU:OE2	2.41	0.54
7:I:285:VAL:HG22	7:I:328:VAL:HG22	1.90	0.54
1:A:617:U:H3	1:A:674:U:H3	1.55	0.53
1:A:834:A:H5"	1:A:835:C:H2'	1.91	0.53
6:G:120:ARG:NH1	23:g:88:MET:SD	2.80	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:328:VAL:HG11	7:I:348:MET:HE2	1.90	0.53
10:L:51:PRO:O	10:L:89:ARG:NH2	2.41	0.53
1:A:183:A:OP2	1:A:202:G:N1	2.38	0.53
7:I:382:PRO:HB2	8:J:131:ARG:HB2	1.89	0.53
1:A:382:U:H4'	5:F:72:THR:HG23	1.89	0.53
31:p:95:ILE:O	31:p:145:LYS:NZ	2.41	0.53
1:A:385:A:OP1	12:O:134:LYS:NZ	2.42	0.53
6:G:77:ALA:O	7:I:345:ARG:NH2	2.41	0.53
1:A:952:A:H5'	1:A:955:U:H3	1.72	0.53
9:K:102:VAL:H	9:K:112:ARG:HG2	1.74	0.53
27:k:58:ARG:HH21	30:o:85:ALA:HB3	1.73	0.53
1:A:873:U:H2'	1:A:874:A:H4'	1.91	0.53
17:a:201:ARG:HG2	17:a:233:GLN:HA	1.90	0.53
21:e:293:PRO:HB3	31:p:221:GLN:HE22	1.74	0.53
1:A:642:A:OP1	7:I:220:GLN:NE2	2.42	0.53
6:G:64:TYR:HB2	7:I:366:GLN:HE22	1.74	0.53
26:j:39:GLU:O	26:j:59:ARG:NH2	2.42	0.53
30:o:61:LYS:H	30:o:61:LYS:HD3	1.74	0.53
1:A:115:G:H1	1:A:130:C:H42	1.55	0.52
8:J:133:GLN:HB2	11:N:126:ALA:HB2	1.90	0.52
13:P:59:ASN:ND2	19:c:146:GLN:OE1	2.41	0.52
17:a:138:ASN:HB3	17:a:181:ARG:HD2	1.91	0.52
1:A:267:A:H4'	1:A:269:G:H4'	1.90	0.52
27:k:255:TRP:HB3	27:k:295:LYS:HE3	1.91	0.52
13:P:95:GLY:HA3	26:j:169:LEU:HB3	1.92	0.52
24:h:325:LEU:HD13	24:h:364:ILE:HD11	1.92	0.52
4:E:289:THR:HG22	4:E:331:ASP:HB2	1.90	0.52
4:E:380:LEU:HD12	4:E:381:PRO:HD2	1.90	0.52
31:p:235:MET:H	31:p:236:PRO:HD2	1.74	0.52
1:A:318:G:O2'	5:F:79:MET:SD	2.68	0.52
19:c:42:GLU:OE1	19:c:45:ARG:NH2	2.43	0.52
26:j:86:LEU:O	31:p:215:ARG:NH1	2.43	0.52
1:A:579:C:H42	11:N:85:VAL:HB	1.73	0.52
1:A:196:A:OP1	20:d:64:ARG:NH2	2.43	0.52
1:A:832:A:O2'	1:A:920:C:O2	2.28	0.52
2:B:136:ARG:HH21	2:B:159:TYR:HD1	1.58	0.52
1:A:5:G:H1	1:A:20:U:H3	1.57	0.52
10:L:34:ASN:OD1	14:Q:41:LYS:NZ	2.42	0.51
10:L:74:ASN:ND2	10:L:117:ASP:OD1	2.44	0.51
22:f:142:ARG:NH1	22:f:173:LEU:O	2.43	0.51
9:K:191:PRO:HD2	16:U:45:TYR:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:573:G:O3'	11:N:108:ARG:NH2	2.42	0.51
1:A:809:U:OP2	7:I:277:LYS:NZ	2.43	0.51
7:I:176:GLN:OE1	7:I:245:ARG:NH2	2.43	0.51
19:c:23:PHE:HA	19:c:107:GLY:HA2	1.92	0.51
4:E:243:VAL:HG11	4:E:268:PHE:HE1	1.76	0.51
9:K:90:HIS:HB2	9:K:101:HIS:HB2	1.92	0.51
22:f:105:ILE:HG12	22:f:115:ILE:HG12	1.91	0.51
5:F:3:ARG:NH1	5:F:70:ALA:O	2.44	0.51
27:k:63:SER:HB2	27:k:66:GLN:HB2	1.93	0.51
11:N:29:TYR:HD1	25:i:55:HIS:HB2	1.76	0.51
14:Q:69:LEU:HD12	14:Q:70:PRO:HD2	1.92	0.51
1:A:90:U:OP1	20:d:72:GLN:NE2	2.44	0.51
1:A:194:G:N2	1:A:197:A:OP2	2.44	0.51
1:A:930:A:N6	1:A:942:G:O6	2.43	0.51
12:O:110:LEU:HD23	12:O:129:VAL:HG13	1.93	0.51
15:R:53:ILE:O	18:b:64:TYR:OH	2.27	0.51
18:b:67:GLU:HG2	18:b:100:VAL:HG11	1.93	0.51
19:c:31:THR:HB	19:c:77:ARG:HB2	1.93	0.51
1:A:880:A:H2	26:j:101:ARG:HA	1.75	0.51
7:I:118:GLU:HG3	7:I:120:ARG:H	1.76	0.51
12:O:208:LEU:HD23	29:n:173:LEU:HD22	1.92	0.51
21:e:201:GLU:OE1	21:e:238:GLN:NE2	2.42	0.51
24:h:290:GLU:O	24:h:294:GLN:NE2	2.35	0.51
1:A:227:G:OP1	4:E:196:ASN:ND2	2.44	0.51
1:A:841:C:O2'	29:n:134:ARG:NH2	2.37	0.51
1:A:308:A:H2'	1:A:309:C:H4'	1.93	0.50
4:E:284:ARG:NH1	4:E:327:ILE:O	2.44	0.50
7:I:84:GLY:HA2	7:I:87:HIS:HD2	1.76	0.50
9:K:103:VAL:HA	9:K:109:PRO:HA	1.93	0.50
14:Q:94:PRO:HG3	19:c:77:ARG:HH21	1.76	0.50
30:o:581:TYR:OH	30:o:610:ARG:NH1	2.44	0.50
4:E:136:ARG:HG3	4:E:137:ARG:HG2	1.93	0.50
5:F:28:ALA:O	5:F:32:ARG:NH1	2.44	0.50
26:j:133:GLN:HB2	26:j:139:TRP:HE1	1.76	0.50
30:o:573:GLU:HG2	30:o:574:TRP:HD1	1.76	0.50
1:A:26:U:OP1	1:A:212:U:O2'	2.27	0.50
1:A:319:U:H3	1:A:378:A:H61	1.59	0.50
3:C:83:ALA:HB2	11:N:105:ARG:HB2	1.93	0.50
7:I:174:GLU:HG2	7:I:237:GLU:HB3	1.94	0.50
19:c:76:LEU:HB2	19:c:88:VAL:HB	1.93	0.50
23:g:267:LEU:O	23:g:293:ARG:NH2	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:h:322:HIS:O	24:h:360:LYS:NZ	2.42	0.50
1:A:481:C:N3	10:L:39:ARG:NH2	2.59	0.50
3:C:164:TYR:HB2	27:k:99:MET:HE2	1.93	0.50
1:A:904:A:H1'	29:n:153:LEU:HD22	1.93	0.50
21:e:270:PRO:HA	21:e:348:VAL:HG11	1.92	0.50
23:g:367:HIS:HB3	23:g:370:ALA:HB2	1.94	0.50
1:A:780:U:O2	7:I:389:ARG:NH1	2.39	0.50
6:G:42:GLN:HB2	6:G:74:ILE:HG22	1.93	0.50
28:m:37:ARG:NH1	28:m:38:ARG:O	2.45	0.50
17:a:168:GLU:HA	31:p:181:HIS:HE1	1.75	0.49
19:c:12:THR:HG22	19:c:14:GLN:H	1.77	0.49
1:A:77:C:OP1	1:A:149:C:O2'	2.25	0.49
4:E:242:ARG:HB3	4:E:260:LYS:HG2	1.94	0.49
4:E:284:ARG:HH11	4:E:328:GLY:HA3	1.76	0.49
7:I:149:PHE:HD1	7:I:150:LEU:HG	1.77	0.49
1:A:230:A:OP1	4:E:195:GLY:N	2.40	0.49
2:B:47:ARG:NH1	2:B:263:GLN:O	2.46	0.49
6:G:49:GLU:HB3	6:G:53:LYS:HE2	1.94	0.49
15:R:98:THR:OG1	15:R:105:GLN:OE1	2.26	0.49
18:b:8:THR:HG22	18:b:9:VAL:HG13	1.94	0.49
3:C:60:HIS:HB3	11:N:125:ARG:HD2	1.94	0.49
27:k:216:LEU:O	27:k:220:ASN:ND2	2.45	0.49
1:A:374:A:H4'	1:A:450:A:H1'	1.94	0.49
11:N:34:MET:HE3	11:N:95:SER:HB3	1.95	0.49
1:A:91:A:H61	26:j:213:THR:HB	1.78	0.49
1:A:443:G:OP2	12:O:147:LYS:NZ	2.45	0.49
6:G:36:ARG:HG3	7:I:375:ARG:HA	1.95	0.49
17:a:264:THR:HG22	17:a:265:ARG:H	1.76	0.49
31:p:127:VAL:HG21	31:p:163:LEU:HD21	1.93	0.49
14:Q:36:ASP:OD2	14:Q:39:LEU:N	2.45	0.49
1:A:391:C:O2'	1:A:478:U:O2	2.31	0.49
1:A:485:A:O2'	1:A:514:A:O2'	2.29	0.49
1:A:594:C:H41	1:A:602:G:H5"	1.78	0.49
3:C:133:TYR:OH	30:o:95:LEU:O	2.26	0.49
8:J:79:LEU:HD11	8:J:140:TYR:HB3	1.94	0.49
30:o:603:ARG:NH2	30:o:638:ASN:OD1	2.45	0.49
23:g:259:VAL:HB	23:g:305:ILE:HA	1.95	0.49
1:A:358:A:OP1	1:A:439:C:O2'	2.31	0.48
5:F:79:MET:HE2	5:F:92:ASN:HA	1.94	0.48
20:d:53:PHE:HB3	31:p:216:LEU:HD21	1.94	0.48
5:F:50:LYS:HG3	5:F:57:ARG:HH21	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:N:63:LEU:HB3	11:N:67:LEU:HD12	1.94	0.48
1:A:55:C:O2'	1:A:198:G:N2	2.46	0.48
1:A:630:C:OP1	18:b:5:ARG:NH1	2.45	0.48
3:C:68:TRP:HH2	7:I:115:GLY:HA3	1.78	0.48
5:F:117:LEU:HA	28:m:12:ARG:HE	1.79	0.48
1:A:297:U:H5"	12:O:164:LYS:HD2	1.95	0.48
1:A:580:C:H1'	11:N:86:ARG:HG2	1.94	0.48
6:G:170:VAL:HG12	6:G:237:ALA:HA	1.94	0.48
7:I:91:MET:O	27:k:117:THR:OG1	2.31	0.48
20:d:171:GLU:N	20:d:171:GLU:OE1	2.45	0.48
21:e:117:LEU:HA	21:e:121:ALA:HB2	1.93	0.48
26:j:167:PRO:HG2	26:j:170:LEU:HD12	1.94	0.48
1:A:950:A:H5"	1:A:951:U:H5	1.78	0.48
7:I:125:MET:HE3	27:k:86:PRO:HD2	1.95	0.48
4:E:358:THR:HG22	4:E:360:GLN:H	1.79	0.48
24:h:302:TRP:HE3	24:h:306:ILE:HD13	1.79	0.48
27:k:93:VAL:HG23	27:k:95:ARG:H	1.77	0.48
1:A:61:C:N3	26:j:48:ARG:NH2	2.60	0.48
26:j:71:LEU:HD21	26:j:141:LEU:HD21	1.95	0.48
26:j:80:VAL:HB	26:j:95:TRP:HB3	1.95	0.48
4:E:164:GLU:HA	4:E:167:LYS:HE2	1.96	0.48
26:j:80:VAL:O	26:j:95:TRP:N	2.42	0.48
9:K:189:CYS:SG	9:K:190:ARG:N	2.86	0.48
1:A:111:U:H3	1:A:491:A:H61	1.61	0.48
1:A:383:A:H5"	12:O:99:LYS:HD2	1.96	0.48
4:E:309:PRO:HD3	17:a:99:PRO:HG3	1.94	0.48
5:F:106:GLU:HG3	15:R:63:LEU:HB2	1.96	0.48
9:K:83:PHE:O	9:K:151:ARG:NH1	2.46	0.48
21:e:365:LEU:HB2	21:e:366:PRO:HD3	1.96	0.48
1:A:15:C:OP1	4:E:339:SER:OG	2.32	0.47
1:A:903:G:H2'	1:A:904:A:H8	1.79	0.47
1:A:27:U:H3	1:A:272:A:H61	1.60	0.47
1:A:574:A:N3	1:A:576:A:O2'	2.47	0.47
7:I:70:THR:HG21	7:I:135:GLN:HG3	1.96	0.47
1:A:367:U:O2	15:R:106:ARG:NH2	2.47	0.47
2:B:82:HIS:HD2	22:f:162:THR:HG21	1.80	0.47
27:k:77:PRO:HD2	27:k:79:LYS:HE3	1.96	0.47
1:A:877:C:H5'	21:e:105:ARG:HH12	1.79	0.47
17:a:75:GLN:HE22	17:a:127:MET:HB2	1.79	0.47
17:a:130:VAL:HG12	17:a:241:TYR:HE2	1.79	0.47
21:e:99:PRO:HA	26:j:104:TYR:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:k:68:TRP:HZ2	27:k:114:LEU:HD13	1.79	0.47
1:A:360:A:H2'	9:K:187:ASN:HD22	1.79	0.47
19:c:155:LEU:HD13	19:c:159:LEU:HD12	1.97	0.47
1:A:362:A:H62	15:R:123:VAL:HG12	1.80	0.47
1:A:489:C:N4	1:A:931:U:OP2	2.44	0.47
1:A:820:C:H1'	6:G:241:TRP:HZ2	1.80	0.47
6:G:42:GLN:H	6:G:74:ILE:HA	1.78	0.47
6:G:174:LEU:HD22	6:G:178:ARG:HG2	1.97	0.47
17:a:149:GLY:HA2	31:p:235:MET:HE1	1.95	0.47
23:g:265:ASN:HD21	23:g:309:VAL:HB	1.79	0.47
1:A:630:C:HO2'	2:B:199:ARG:HH22	1.60	0.47
1:A:634:A:H1'	4:E:260:LYS:HD3	1.97	0.47
1:A:656:U:O2'	7:I:118:GLU:OE1	2.33	0.47
15:R:115:ALA:HB1	15:R:120:PHE:HB2	1.96	0.47
20:d:169:THR:HG22	20:d:170:ARG:H	1.80	0.47
1:A:954:A:H3'	1:A:955:U:H5'	1.97	0.47
1:A:742:A:H61	1:A:773:G:H1	1.62	0.47
1:A:754:A:OP2	25:i:29:LYS:NZ	2.48	0.47
14:Q:24:LYS:HE2	14:Q:55:LEU:HA	1.97	0.47
30:o:420:GLN:NE2	30:o:459:PHE:O	2.41	0.47
1:A:414:A:O2'	1:A:942:G:O2'	2.32	0.46
4:E:306:LYS:NZ	4:E:413:ALA:O	2.46	0.46
10:L:76:ALA:HB3	10:L:78:ARG:HH12	1.80	0.46
15:R:85:ILE:HD11	15:R:126:LYS:HD3	1.96	0.46
21:e:202:ARG:HB3	21:e:247:MET:HG3	1.96	0.46
26:j:178:ARG:HH12	26:j:187:GLU:H	1.63	0.46
1:A:631:U:O4	1:A:634:A:N6	2.49	0.46
16:U:1:MET:HA	16:U:2:ALA:HA	1.64	0.46
28:m:116:HIS:CD2	28:m:117:LEU:HG	2.50	0.46
1:A:217:A:H61	1:A:268:A:H5'	1.80	0.46
1:A:283:G:H1	1:A:290:A:H2	1.63	0.46
23:g:210:ASN:HD21	23:g:234:ASN:HD21	1.63	0.46
23:g:323:LEU:HD13	27:k:306:ASP:HB2	1.97	0.46
1:A:625:A:O2'	1:A:649:A:N6	2.48	0.46
3:C:152:ARG:HB3	3:C:154:HIS:HE1	1.81	0.46
4:E:284:ARG:HD3	4:E:327:ILE:HG22	1.96	0.46
9:K:161:ARG:NH2	9:K:180:ASP:OD1	2.47	0.46
13:P:51:LEU:HD13	13:P:73:ILE:HG12	1.98	0.46
20:d:46:PRO:O	26:j:53:ARG:NH2	2.48	0.46
23:g:144:CYS:HB3	23:g:149:TRP:CG	2.51	0.46
5:F:2:PRO:O	5:F:99:THR:OG1	2.34	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:K:67:PRO:HB3	15:R:131:LEU:HD23	1.98	0.46
26:j:144:LYS:C	26:j:146:GLU:H	2.23	0.46
1:A:615:C:H5'	8:J:122:LYS:HE2	1.98	0.46
1:A:712:G:O2'	1:A:803:G:OP1	2.31	0.46
7:I:125:MET:HE1	27:k:85:LEU:HD22	1.96	0.46
26:j:122:GLY:HA3	26:j:155:PRO:HD2	1.97	0.46
1:A:301:G:O2'	1:A:478:U:OP1	2.26	0.46
1:A:368:G:H1	28:m:20:ILE:HG13	1.79	0.46
1:A:544:A:O2'	1:A:712:G:OP2	2.33	0.46
8:J:85:LYS:HZ1	8:J:141:ARG:HE	1.62	0.46
