WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Mar 10, 2024 – 06:38 am GMT

|		
PDB ID	:	8Q72
EMDB ID	:	EMD-18201
Title	:	E. coli plasmid-borne JetABCD(E248A) core in a cleavage-competent state
Authors	:	Roisne-Hamelin, F.; Li, Y.; Gruber, S.
Deposited on	:	2023-08-15
Resolution	:	4.17 Å(reported)
Based on initial models	:	8AS8, .

---

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 4.17 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.
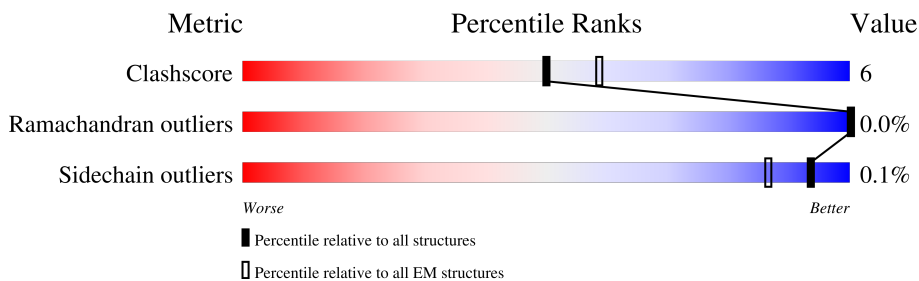
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	1096	5% / 59% 10% 32%
1	B	1096	6% / 59% 9% 32%
1	F	1096	5% / 60% 8% 32%
1	G	1096	6% / 58% 11% 32%
2	C	250	60% 17% 22%
2	D	250	64% 14% 22%
2	H	250	66% 12% 22%
2	I	250	65% 13% 22%

<div align="right">*Continued on next page...*</div>

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	E	503	75% 17% 7%
3	J	503	78% 15% 7%
4	M	390	27% · 70%
4	N	390	26% · 70%
5	P	40	70% 30%
5	Q	40	62% 38%
5	R	40	72% 28%
5	S	40	62% 38%

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 84390 atoms, of which 41400 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 JetC.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	750	Total	C	H	N	O	S	0	0
			11881	3710	5918	1093	1144	16		
1	B	750	Total	C	H	N	O	S	0	0
			11880	3710	5917	1093	1144	16		
1	F	750	Total	C	H	N	O	S	0	0
			11881	3710	5918	1093	1144	16		
1	G	750	Total	C	H	N	O	S	0	0
			11880	3710	5917	1093	1144	16		