8:J:186:LYS:HB2	8:J:187:PRO:HD3	1.98	0.46
13:P:85:LYS:HB2	13:P:86:PRO:HD3	1.96	0.46
18:b:87:LEU:HD22	22:f:90:LEU:HD23	1.98	0.46
3:C:41:ARG:HE	3:C:59:PRO:HD2	1.80	0.46
3:C:94:LYS:NZ	4:E:94:THR:OG1	2.49	0.46
8:J:75:ARG:HG3	8:J:146:GLU:HG2	1.97	0.46
27:k:196:VAL:HG21	27:k:207:LEU:HD11	1.97	0.46
31:p:92:LYS:HE2	31:p:93:MET:HE3	1.97	0.46
2:B:168:ALA:H	2:B:169:PRO:HD2	1.81	0.46
4:E:301:THR:HG23	4:E:336:VAL:HG23	1.98	0.46
31:p:91:ARG:HH22	31:p:102:GLY:HA3	1.81	0.46
1:A:358:A:H1'	1:A:411:C:H42	1.81	0.46
26:j:105:THR:HG23	26:j:109:LEU:HA	1.98	0.46
5:F:107:GLY:HA3	15:R:63:LEU:HB3	1.97	0.45
12:O:174:TYR:HB3	12:O:175:PRO:HD3	1.98	0.45
21:e:263:MET:HB2	21:e:269:SER:HB2	1.98	0.45
3:C:113:ARG:HH21	8:J:165:PRO:HA	1.82	0.45
7:I:373:ASP:OD1	7:I:375:ARG:NE	2.49	0.45
21:e:96:ARG:NH2	21:e:136:GLY:O	2.49	0.45
22:f:173:LEU:HD23	22:f:173:LEU:H	1.81	0.45
10:L:110:VAL:HG12	10:L:125:VAL:HG22	1.98	0.45
21:e:171:GLU:H	26:j:72:PRO:HD3	1.81	0.45
23:g:108:LEU:HD13	23:g:140:ILE:HG23	1.97	0.45
27:k:245:LYS:HE2	27:k:250:MET:HG2	1.98	0.45
1:A:297:U:H2'	1:A:298:A:H8	1.82	0.45
1:A:685:U:H2'	1:A:686:G:H8	1.82	0.45
13:P:104:ILE:HG12	17:a:146:ILE:HG21	1.99	0.45
17:a:225:ASP:HB3	31:p:167:ILE:HD12	1.97	0.45
1:A:338:U:OP1	16:U:44:TYR:OH	2.33	0.45
11:N:91:CYS:HB3	11:N:96:ARG:H	1.81	0.45
13:P:93:LEU:HD21	13:P:103:VAL:HG11	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:127:ARG:HD2	10:L:132:CYS:HB3	1.98	0.45
26:j:90:ASP:OD2	31:p:215:ARG:NE	2.50	0.45
1:A:274:C:H1'	10:L:56:PRO:HG3	1.99	0.45
1:A:534:A:H61	1:A:540:C:H1'	1.81	0.45
3:C:150:PRO:HB2	3:C:152:ARG:HH12	1.82	0.45
8:J:158:GLU:HG3	24:h:304:PHE:HB3	1.99	0.45
3:C:145:HIS:ND1	30:o:140:LEU:O	2.48	0.45
10:L:109:LEU:HD22	10:L:129:LYS:HD3	1.98	0.45
1:A:557:A:N6	1:A:702:G:O2'	2.50	0.45
2:B:92:GLU:HB2	2:B:93:PRO:HD3	1.97	0.45
2:B:125:ALA:HB1	2:B:250:LYS:HE2	1.98	0.45
16:U:63:ILE:HG12	28:m:4:PRO:HG2	1.99	0.45
23:g:121:VAL:HG21	27:k:324:LEU:HD11	1.99	0.45
26:j:63:ARG:HE	26:j:66:GLN:HG3	1.82	0.45
1:A:58:C:H4'	26:j:50:LEU:HD22	1.98	0.45
1:A:310:C:O3'	15:R:106:ARG:NH1	2.47	0.45
1:A:443:G:O2'	1:A:497:A:N6	2.50	0.45
7:I:100:THR:HG22	7:I:101:GLN:H	1.81	0.45
1:A:486:G:OP1	29:n:135:ARG:NH2	2.50	0.44
17:a:274:PHE:HB3	17:a:280:ILE:HA	1.99	0.44
21:e:47:ASP:O	21:e:78:ASN:ND2	2.43	0.44
1:A:614:C:H5'	3:C:39:ALA:HB2	1.99	0.44
2:B:193:GLU:OE2	28:m:114:LYS:NZ	2.48	0.44
19:c:48:VAL:HG13	19:c:52:ILE:HD12	1.99	0.44
27:k:153:ILE:HD13	27:k:221:TYR:HE1	1.82	0.44
27:k:160:SER:OG	27:k:164:SER:O	2.36	0.44
31:p:51:TYR:HB2	31:p:112:LYS:HE2	1.98	0.44
5:F:15:ARG:HB3	5:F:16:PRO:HD3	2.00	0.44
17:a:186:GLU:O	17:a:190:ARG:NH1	2.49	0.44
27:k:81:SER:HB3	30:o:93:PRO:HD3	1.98	0.44
1:A:560:A:O2'	1:A:584:C:O2	2.34	0.44
1:A:785:G:N2	1:A:812:A:O5'	2.46	0.44
23:g:82:LEU:HD23	23:g:87:VAL:HG22	1.98	0.44
23:g:102:LYS:HB2	23:g:103:PRO:HD3	1.99	0.44
25:i:42:LEU:O	25:i:48:THR:OG1	2.26	0.44
30:o:420:GLN:HB2	30:o:449:LYS:HG3	2.00	0.44
1:A:469:C:OP1	5:F:122:LYS:NZ	2.48	0.44
1:A:566:A:O2'	7:I:395:LYS:O	2.36	0.44
1:A:54:G:H4'	1:A:200:U:H1'	1.99	0.44
1:A:113:A:N1	1:A:132:C:O2'	2.43	0.44
4:E:248:GLY:HA3	4:E:326:LEU:HB3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:78:PRO:HA	7:I:276:ARG:HH22	1.83	0.44
15:R:96:HIS:HB2	28:m:2:ALA:HB1	1.99	0.44
2:B:141:SER:HA	2:B:157:THR:HG21	1.99	0.44
11:N:115:ALA:HB1	11:N:123:ILE:HG21	2.00	0.44
23:g:364:TRP:NE1	23:g:394:CYS:O	2.48	0.44
30:o:454:ASP:HB3	30:o:455:PRO:HD3	2.00	0.44
1:A:267:A:H62	31:p:101:ALA:HA	1.83	0.43
1:A:724:A:O2'	23:g:317:LYS:O	2.33	0.43
2:B:98:SER:HA	2:B:103:ASP:HA	2.00	0.43
29:n:128:ARG:HG2	29:n:130:VAL:H	1.83	0.43
1:A:311:A:OP2	15:R:106:ARG:NH2	2.36	0.43
2:B:188:LEU:HB3	2:B:192:PHE:HA	2.00	0.43
23:g:74:LEU:HD21	23:g:90:VAL:HG21	1.99	0.43
1:A:154:C:N3	1:A:162:G:N1	2.66	0.43
4:E:94:THR:HG22	4:E:96:ASP:H	1.84	0.43
1:A:406:A:H2'	1:A:407:A:C8	2.54	0.43
21:e:328:LEU:H	21:e:329:PRO:HD2	1.83	0.43
1:A:187:C:H4'	19:c:168:ARG:HH12	1.84	0.43
12:O:71:LEU:HD21	12:O:89:LYS:HE3	2.00	0.43
1:A:370:C:N4	1:A:371:G:O6	2.52	0.43
7:I:81:PHE:HZ	7:I:101:GLN:HE22	1.65	0.43
3:C:72:HIS:HA	3:C:112:ARG:HD3	2.01	0.43
26:j:99:ARG:O	26:j:115:TRP:N	2.43	0.43
1:A:885:A:C5	26:j:25:ARG:HG2	2.54	0.43
2:B:134:VAL:HG13	2:B:156:HIS:HD2	1.84	0.43
21:e:120:GLY:O	21:e:122:GLN:N	2.52	0.43
25:i:57:THR:HG22	30:o:127:TYR:HA	2.01	0.43
26:j:50:LEU:HB2	26:j:55:TRP:HE1	1.83	0.43
1:A:554:U:OP1	1:A:564:A:N6	2.52	0.42
7:I:140:TRP:HA	7:I:146:PRO:HA	2.01	0.42
17:a:166:HIS:O	17:a:188:ARG:NH2	2.50	0.42
19:c:91:GLU:OE2	20:d:123:ARG:NH2	2.52	0.42
21:e:43:ARG:HH12	21:e:115:GLN:HE21	1.67	0.42
26:j:171:ARG:HH12	26:j:188:GLU:HG2	1.84	0.42
28:m:33:VAL:HG11	28:m:104:LEU:HB2	2.01	0.42
1:A:522:G:H21	1:A:837:C:H41	1.66	0.42
21:e:202:ARG:HH12	21:e:246:ASN:H	1.66	0.42
1:A:311:A:P	15:R:106:ARG:HH12	2.43	0.42
1:A:536:C:H2'	1:A:821:A:H2	1.85	0.42
1:A:898:C:H2'	1:A:899:A:C8	2.54	0.42
5:F:41:ASN:O	20:d:185:LYS:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:a:124:ARG:HB3	31:p:169:GLN:HE22	1.84	0.42
27:k:98:PRO:HB2	27:k:99:MET:H	1.66	0.42
1:A:52:A:H5"	1:A:201:U:H4'	2.00	0.42
1:A:405:U:H2'	1:A:406:A:C8	2.53	0.42
1:A:683:G:H2'	1:A:684:G:C8	2.55	0.42
10:L:66:PHE:HE2	10:L:82:ARG:HB2	1.85	0.42
22:f:85:LEU:O	22:f:91:THR:OG1	2.32	0.42
23:g:79:PRO:HG3	23:g:193:ALA:HB2	2.00	0.42
1:A:408:G:H2'	1:A:409:A:H8	1.84	0.42
1:A:755:U:H2'	1:A:756:G:C8	2.54	0.42
1:A:785:G:H22	1:A:812:A:P	2.43	0.42
2:B:154:TYR:OH	7:I:146:PRO:O	2.33	0.42
14:Q:32:ARG:O	14:Q:45:LYS:N	2.48	0.42
28:m:98:SER:OG	28:m:99:LEU:N	2.51	0.42
30:o:131:ASP:HB3	30:o:141:MET:HE1	2.02	0.42
15:R:77:ASN:ND2	20:d:187:TYR:O	2.52	0.42
30:o:427:SER:HA	30:o:467:LEU:HD21	2.00	0.42
1:A:427:U:O2	1:A:935:G:O2'	2.30	0.42
5:F:71:PRO:HD2	5:F:74:THR:HB	2.02	0.42
1:A:4:A:O2'	1:A:5:G:OP1	2.35	0.42
1:A:295:G:O6	1:A:396:C:N4	2.52	0.42
1:A:371:G:O3'	12:O:154:TYR:OH	2.37	0.42
1:A:422:U:O2	1:A:428:A:N6	2.53	0.42
1:A:590:C:N4	1:A:591:U:O4	2.53	0.42
8:J:117:ARG:HG2	8:J:135:GLU:HG2	2.02	0.42
19:c:78:PHE:HB2	19:c:86:VAL:HB	2.02	0.42
1:A:302:C:H5	19:c:68:LYS:HD2	1.85	0.42
1:A:342:A:N3	1:A:420:G:O2'	2.40	0.42
1:A:490:U:H2'	1:A:491:A:H8	1.85	0.42
8:J:78:VAL:O	8:J:143:LEU:N	2.45	0.42
21:e:277:ARG:HG2	21:e:286:ALA:HB2	2.02	0.42
23:g:82:LEU:HD12	23:g:83:PRO:HD2	2.01	0.42
1:A:294:U:H2'	1:A:295:G:C8	2.55	0.42
1:A:785:G:O6	7:I:276:ARG:NH2	2.53	0.42
1:A:934:U:H2'	1:A:935:G:C8	2.55	0.42
3:C:128:PRO:HD2	3:C:131:LYS:HD2	2.01	0.42
4:E:312:TYR:HE2	4:E:315:ARG:HB2	1.85	0.42
9:K:86:ILE:HD13	9:K:176:ILE:HG13	2.01	0.42
21:e:141:ASN:HB3	21:e:142:TYR:H	1.70	0.42
26:j:111:HIS:HA	26:j:135:MET:HE1	2.01	0.42
1:A:11:G:H1'	4:E:231:MET:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:589:U:H2'	1:A:590:C:C6	2.55	0.41
1:A:782:G:H5'	7:I:388:ARG:HB3	2.02	0.41
1:A:813:A:OP1	6:G:96:ASN:ND2	2.46	0.41
6:G:122:GLN:HE21	6:G:210:LEU:HD13	1.85	0.41
30:o:485:ILE:HB	30:o:486:PRO:HD3	2.02	0.41
20:d:43:ALA:HB3	26:j:51:PRO:HB3	2.03	0.41
26:j:5:LYS:HE2	26:j:7:ARG:HG3	2.02	0.41
1:A:4:A:H62	1:A:279:G:H5'	1.84	0.41
4:E:141:TRP:CD1	4:E:144:LEU:HD12	2.55	0.41
13:P:18:THR:HG23	13:P:82:HIS:HB2	2.01	0.41
25:i:87:LYS:HE3	25:i:92:VAL:HG23	2.01	0.41
30:o:512:ILE:HB	30:o:513:PRO:HD3	2.03	0.41
21:e:131:ASN:HB3	21:e:134:GLN:HB2	2.02	0.41
30:o:100:SER:HB3	30:o:491:PRO:HD2	2.02	0.41
1:A:170:A:O2'	1:A:202:G:N2	2.52	0.41
12:O:174:TYR:HB2	14:Q:89:GLY:HA3	2.01	0.41
1:A:108:G:H1	1:A:139:C:H42	1.69	0.41
1:A:829:C:H2'	1:A:830:G:C8	2.55	0.41
4:E:92:LYS:HD3	25:i:75:HIS:HB3	2.03	0.41
9:K:149:HIS:HB3	9:K:176:ILE:HD11	2.02	0.41
23:g:386:ASN:HB3	23:g:389:LEU:HB2	2.03	0.41
1:A:716:C:H3'	1:A:717:A:H5'	2.02	0.41
4:E:191:ARG:O	31:p:78:ARG:NH1	2.41	0.41
9:K:177:SER:OG	16:U:12:VAL:O	2.35	0.41
23:g:154:ILE:HD12	23:g:261:VAL:HG22	2.02	0.41
27:k:151:ILE:HG12	27:k:177:VAL:HG22	2.02	0.41
1:A:45:C:H2'	1:A:46:A:C8	2.56	0.41
1:A:220:A:H62	31:p:96:ARG:HD3	1.86	0.41
1:A:220:A:N6	1:A:268:A:OP2	2.49	0.41
1:A:315:A:H2'	1:A:316:G:C8	2.56	0.41
1:A:948:G:C8	29:n:129:ASN:HB3	2.55	0.41
4:E:232:THR:HG22	4:E:234:LYS:H	1.86	0.41
17:a:131:LEU:HD12	17:a:237:ASP:HB3	2.02	0.41
26:j:110:ASP:OD1	26:j:110:ASP:N	2.53	0.41
31:p:91:ARG:HH12	31:p:102:GLY:H	1.69	0.41
1:A:766:A:H5"	23:g:278:LYS:HE3	2.02	0.41
21:e:43:ARG:NH1	21:e:77:ASP:OD1	2.54	0.41
27:k:196:VAL:HG22	27:k:231:LEU:HD13	2.03	0.41
1:A:154:C:H4'	1:A:167:A:H61	1.85	0.40
2:B:232:PRO:HB2	2:B:233:PRO:HD3	2.03	0.40
3:C:158:VAL:HG12	3:C:160:SER:H	1.84	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:11:LYS:HB3	5:F:13:MET:HE3	2.02	0.40
13:P:53:SER:H	13:P:67:ALA:HB3	1.86	0.40
21:e:95:PHE:O	21:e:98:SER:OG	2.37	0.40
25:i:14:LEU:HD13	25:i:17:ARG:HH21	1.85	0.40
1:A:171:G:OP1	1:A:180:A:O2'	2.34	0.40
8:J:76:LEU:HD12	8:J:148:LEU:HD22	2.02	0.40
15:R:88:PHE:HB3	16:U:10:ARG:HA	2.03	0.40
21:e:170:GLN:HB3	26:j:72:PRO:HB3	2.03	0.40
23:g:198:LEU:HB3	23:g:222:ALA:HB2	2.03	0.40
1:A:358:A:O2'	1:A:438:G:N1	2.51	0.40
26:j:63:ARG:HB3	26:j:137:HIS:HA	2.04	0.40
27:k:113:PHE:HD2	27:k:116:LEU:HD12	1.86	0.40
4:E:206:PRO:HA	4:E:272:LYS:HZ2	1.86	0.40
4:E:305:MET:HE1	4:E:356:GLN:HE21	1.86	0.40
7:I:306:VAL:HG12	7:I:308:GLN:H	1.87	0.40
8:J:73:TYR:HE2	8:J:150:GLY:HA2	1.86	0.40
20:d:169:THR:H	20:d:172:ASN:HB2	1.87	0.40
1:A:222:G:H2'	1:A:223:G:C8	2.56	0.40
1:A:824:A:H2'	1:A:825:A:C8	2.57	0.40
12:O:172:THR:HB	14:Q:101:ALA:HB1	2.04	0.40
20:d:68:ARG:NH1	26:j:195:ARG:O	2.55	0.40
23:g:167:LEU:HG	23:g:179:GLN:HE22	1.87	0.40
28:m:81:GLU:HG2	28:m:85:LYS:HE3	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	
2	B	215/293 (73%)	197 (92%)	17 (8%)	1 (0%)	25	64
3	C	130/167 (78%)	108 (83%)	19 (15%)	3 (2%)	5	28