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	283	LEU	GLN	conflict	UNP A0A6D0I2P0
A	298	SER	ASN	conflict	UNP A0A6D0I2P0
A	386	SER	ILE	conflict	UNP A0A6D0I2P0
A	398	GLU	ALA	conflict	UNP A0A6D0I2P0
A	400	ARG	LEU	conflict	UNP A0A6D0I2P0
A	576	HIS	ARG	conflict	UNP A0A6D0I2P0
A	625	ALA	THR	conflict	UNP A0A6D0I2P0
A	647	LEU	ILE	conflict	UNP A0A6D0I2P0
A	705	ILE	VAL	conflict	UNP A0A6D0I2P0
A	729	LEU	SER	conflict	UNP A0A6D0I2P0
A	817	ALA	THR	conflict	UNP A0A6D0I2P0
A	823	PRO	THR	conflict	UNP A0A6D0I2P0
A	889	ASP	TYR	conflict	UNP A0A6D0I2P0
A	933	VAL	ILE	conflict	UNP A0A6D0I2P0
A	1096	GLY	-	expression tag	UNP A0A6D0I2P0
B	283	LEU	GLN	conflict	UNP A0A6D0I2P0
B	298	SER	ASN	conflict	UNP A0A6D0I2P0
B	386	SER	ILE	conflict	UNP A0A6D0I2P0
B	398	GLU	ALA	conflict	UNP A0A6D0I2P0
B	400	ARG	LEU	conflict	UNP A0A6D0I2P0
B	576	HIS	ARG	conflict	UNP A0A6D0I2P0
B	625	ALA	THR	conflict	UNP A0A6D0I2P0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	647	LEU	ILE	conflict	UNP A0A6D0I2P0
B	705	ILE	VAL	conflict	UNP A0A6D0I2P0
B	729	LEU	SER	conflict	UNP A0A6D0I2P0
B	817	ALA	THR	conflict	UNP A0A6D0I2P0
B	823	PRO	THR	conflict	UNP A0A6D0I2P0
B	889	ASP	TYR	conflict	UNP A0A6D0I2P0
B	933	VAL	ILE	conflict	UNP A0A6D0I2P0
B	1096	GLY	-	expression tag	UNP A0A6D0I2P0
F	283	LEU	GLN	conflict	UNP A0A6D0I2P0
F	298	SER	ASN	conflict	UNP A0A6D0I2P0
F	386	SER	ILE	conflict	UNP A0A6D0I2P0
F	398	GLU	ALA	conflict	UNP A0A6D0I2P0
F	400	ARG	LEU	conflict	UNP A0A6D0I2P0
F	576	HIS	ARG	conflict	UNP A0A6D0I2P0
F	625	ALA	THR	conflict	UNP A0A6D0I2P0
F	647	LEU	ILE	conflict	UNP A0A6D0I2P0
F	705	ILE	VAL	conflict	UNP A0A6D0I2P0
F	729	LEU	SER	conflict	UNP A0A6D0I2P0
F	817	ALA	THR	conflict	UNP A0A6D0I2P0
F	823	PRO	THR	conflict	UNP A0A6D0I2P0
F	889	ASP	TYR	conflict	UNP A0A6D0I2P0
F	933	VAL	ILE	conflict	UNP A0A6D0I2P0
F	1096	GLY	-	expression tag	UNP A0A6D0I2P0
G	283	LEU	GLN	conflict	UNP A0A6D0I2P0
G	298	SER	ASN	conflict	UNP A0A6D0I2P0
G	386	SER	ILE	conflict	UNP A0A6D0I2P0
G	398	GLU	ALA	conflict	UNP A0A6D0I2P0
G	400	ARG	LEU	conflict	UNP A0A6D0I2P0
G	576	HIS	ARG	conflict	UNP A0A6D0I2P0
G	625	ALA	THR	conflict	UNP A0A6D0I2P0
G	647	LEU	ILE	conflict	UNP A0A6D0I2P0
G	705	ILE	VAL	conflict	UNP A0A6D0I2P0
G	729	LEU	SER	conflict	UNP A0A6D0I2P0
G	817	ALA	THR	conflict	UNP A0A6D0I2P0
G	823	PRO	THR	conflict	UNP A0A6D0I2P0
G	889	ASP	TYR	conflict	UNP A0A6D0I2P0
G	933	VAL	ILE	conflict	UNP A0A6D0I2P0
G	1096	GLY	-	expression tag	UNP A0A6D0I2P0

- Molecule 2 is a protein called JetB.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	C	195	Total 3173	C 991	H 1607	N 280	O 295		0	0
2	D	195	Total 3172	C 991	H 1606	N 280	O 295		0	0
2	H	195	Total 3173	C 991	H 1607	N 280	O 295		0	0
2	I	195	Total 3172	C 991	H 1606	N 280	O 295		0	0

- Molecule 3 is a protein called JetA.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	E	466	Total 7532	C 2356	H 3745	N 700	O 723	S 8	0	0
3	J	466	Total 7532	C 2356	H 3745	N 700	O 723	S 8	0	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-3	GLY	-	expression tag	UNP A0A4V3QHV5
E	-2	PRO	-	expression tag	UNP A0A4V3QHV5
E	-1	ALA	-	expression tag	UNP A0A4V3QHV5
E	0	ALA	-	expression tag	UNP A0A4V3QHV5
E	187	ASP	GLU	conflict	UNP A0A4V3QHV5
E	435	GLU	ALA	engineered mutation	UNP A0A4V3QHV5
E	499	GLY	-	expression tag	UNP A0A4V3QHV5
J	-3	GLY	-	expression tag	UNP A0A4V3QHV5
J	-2	PRO	-	expression tag	UNP A0A4V3QHV5
J	-1	ALA	-	expression tag	UNP A0A4V3QHV5
J	0	ALA	-	expression tag	UNP A0A4V3QHV5
J	187	ASP	GLU	conflict	UNP A0A4V3QHV5
J	435	GLU	ALA	engineered mutation	UNP A0A4V3QHV5
J	499	GLY	-	expression tag	UNP A0A4V3QHV5

- Molecule 4 is a protein called JetD(E248A).

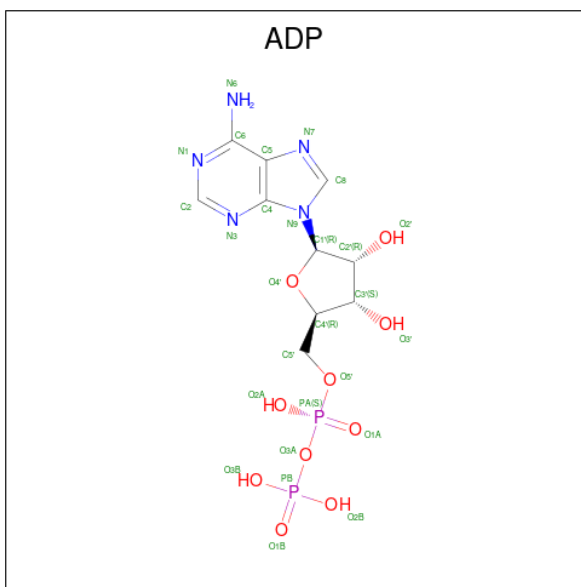| Mol	Chain	Residues	Atoms						AltConf	Trace
4	M	117	Total 1917	C 611	H 961	N 174	O 168	S 3	0	0
4	N	117	Total 1917	C 611	H 961	N 174	O 168	S 3	0	0

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	74	PHE	TYR	conflict	UNP A0A3T6B0Z0
M	248	ALA	GLU	engineered mutation	UNP A0A3T6B0Z0
M	358	ARG	CYS	conflict	UNP A0A3T6B0Z0
M	374	ALA	VAL	conflict	UNP A0A3T6B0Z0
M	383	GLY	-	expression tag	UNP A0A3T6B0Z0
M	384	SER	-	expression tag	UNP A0A3T6B0Z0
M	385	LEU	-	expression tag	UNP A0A3T6B0Z0
M	386	GLU	-	expression tag	UNP A0A3T6B0Z0
M	387	VAL	-	expression tag	UNP A0A3T6B0Z0
M	388	LEU	-	expression tag	UNP A0A3T6B0Z0
M	389	PHE	-	expression tag	UNP A0A3T6B0Z0
M	390	GLN	-	expression tag	UNP A0A3T6B0Z0
N	74	PHE	TYR	conflict	UNP A0A3T6B0Z0
N	248	ALA	GLU	engineered mutation	UNP A0A3T6B0Z0
N	358	ARG	CYS	conflict	UNP A0A3T6B0Z0
N	374	ALA	VAL	conflict	UNP A0A3T6B0Z0
N	383	GLY	-	expression tag	UNP A0A3T6B0Z0
N	384	SER	-	expression tag	UNP A0A3T6B0Z0
N	385	LEU	-	expression tag	UNP A0A3T6B0Z0
N	386	GLU	-	expression tag	UNP A0A3T6B0Z0
N	387	VAL	-	expression tag	UNP A0A3T6B0Z0
N	388	LEU	-	expression tag	UNP A0A3T6B0Z0
N	389	PHE	-	expression tag	UNP A0A3T6B0Z0
N	390	GLN	-	expression tag	UNP A0A3T6B0Z0

- Molecule 5 is a DNA chain called Circular plasmid DNA (1840-MER).

Mol	Chain	Residues	Atoms						AltConf	Trace
5	P	40	Total	C	H	N	O	P	0	0
			1281	400	461	140	240	40		
5	Q	40	Total	C	H	N	O	P	0	0
			1281	400	461	140	240	40		
5	R	40	Total	C	H	N	O	P	0	0
			1281	400	461	140	240	40		
5	S	40	Total	C	H	N	O	P	0	0
			1281	400	461	140	240	40		