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	E	326/430 (76%)	280 (86%)	43 (13%)	3 (1%)	14	52
5	F	122/124 (98%)	106 (87%)	14 (12%)	2 (2%)	8	38
6	G	206/242 (85%)	188 (91%)	17 (8%)	1 (0%)	25	64
7	I	309/396 (78%)	277 (90%)	31 (10%)	1 (0%)	37	73
8	J	126/201 (63%)	105 (83%)	19 (15%)	2 (2%)	8	38
9	K	134/197 (68%)	119 (89%)	14 (10%)	1 (1%)	19	57
10	L	107/139 (77%)	86 (80%)	18 (17%)	3 (3%)	4	24
11	N	99/128 (77%)	89 (90%)	9 (9%)	1 (1%)	13	49
12	O	171/256 (67%)	158 (92%)	12 (7%)	1 (1%)	22	60
13	P	114/135 (84%)	101 (89%)	11 (10%)	2 (2%)	7	35
14	Q	107/130 (82%)	92 (86%)	14 (13%)	1 (1%)	14	52
15	R	95/143 (66%)	85 (90%)	9 (10%)	1 (1%)	12	47
16	U	84/87 (97%)	80 (95%)	4 (5%)	0	100	100
17	a	287/359 (80%)	260 (91%)	27 (9%)	0	100	100
18	b	133/190 (70%)	120 (90%)	10 (8%)	3 (2%)	5	28
19	c	166/173 (96%)	148 (89%)	16 (10%)	2 (1%)	11	44
20	d	174/205 (85%)	166 (95%)	8 (5%)	0	100	100
21	e	340/415 (82%)	287 (84%)	46 (14%)	7 (2%)	5	30
22	f	96/189 (51%)	93 (97%)	3 (3%)	0	100	100
23	g	334/397 (84%)	302 (90%)	29 (9%)	3 (1%)	14	52
24	h	101/386 (26%)	90 (89%)	9 (9%)	2 (2%)	6	32
25	i	96/106 (91%)	89 (93%)	6 (6%)	1 (1%)	13	49
26	j	211/218 (97%)	173 (82%)	33 (16%)	5 (2%)	5	27
27	k	273/325 (84%)	243 (89%)	26 (10%)	4 (2%)	8	40
28	m	116/118 (98%)	94 (81%)	22 (19%)	0	100	100
29	n	70/199 (35%)	66 (94%)	2 (3%)	2 (3%)	3	23
30	o	306/575 (53%)	273 (89%)	24 (8%)	9 (3%)	3	23
31	p	185/258 (72%)	154 (83%)	29 (16%)	2 (1%)	12	47
All	All	5233/7181 (73%)	4629 (88%)	541 (10%)	63 (1%)	14	44

All (63) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	N	97	PRO
5	F	71	PRO
5	F	110	PRO
6	G	102	GLY
10	L	56	PRO
15	R	119	GLY
23	g	193	ALA
27	k	77	PRO
27	k	98	PRO
29	n	181	GLY
30	o	489	PHE
30	o	559	LYS
31	p	101	ALA
3	C	105	ALA
10	L	70	PRO
13	P	27	THR
18	b	40	PRO
18	b	110	GLY
21	e	121	ALA
21	e	135	TYR
21	e	238	GLN
21	e	276	CYS
21	e	328	LEU
24	h	286	GLN
25	i	96	LYS
26	j	143	PRO
30	o	456	ARG
30	o	590	GLY
3	C	106	ASP
10	L	76	ALA
21	e	132	LYS
26	j	134	VAL
2	B	92	GLU
3	C	126	GLN
4	E	423	SER
8	J	105	SER
19	c	9	ILE
21	e	172	ALA
24	h	331	GLY
26	j	162	ARG
30	o	66	ASP
30	o	68	VAL
30	o	137	ILE

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Mol	Chain	Res	Type
30	o	454	ASP
31	p	235	MET
4	E	154	ILE
8	J	126	ILE
9	K	119	GLY
18	b	129	GLY
26	j	138	ASP
29	n	191	THR
30	o	589	ALA
13	P	48	VAL
23	g	132	GLY
23	g	337	ASP
4	E	236	GLY
7	I	210	VAL
12	O	80	GLY
27	k	93	VAL
14	Q	85	VAL
19	c	145	GLY
26	j	182	GLY
27	k	57	PRO