- Molecule 6 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).
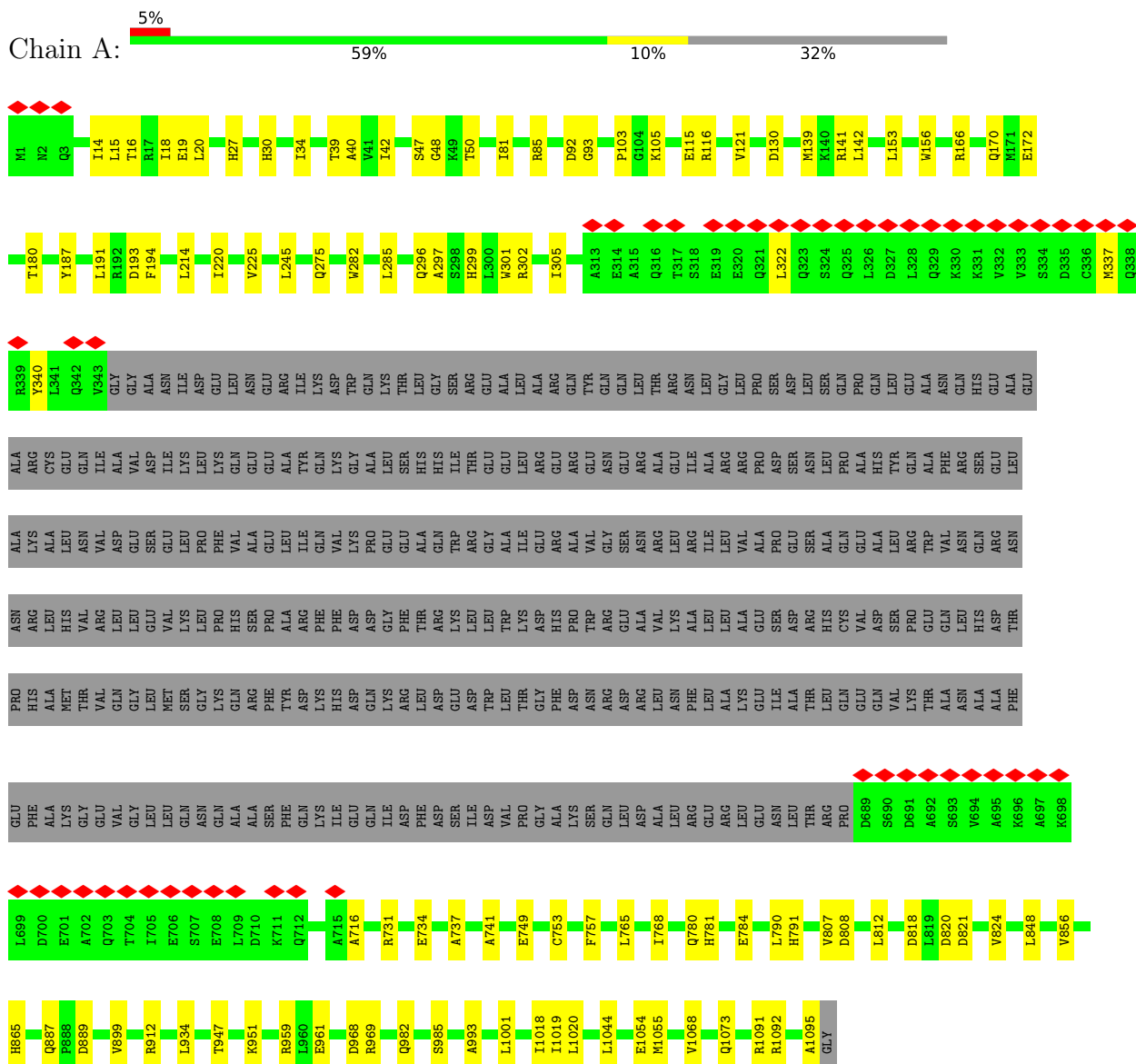
ADP

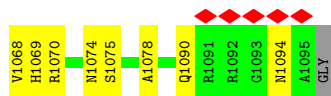| Mol	Chain	Residues	Atoms						AltConf
6	A	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
6	B	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
6	F	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
6	G	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	