5.3.2　Protein sidechains ⓘ

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	
2	B	186/230 (81%)	186 (100%)	0	100	100
3	C	113/142 (80%)	113 (100%)	0	100	100
4	E	273/346 (79%)	272 (100%)	1 (0%)	89	91
5	F	109/109 (100%)	109 (100%)	0	100	100
6	G	183/208 (88%)	183 (100%)	0	100	100
7	I	267/333 (80%)	266 (100%)	1 (0%)	89	91
8	J	118/182 (65%)	117 (99%)	1 (1%)	79	85
9	K	102/151 (68%)	102 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
10	L	94/118 (80%)	94 (100%)	0	100	100
11	N	91/113 (80%)	91 (100%)	0	100	100
12	O	159/226 (70%)	159 (100%)	0	100	100
13	P	95/113 (84%)	95 (100%)	0	100	100
14	Q	95/115 (83%)	95 (100%)	0	100	100
15	R	89/126 (71%)	89 (100%)	0	100	100
16	U	77/78 (99%)	77 (100%)	0	100	100
17	a	255/307 (83%)	254 (100%)	1 (0%)	89	91
18	b	115/163 (71%)	115 (100%)	0	100	100
19	c	152/155 (98%)	152 (100%)	0	100	100
20	d	147/168 (88%)	147 (100%)	0	100	100
21	e	307/362 (85%)	307 (100%)	0	100	100
22	f	85/160 (53%)	85 (100%)	0	100	100
23	g	301/352 (86%)	301 (100%)	0	100	100
24	h	94/341 (28%)	94 (100%)	0	100	100
25	i	88/94 (94%)	88 (100%)	0	100	100
26	j	190/193 (98%)	190 (100%)	0	100	100
27	k	252/292 (86%)	250 (99%)	2 (1%)	79	85
28	m	102/102 (100%)	102 (100%)	0	100	100
29	n	66/173 (38%)	66 (100%)	0	100	100
30	o	277/369 (75%)	277 (100%)	0	100	100
31	p	166/226 (74%)	166 (100%)	0	100	100
All	All	4648/6047 (77%)	4642 (100%)	6 (0%)	92	95

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	E	375	GLU
7	I	256	LEU
8	J	175	THR
17	a	264	THR
27	k	97	VAL
27	k	204	THR

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

Mol	Chain	Res	Type
2	B	63	ASN
2	B	119	ASN
2	B	123	HIS
2	B	139	GLN
2	B	142	HIS
2	B	167	ASN
2	B	186	HIS
2	B	243	GLN
2	B	255	GLN
3	C	57	HIS
3	C	72	HIS
3	C	81	HIS
3	C	107	GLN
3	C	154	HIS
4	E	130	GLN
4	E	155	GLN
4	E	356	GLN
5	F	58	HIS
5	F	100	GLN
6	G	122	GLN
6	G	224	HIS
6	G	227	HIS
7	I	87	HIS
7	I	101	GLN
7	I	127	HIS
7	I	163	HIS
7	I	178	GLN
7	I	220	GLN
7	I	255	HIS
7	I	296	ASN
7	I	366	GLN
7	I	384	GLN
8	J	147	HIS
8	J	163	ASN
9	K	99	GLN
9	K	101	HIS
9	K	132	GLN
9	K	149	HIS
10	L	106	HIS
11	N	60	ASN
11	N	68	GLN

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Mol	Chain	Res	Type
11	N	124	GLN
12	O	199	HIS
12	O	217	GLN
13	P	28	ASN
14	Q	44	ASN
14	Q	57	GLN
14	Q	76	HIS
14	Q	90	GLN
15	R	77	ASN
15	R	79	GLN
15	R	83	GLN
15	R	116	GLN
16	U	15	GLN
17	a	75	GLN
17	a	95	GLN
17	a	109	GLN
17	a	138	ASN
17	a	215	GLN
17	a	276	ASN
17	a	307	HIS
18	b	89	ASN
19	c	56	GLN
20	d	83	HIS
20	d	109	ASN
20	d	113	ASN
20	d	126	GLN
20	d	155	GLN
21	e	115	GLN
21	e	150	HIS
21	e	339	HIS
21	e	384	HIS
22	f	92	GLN
22	f	122	HIS
23	g	66	HIS
23	g	109	HIS
23	g	147	GLN
23	g	179	GLN
23	g	189	ASN
23	g	204	GLN
23	g	234	ASN
23	g	265	ASN
23	g	298	ASN

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Mol	Chain	Res	Type
23	g	346	ASN
23	g	366	GLN
24	h	286	GLN
24	h	287	ASN
25	i	56	ASN
26	j	24	GLN
26	j	45	HIS
26	j	89	HIS
26	j	179	GLN
27	k	167	ASN
27	k	220	ASN
27	k	263	ASN
27	k	270	GLN
27	k	307	ASN
28	m	24	ASN
28	m	31	ASN
29	n	140	HIS
29	n	178	GLN
30	o	458	ASN
31	p	68	ASN
31	p	88	GLN
31	p	146	GLN
31	p	169	GLN
31	p	181	HIS
31	p	207	GLN
31	p	221	GLN
31	p	223	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	952/955 (99%)	170 (17%)	3 (0%)

All (170) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	5	G
1	A	10	G
1	A	16	A
1	A	24	U
1	A	33	U

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Mol	Chain	Res	Type
1	A	41	C
1	A	44	A
1	A	53	A
1	A	57	U
1	A	58	C
1	A	60	A
1	A	64	C
1	A	74	A
1	A	91	A
1	A	103	A
1	A	110	A
1	A	112	C
1	A	114	A
1	A	117	A
1	A	119	A
1	A	124	C
1	A	125	U
1	A	129	G
1	A	138	G
1	A	143	G
1	A	147	A
1	A	158	A
1	A	159	C
1	A	165	A
1	A	166	C
1	A	170	A
1	A	179	A
1	A	181	U
1	A	186	C
1	A	211	A
1	A	212	U
1	A	218	U
1	A	219	U
1	A	226	G
1	A	233	C
1	A	239	C
1	A	242	G
1	A	248	G
1	A	253	C
1	A	268	A
1	A	279	G
1	A	282	C

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Mol	Chain	Res	Type
1	A	288	A
1	A	302	C
1	A	304	C
1	A	305	C
1	A	306	A
1	A	310	C
1	A	311	A
1	A	312	A
1	A	313	A
1	A	333	A
1	A	341	A
1	A	355	A
1	A	364	A
1	A	370	C
1	A	375	G
1	A	386	A
1	A	389	G
1	A	393	A
1	A	394	C
1	A	427	U
1	A	428	A
1	A	444	C
1	A	449	A
1	A	450	A
1	A	452	A
1	A	465	U
1	A	466	A
1	A	467	A
1	A	472	A
1	A	482	C
1	A	489	C
1	A	497	A
1	A	498	A
1	A	500	A
1	A	513	A
1	A	533	U
1	A	535	U
1	A	536	C
1	A	537	C
1	A	557	A
1	A	561	U
1	A	569	C

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Mol	Chain	Res	Type
1	A	571	C
1	A	574	A
1	A	578	A
1	A	588	U
1	A	592	U
1	A	595	U
1	A	599	A
1	A	604	C
1	A	610	A
1	A	618	C
1	A	620	U
1	A	632	A
1	A	634	A
1	A	635	A
1	A	636	A
1	A	639	A
1	A	640	A
1	A	641	A
1	A	642	A
1	A	644	A
1	A	645	A
1	A	649	A
1	A	660	G
1	A	661	A
1	A	676	A
1	A	677	G
1	A	681	A
1	A	686	G
1	A	693	A
1	A	714	U
1	A	725	C
1	A	726	A
1	A	727	C
1	A	728	C
1	A	729	A
1	A	730	A
1	A	741	C
1	A	747	A
1	A	757	A
1	A	760	C
1	A	769	A
1	A	785	G

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Mol	Chain	Res	Type
1	A	814	U
1	A	817	G
1	A	818	G
1	A	821	A
1	A	832	A
1	A	833	C
1	A	835	C
1	A	848	C
1	A	855	A
1	A	856	A
1	A	860	G
1	A	868	G
1	A	869	C
1	A	870	A
1	A	874	A
1	A	878	C
1	A	881	U
1	A	886	A
1	A	887	C
1	A	889	C
1	A	892	U
1	A	895	C
1	A	896	U
1	A	904	A
1	A	910	C
1	A	911	A
1	A	913	G
1	A	922	A
1	A	923	G
1	A	926	A
1	A	927	A
1	A	928	G
1	A	936	G
1	A	939	A
1	A	948	G
1	A	949	G
1	A	951	U
1	A	952	A
1	A	954	A

All (3) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	4	A
1	A	15	C
1	A	363	U

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

The following chains have linkage breaks:

Mol	Chain	Number of breaks
30	o	13
21	e	1
23	g	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	o	383:TYR	C	386:UNK	N	27.66
1	o	399:UNK	C	417:MET	N	21.54
1	o	143:GLU	C	145:UNK	N	20.88
1	e	291:THR	C	292:ALA	N	20.27
1	g	69:ILE	C	70:SER	N	20.27
1	o	173:UNK	C	220:UNK	N	14.26
1	o	285:UNK	C	290:UNK	N	13.31
1	o	300:UNK	C	311:UNK	N	13.28

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	o	362:UNK	C	371:SER	N	12.35
1	o	326:UNK	C	331:UNK	N	11.92
1	o	232:UNK	C	237:UNK	N	10.26
1	o	345:UNK	C	353:UNK	N	10.14
1	o	250:UNK	C	255:UNK	N	8.69
1	o	269:UNK	C	272:UNK	N	5.75
1	o	156:UNK	C	161:UNK	N	5.49

6　Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-5941. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1　Orthogonal projections (i)

6.1.1　Primary map

X

Y

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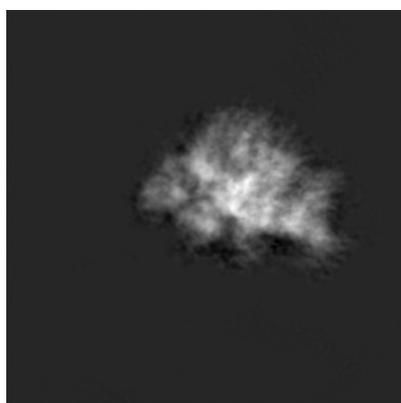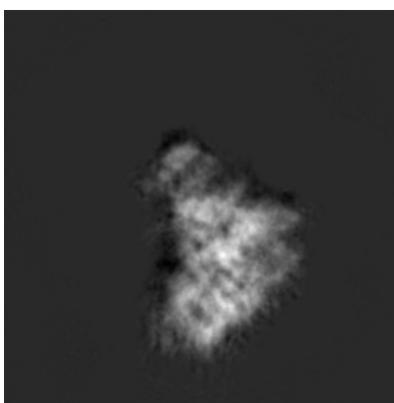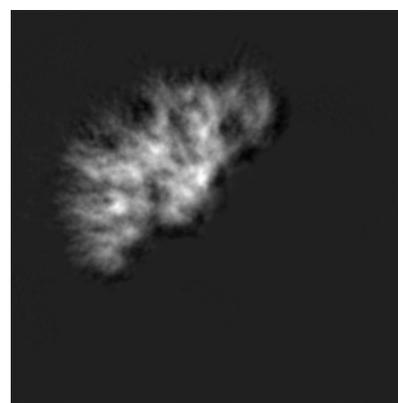
The images above show the map projected in three orthogonal directions.

6.2　Central slices (i)

6.2.1　Primary map
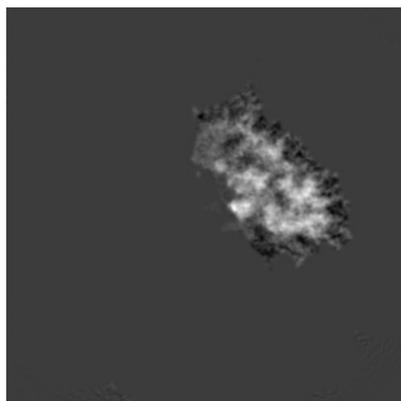
X Index: 187
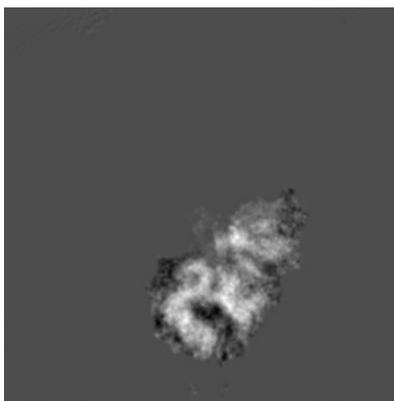
Y Index: 187
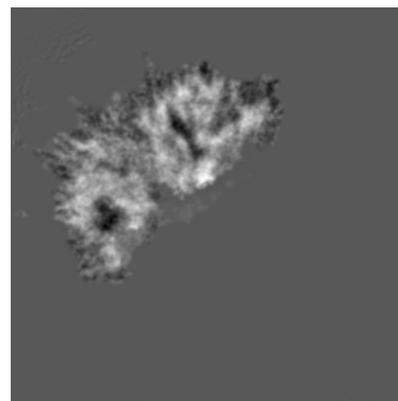
Z Index: 187

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

6.3 Largest variance slices (i)

6.3.1 Primary map
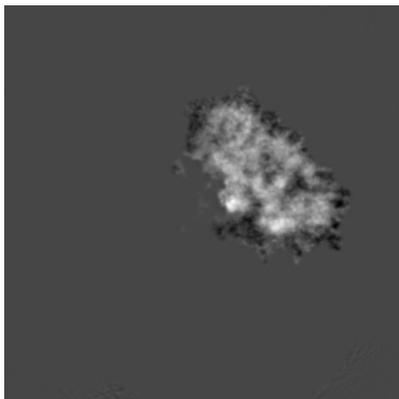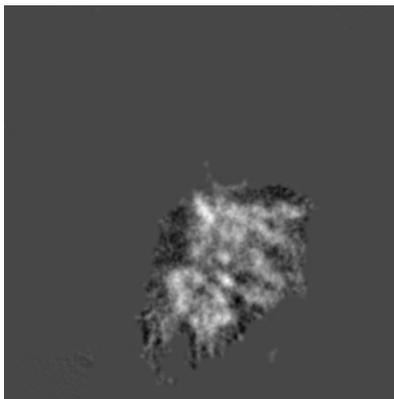
| X Index: 180 | Y Index: 217 | Z Index: 189 |
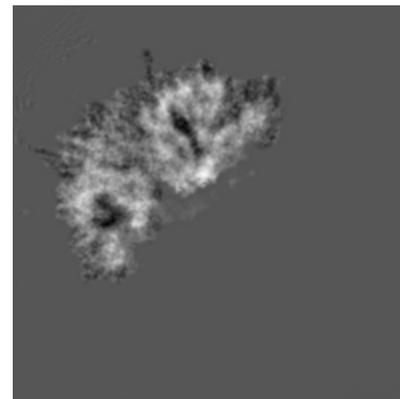
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map

| X | Y | Z |
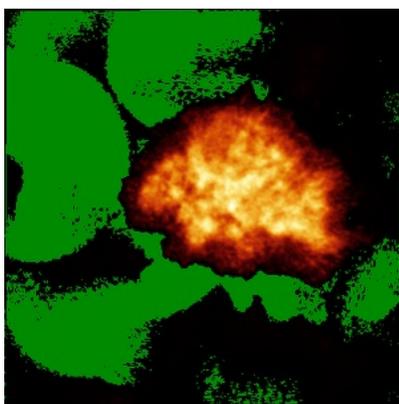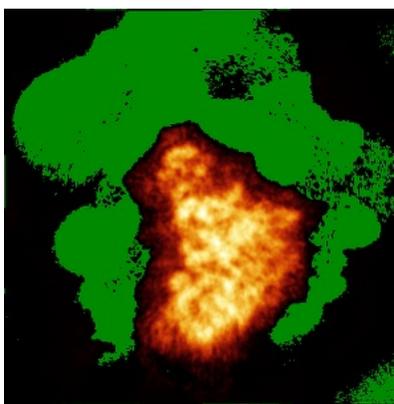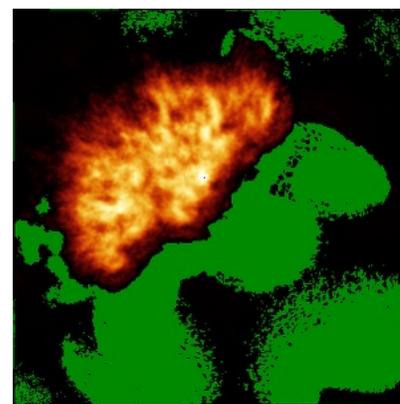
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5   Orthogonal surface views   (i)

6.5.1   Primary map
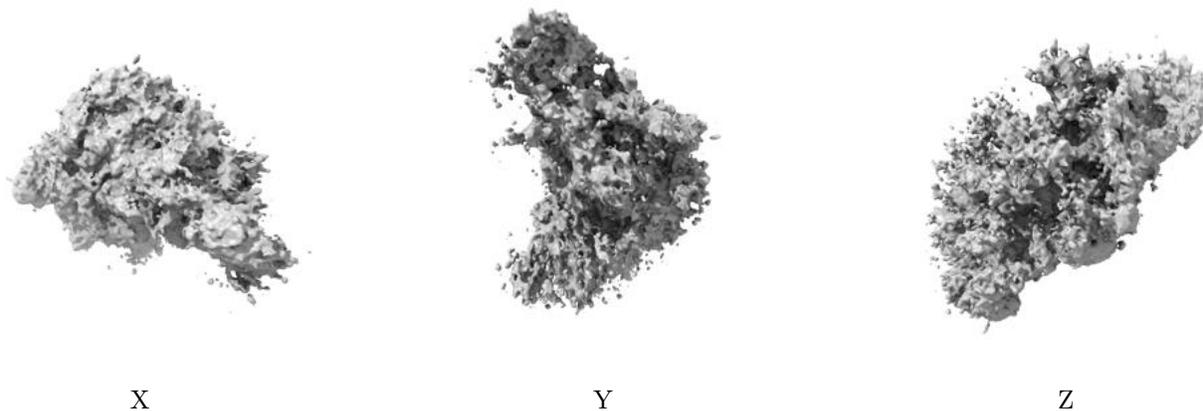
X   Y   Z

The images above show the 3D surface view of the map at the recommended contour level 0.00017. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6   Mask visualisation   (i)