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.
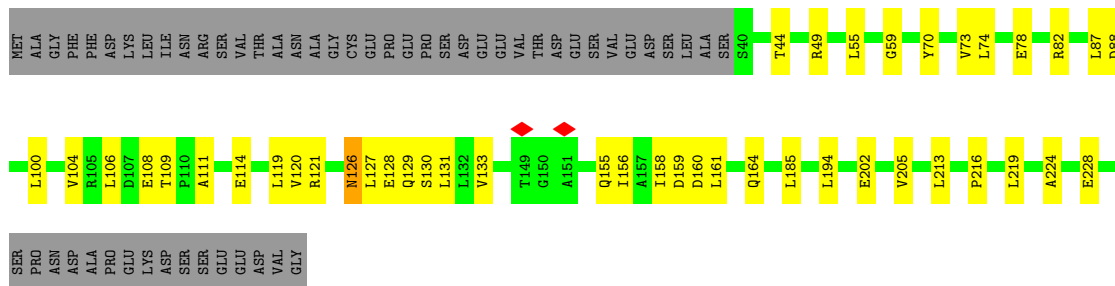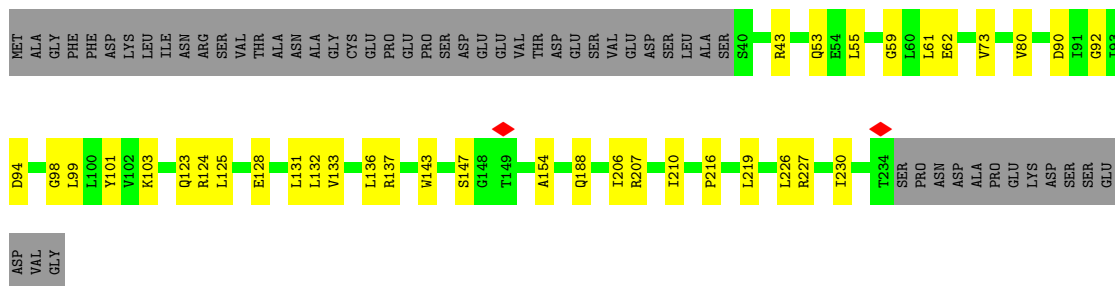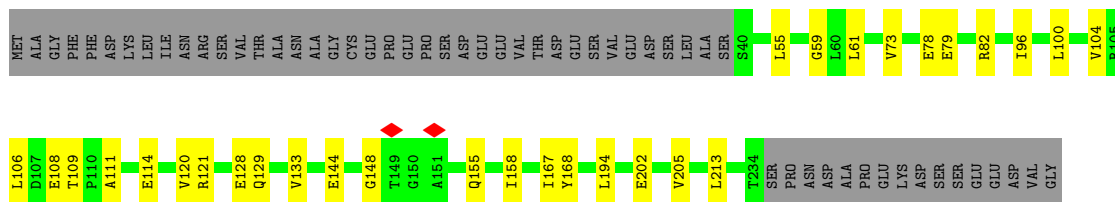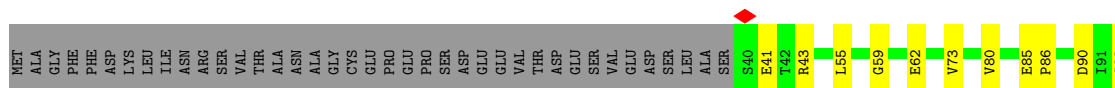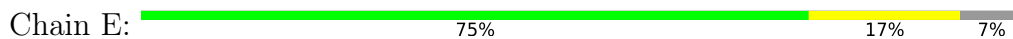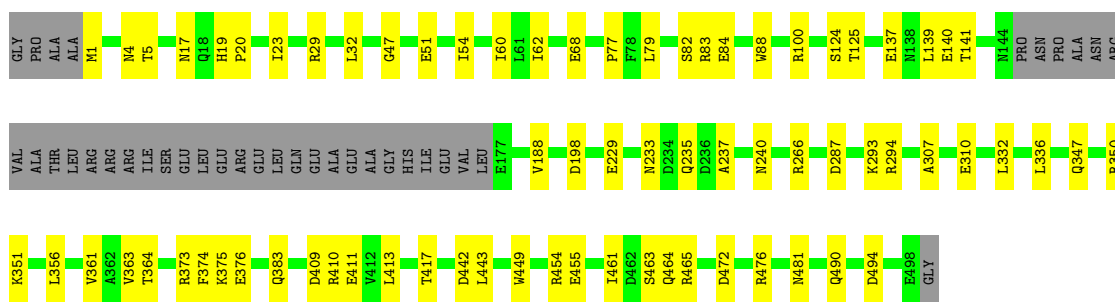
• Molecule 1: JetC

• Molecule 1: JetC

Chain B:

- Molecule 1: JetC

Chain F:

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

LYS GLN ARG PHE TYR ASP LYS HIS ASP LYS GLN LYS ARG LEU ASP GLU TRP LEU THR GLY PHE ASP ASN ARG ASP ARG LEU ASN PHE LEU ALA LYS GLU ILE ALA THR LEU GLN GLU GLN VAL LYS THR ALA ASN ALA ALA PHE GLU LYS GLY GLU VAL GLY LEU LEU GLN ASN

GLN ALA ALA SER PHE GLN LYS ILE GLU GLN ILE ASP PHE ASP SER ILE ASP VAL PRO GLY ALA LYS SER GLN LEU ASP ALA LEU ARG GLU LEU GLU ASN LEU THR ARG PRO **D689 S690 D691 A692 S693 V694 A695 K696 A697 K698 L699 D700 E701 A702 Q703 T704 I705 E706 S707 E708 L709 D710**

K711 Q712 **A715 A716** R731 E734 C753 F757 P758 V759 V760 L765 I768 I795 V807 D808 L812 D818 D821 V824 L848 V856 H865 Q887 P888 D889 L907 R912 L934 L953 E961 D968 R969 T979 G983

G984 S985 E988 A993 R1040 L1044 F1048 R1070 S1079 L1080 E1084 H1088 R1091 R1092 A1095 GLY

● Molecule 1: JetC

6%

Chain G: 58%   11%   32%

M1 N2 Q3 V4 G9 R17 **I18** E19 N22 G25 G28 H35 Q36 I42 T50 R78 **E95 G96** Q97 V107 T108 E117 Q120 **V121** R122 L123 L127 W128 **S133 S134** S135 **V136 T137** D138 M139 K140 D147 L153 E154 L157 Y160

H161 E162 R169 E172 K173 G177 T180 Y187 R192 E196 I220 D227 D228 H229 R234 A235 V238 T246 Q250 T254 Q259 Q263 Q296 L300 **W301** R302 I305 **E314 A315** Q316 **T317** S318 E319 E320 Q321 L322 **Q323** S324 Q325 **L326**

D327 L328 Q329 K330 K331 V332 V333 S334 **D335 C336** M337 **Q338 R339** Y340 L341 **Q342 V343** GLY GLY ALA ALA ILE ASP GLU LEU LYS ASN GLU ILE LYS ASP TRP GLN LYS THR LEU GLY SER ARG GLU ALA ALA ALA ARG GLN TYR GLN GLN LEU THR ARG ASN LEU GLY ARG ALA GLU PRO ASP SER ASN

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

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

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

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

LEU GLN GLU GLN VAL LYS THR ALA ASN ALA ALA PHE GLU LYS GLY GLU VAL GLY LEU LEU GLN ASN GLN ALA ALA SER PHE GLN LYS ILE GLU GLN ILE ASP PHE ASP SER ILE ASP VAL PRO GLY ALA LYS SER GLN LEU ASP ALA LEU ARG GLU LEU GLU ASN LEU THR

ARG PRO **D689 S690 D691 A692 S693 V694 A695 K696 A697 K698 L699 D700 E701 A702 Q703 T704 I705 E706 S707 E708 L709 D710 K711 Q712** R731 E734 Q743 C753 F757 V760 I795 E803 R806 I822 P823 Q827 **R828 L829** Q830 L848 S852 M881 V884

D889 R890 D895 E925 Y928 K929 V933 **Q937** L938 A936 D955 P956 R957 A963 V964 S965 D968 R969 I975 R978 T979 G983 G984 S985 E990 A993 A999 R1011 D1021 E1022 A1023 F1024 S1025 R1026 S1027 T1050 L1058 R1059 T1062

V1068 H1069 R1070 N1074 S1075 A1078 Q1090 R1091 R1092 G1093 N1094 A1095 GLY

• Molecule 2: JetB

Chain C:

60%   17%   22%

MET ALA GLY PHE ASP LYS LEU ILE ASN ARG SER VAL THR ALA ASN ALA GLY CYS GLU PRO GLU PRO SER ASP GLU GLU VAL THR ASP GLU SER VAL GLU ASP SER LEU ALA SER S40 T44 R49 L55 G59 Y70 V73 L74 E78 R82 L87 D88

L100 V104 R105 L106 D107 E108 T109 P110 A111 E114 L119 V120 R121 N126 L127 E128 Q129 S130 L131 L132 V133 T149 G150 A151 Q155 I156 A157 I158 D159 D160 L161 Q164 L185 L194 E202 V205 L213 P216 L219 A224 E228 T234

SER PRO ASN ASP ALA PRO GLU LYS ASP SER SER GLU GLU ASP VAL GLY

• Molecule 2: JetB

Chain D:

64%   14%   22%

MET ALA GLY PHE PHE ASP LYS LEU ILE ASN ARG SER VAL THR ALA ASN ALA GLY CYS GLU PRO GLU PRO SER ASP GLU GLU VAL THR ASP GLU SER VAL GLU ASP SER LEU ALA SER S40 R43 Q53 E54 L55 G59 L60 L61 E62 V73 V80 D90 I91 G92 I93

D94 G98 L99 L100 Y101 V102 K103 Q123 R124 L125 E128 L131 L132 V133 L136 R137 W143 S147 G148 T149 A154 Q188 I206 R207 I210 P216 L219 L226 R227 I230 T234 SER PRO ASN ASP ALA PRO GLU LYS ASP SER SER GLU GLU

ASP VAL GLY

• Molecule 2: JetB

Chain H:

66%   12%   22%

MET ALA GLY PHE PHE ASP LYS LEU ILE ASN ARG SER VAL THR ALA ASN ALA GLY CYS GLU PRO GLU PRO SER ASP GLU GLU VAL THR ASP GLU SER VAL GLU ASP SER LEU ALA SER S40 L55 G59 L60 L61 V73 E78 E79 R82 I96 L100 V104 R105