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

7   Map analysis ⓘ

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

7.1   Map-value distribution ⓘ
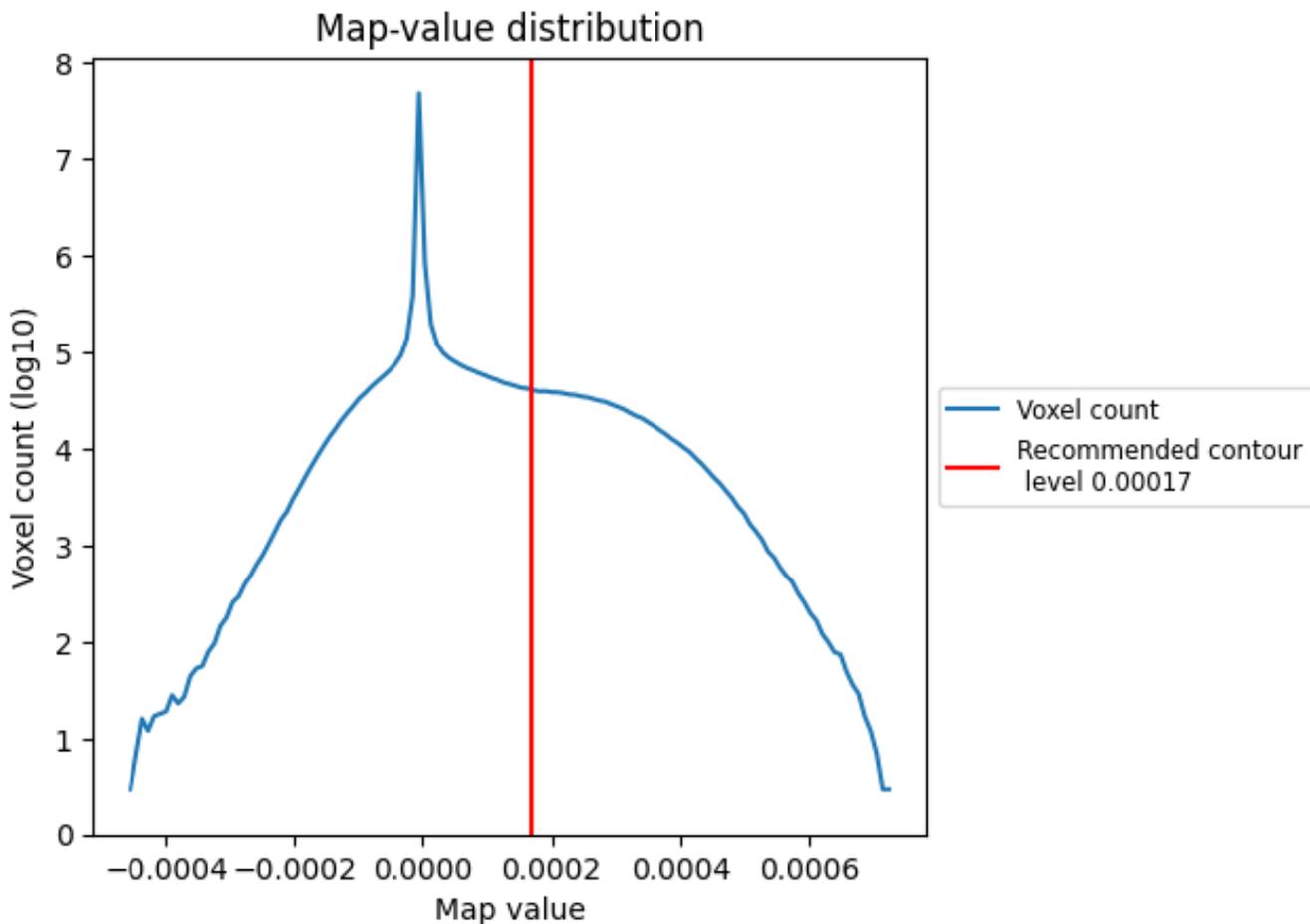
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
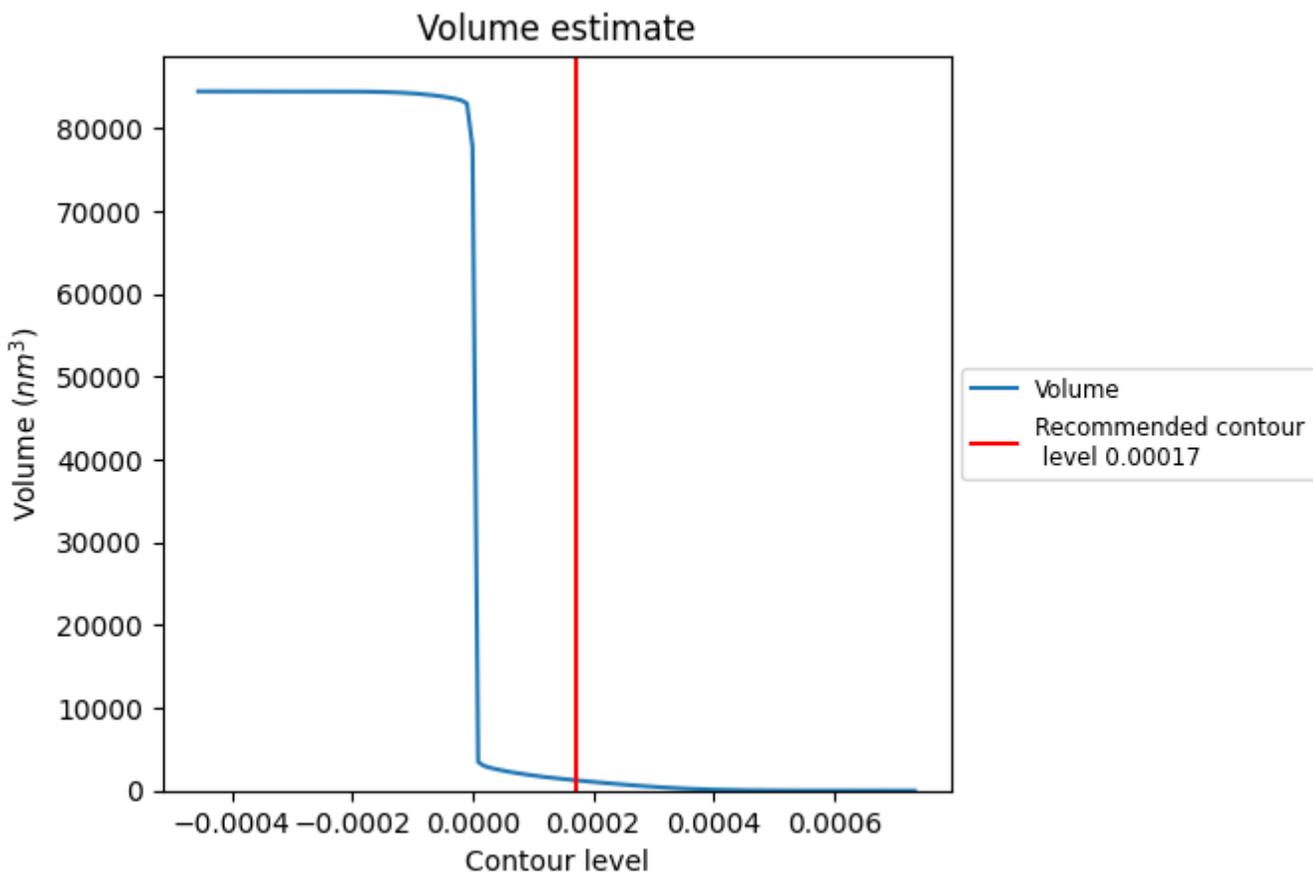
The volume at the recommended contour level is 1255 nm³; this corresponds to an approximate mass of 1134 kDa.

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 ⓘ
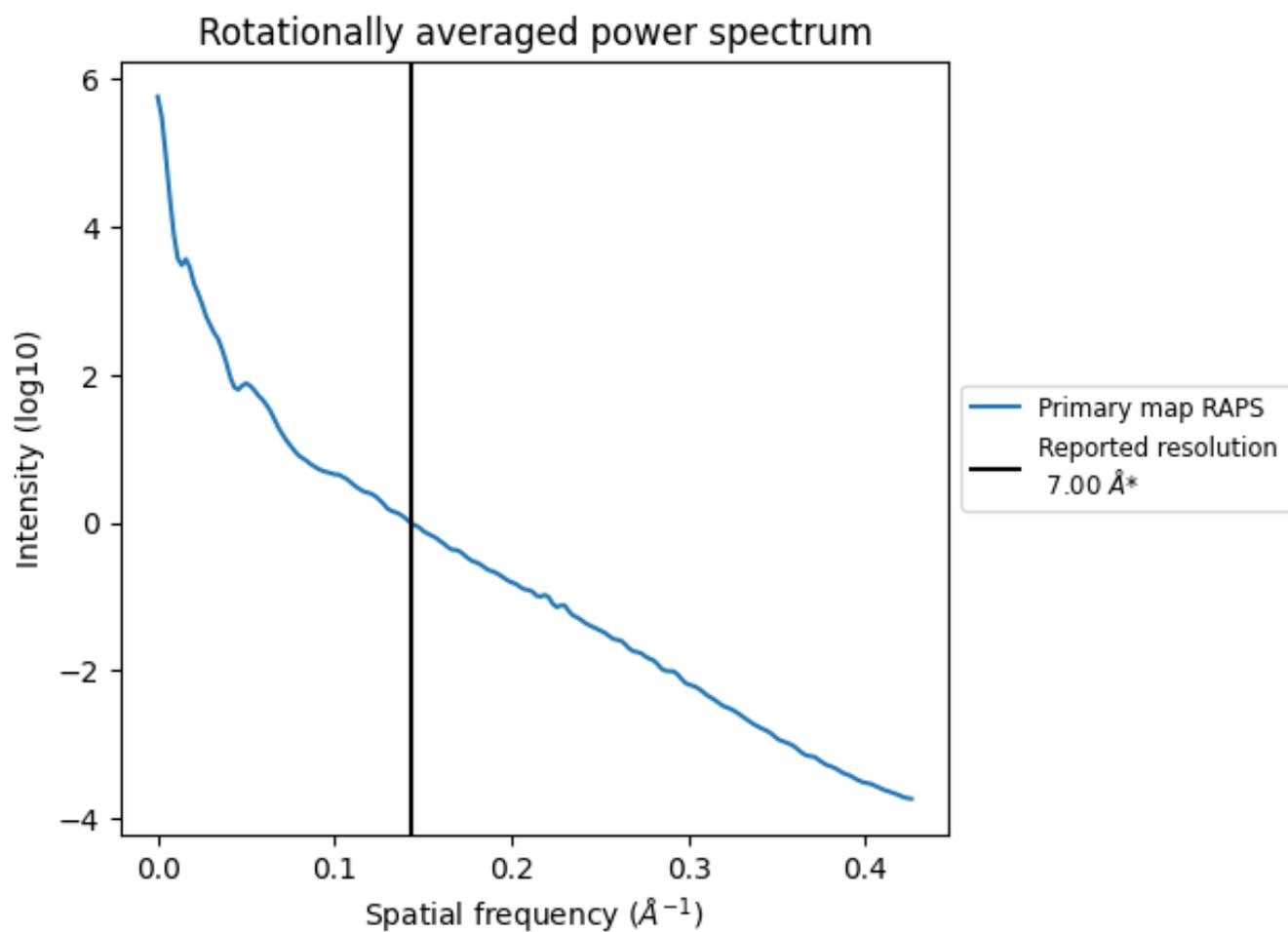
*Reported resolution corresponds to spatial frequency of 0.143 Å^{-1}

8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-5941 and PDB model 3JD5. Per-residue inclusion information can be found in section 3 on page 10.

9.1 Map-model overlay ⓘ
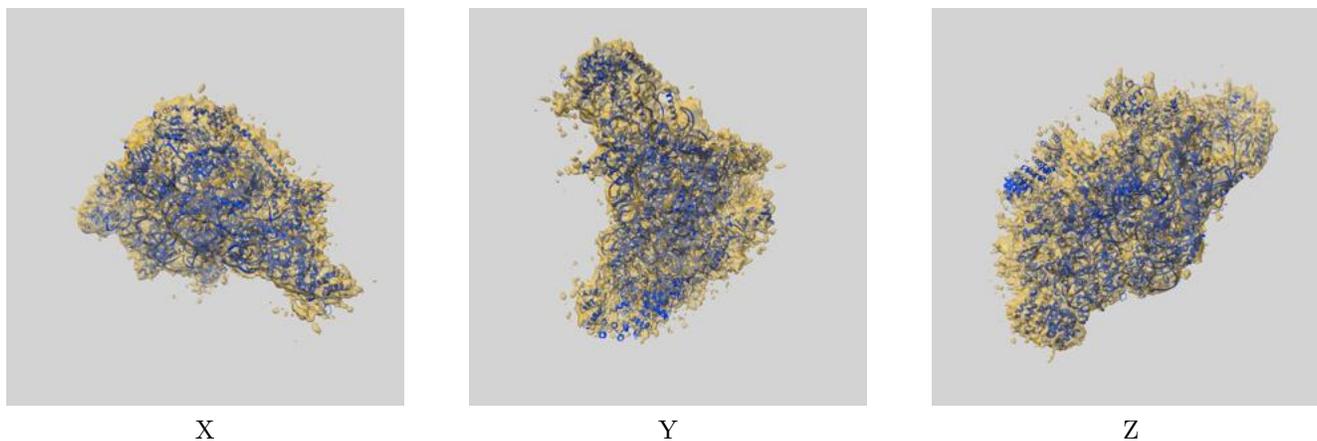
X   Y   Z

The images above show the 3D surface view of the map at the recommended contour level 0.00017 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
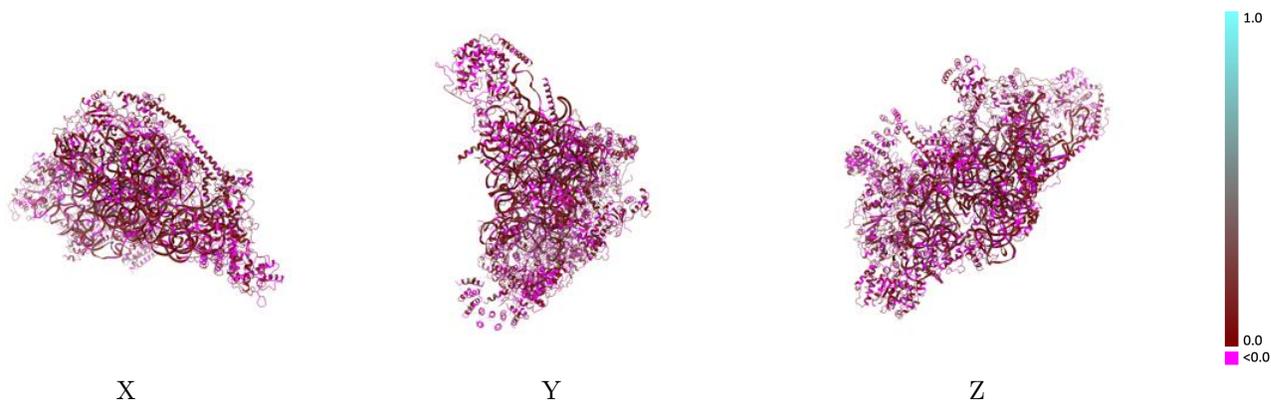
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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
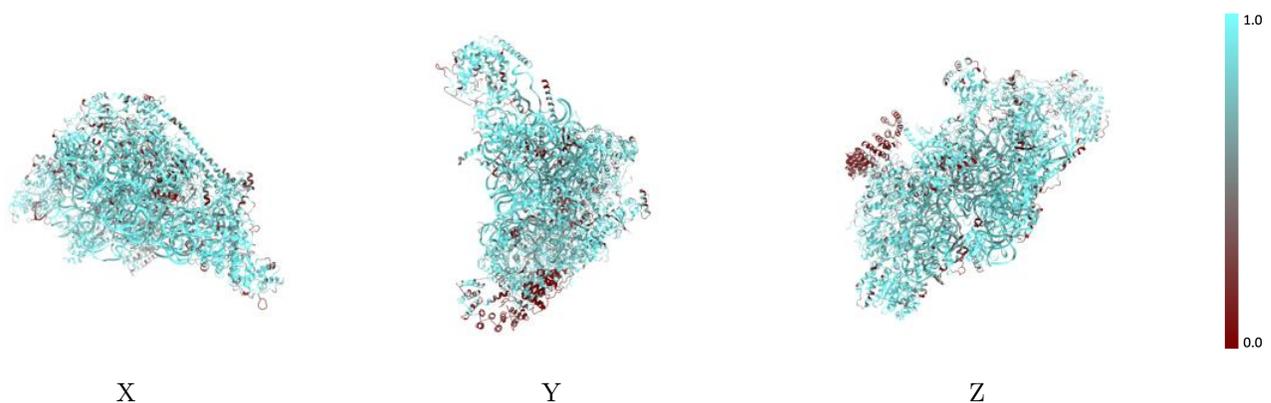
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.00017).

9.4 Atom inclusion ⓘ
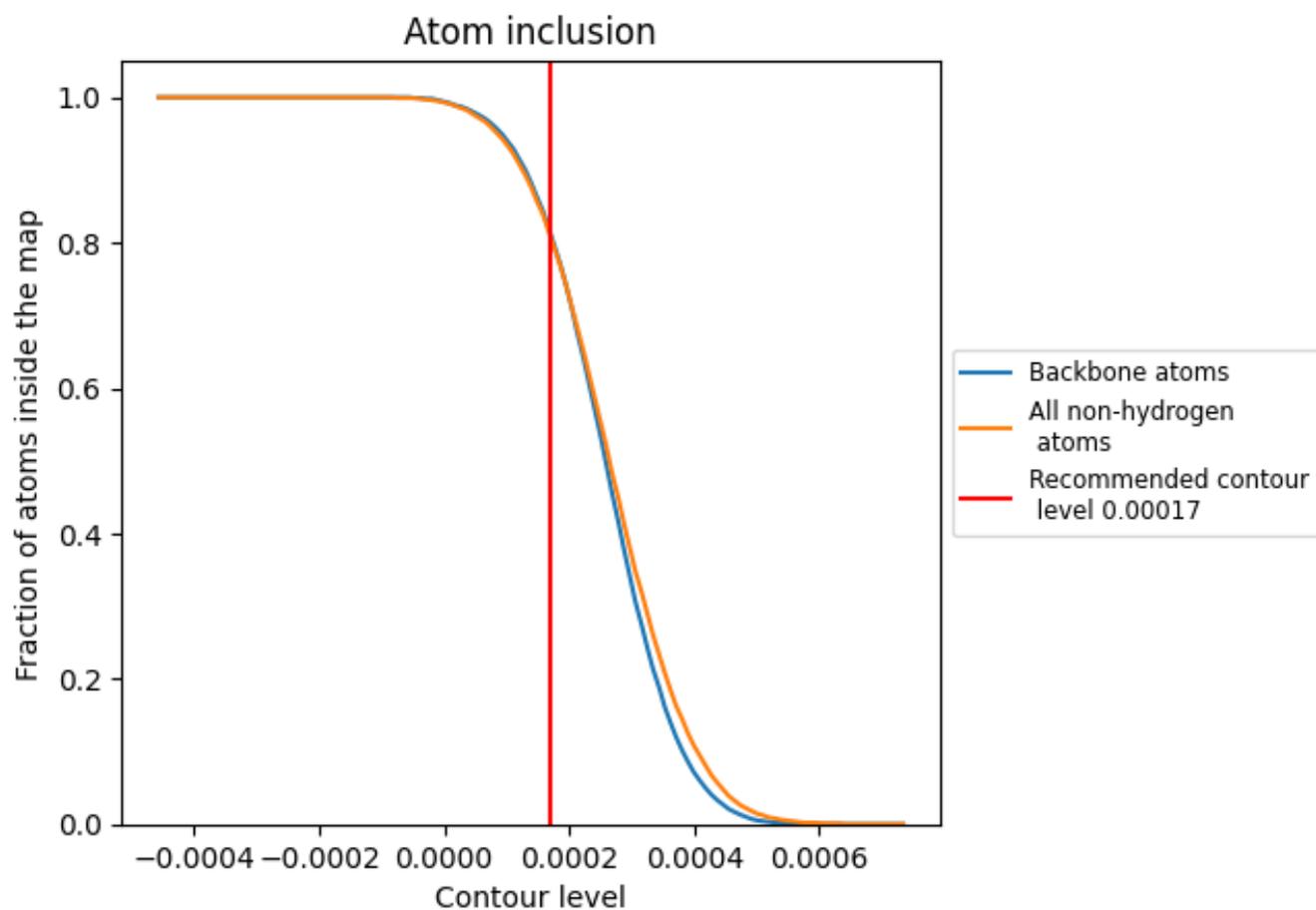
At the recommended contour level, 81% of all backbone atoms, 81% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.00017) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8090	0.0610
A	0.9200	0.0840
B	0.8050	0.0380
C	0.7100	0.0260
E	0.7690	0.0560
F	0.5770	0.0460
G	0.7700	0.0350
I	0.8410	0.0720
J	0.8660	0.0430
K	0.8660	0.0610
L	0.7190	0.0480
N	0.9450	0.0530
O	0.7680	0.0560
P	0.8020	0.0220
Q	0.7590	0.0430
R	0.8100	0.0690
U	0.8320	0.0960
a	0.8000	0.0620
b	0.7120	0.0460
c	0.6950	0.0530
d	0.8530	0.0880
e	0.7710	0.0360
f	0.7920	0.0330
g	0.8740	0.0490
h	0.8870	0.0910
i	0.8960	0.0640
j	0.7220	0.0540
k	0.8170	0.0410
m	0.5200	0.0330
n	0.8010	0.0430
o	0.3520	0.0210
p	0.8460	0.0590
s	0.3000	0.0650
z	0.9540	0.0690

1.0

0.0
<0.0