L106 D107 E108 T109 P110 A111 E114 V120 R121 E128 Q129 V133 E144 G148 T149 G150 A151 Q155 I158 I167 Y168 L194 E202 V205 L213 T234 SER PRO ASN ASP ALA PRO GLU LYS ASP SER SER GLU GLU ASP VAL GLY

• Molecule 2: JetB

Chain I:

65%   13%   22%

MET ALA GLY PHE PHE ASP LYS LEU ILE ASN ARG SER VAL THR ALA ASN ALA GLY CYS GLU PRO GLU PRO SER ASP GLU GLU VAL THR ASP GLU SER VAL GLU ASP SER LEU ALA SER S40 E41 T42 R43 L55 G59 E62 V73 V80 E85 P86 D90 I91 G92

Y101 V102 K103 R124 L127 E128 V133 R137 Q138 H139 W143 S147 G148 T149 A154 I206 R207 I210 P216 L219 L222 R227 I230 T234 SER PRO ASN ASP ALA PRO GLU LYS ASP SER SER GLU GLU ASP VAL GLY

• Molecule 3: JetA

Chain E: 75%   17%   7%

GLY PRO ALA ALA M1 N4 T5 K16 N17 Q18 H19 P20 I23 R29 L32 V33 L34 G47 E51 I54 I60 L61 I62 E68 P77 S82 R83 E84 W88 R100 I111 S124 R128 L129 S130 R134 E137 N138 L139 E140 T141

N144 PRO ASN PRO ALA ASN ARG VAL ALA THR LEU ARG ARG ILE SER GLU LEU GLU ARG LEU GLN ALA GLU GLY HIS ILE GLU VAL LEU E177 V188 R214 E229 N233 D234 Q235 D236 A237 N240 Q256 S257 S258 E259 A262 R266 D287

K293 R294 A307 E310 L321 E324 H325 H326 R327 V328 L331 L332 L336 W344 Q347 R350 K351 L356 V361 T364 R371 L372 R373 F374 S388 N389 H390 L408 L413 T417 H441 D442 W449 R454 E455 I461 D462 S463

Q464 R465 E474 G475 R476 N481 T484 Q490 D494 E498 GLY

• Molecule 3: JetA

Chain J: 78%   15%   7%

GLY PRO ALA ALA M1 N4 T5 N17 Q18 H19 P20 I23 R29 L32 G47 E51 I54 I60 L61 I62 E68 P77 F78 L79 S82 R83 E84 W88 R100 S124 T125 E137 N138 L139 E140 T141 N144 PRO ASN PRO ALA ASN ARG

VAL ALA THR LEU ARG ARG ILE SER GLU LEU GLU ARG LEU GLN GLU ALA GLY HIS ILE GLU VAL LEU E177 V188 D198 E229 N233 D234 Q235 D236 A237 N240 R266 D287 K293 R294 A307 E310 L332 L336 Q347 R350

K351 L356 V361 A362 V363 T364 R373 F374 K375 E376 Q383 D409 R410 E411 V412 L413 T417 D442 L443 W449 R454 E455 I461 D462 S463 Q464 R465 R476 D472 N481 Q490 D494 E498 GLY

• Molecule 4: JetD(E248A)

Chain M: 27%   70%

M1 Y2 W15 E23 S27 C34 L35 P36 I37 G38 K39 R75 A100 V104 L111 E112 G113 Q117 VAL ASN PRO ILE PHE HIS PRO LEU LEU VAL LYS HIS ARG SER LEU TRP ARG HIS LYS ASP PRO GLN ILE GLY VAL ILE SER ALA ALA THR LEU ALA CYS ARG

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

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

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

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

• Molecule 4: JetD(E248A)

Chain N:

26%   70%

M1 W15 E23 S27 C34 L35 K39 A46 E47 E70 M83 A100 D101 V104 L111 E112 G113 Q117 VAL ASN PRO ILE PHE HIS PRO LEU LEU VAL LYS HIS ARG SER LEU TRP ARG HIS LYS ASP PRO GLN GLY VAL ILE SER ALA ALA THR LEU

ALA CYS ARG LEU GLU PRO GLY CYS ALA LYS GLY LEU PRO LEU ARG LEU LEU SER GLY GLN GLY VAL ASP THR LYS PHE ILE GLU ASN ASN ILE SER LEU LEU THR ARG LEU LEU ASP VAL ARG PHE SER GLY GLU ALA SER GLU GLY GLN GLY LEU THR THR PHE LEU ASP ALA PHE ASP GLU

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

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

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

LEU PHE GLN

• Molecule 5: Circular plasmid DNA (1840-MER)

Chain P:

70%   30%

A1 T2 A3 A9 A15 T16 A17 T18 A19 A29 T30 A33 T34 A35 T40

• Molecule 5: Circular plasmid DNA (1840-MER)

Chain Q:

62%   38%

A1 T6 A7 T8 A9 T10 A11 T12 A13 A23 T26 A27 T28 A29 T30 A31 A39 T40

• Molecule 5: Circular plasmid DNA (1840-MER)

Chain R:

72%   28%

A1 T4 A5 A9 A13 T14 A19 A29 T30 A33 T34 A35 T40

• Molecule 5: Circular plasmid DNA (1840-MER)

Chain S:

62%   38%

A1 T6 A7 T8 A9 T10 A13 T20 A21 T22 A23 T24 A25 T26 A27 T28 A29 T30 A31 T40

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	235956	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.153	Depositor
Minimum map value	-0.661	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.102	Depositor
Map size (Å)	531.2, 531.2, 531.2	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.6600001, 1.6600001, 1.6600001	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	0.25	0/6059	0.52	0/8179
1	B	0.24	0/6059	0.50	0/8179
1	F	0.25	0/6059	0.52	0/8179
1	G	0.24	0/6059	0.50	0/8179
2	C	0.24	0/1592	0.53	0/2164
2	D	0.23	0/1592	0.50	0/2164
2	H	0.23	0/1592	0.51	0/2164
2	I	0.23	0/1592	0.50	0/2164
3	E	0.24	0/3849	0.53	0/5205
3	J	0.24	0/3849	0.53	0/5205
4	M	0.24	0/982	0.51	0/1337
4	N	0.23	0/982	0.48	0/1337
5	P	0.56	0/919	1.01	0/1416
5	Q	0.56	0/919	0.99	0/1416
5	R	0.55	0/919	0.99	0/1416
5	S	0.55	0/919	1.00	0/1416
All	All	0.28	0/43942	0.58	0/60120

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	C	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	126	ASN	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5963	5918	5916	75	0
1	B	5963	5917	5916	66	0
1	F	5963	5918	5916	70	0
1	G	5963	5917	5916	72	0
2	C	1566	1607	1605	34	0
2	D	1566	1606	1605	24	0
2	H	1566	1607	1605	22	0
2	I	1566	1606	1605	23	0
3	E	3787	3745	3745	68	0
3	J	3787	3745	3745	57	0
4	M	956	961	961	7	0
4	N	956	961	961	9	0
5	P	820	461	461	11	0
5	Q	820	461	461	11	0
5	R	820	461	461	7	0
5	S	820	461	461	12	0
6	A	27	12	12	3	0
6	B	27	12	12	3	0
6	F	27	12	12	2	0
6	G	27	12	12	4	0
All	All	42990	41400	41388	503	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (503) 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:C:128:GLU:HG2	3:E:350:ARG:HE	1.25	0.98
3:E:68:GLU:OE1	1:F:912:ARG:NH1	2.05	0.90
1:F:172:GLU:OE1	1:F:180:THR:OG1	1.91	0.88

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:172:GLU:OE1	1:A:180:THR:OG1	1.92	0.88
2:I:137:ARG:NH2	2:I:210:ILE:O	2.09	0.85
2:D:137:ARG:NH2	2:D:210:ILE:O	2.10	0.85
3:J:461:ILE:HD12	3:J:464:GLN:OE1	1.79	0.82
1:A:47:SER:OG	1:A:1068:VAL:O	1.98	0.80
1:A:50:THR:OG1	6:A:1101:ADP:O3B	2.00	0.78
1:B:172:GLU:OE1	1:B:180:THR:OG1	2.03	0.77
3:J:413:LEU:O	3:J:417:THR:HG23	1.83	0.77
1:F:341:LEU:HD13	1:G:340:TYR:CD2	2.20	0.77
3:E:413:LEU:O	3:E:417:THR:HG23	1.85	0.74
1:F:337:MET:CE	1:G:699:LEU:HD21	2.17	0.73
1:F:214:LEU:HD13	1:F:993:ALA:CB	2.18	0.72
1:G:172:GLU:OE1	1:G:180:THR:OG1	2.07	0.72
3:E:287:ASP:OD1	3:E:294:ARG:NH1	2.22	0.72
3:E:461:ILE:HD12	3:E:464:GLN:OE1	1.89	0.72
2:C:127:LEU:O	2:C:130:SER:OG	2.05	0.71
1:A:214:LEU:HD13	1:A:993:ALA:CB	2.20	0.70
6:F:1101:ADP:O1B	1:G:985:SER:N	2.24	0.70
1:F:193:ASP:OD1	1:F:194:PHE:N	2.25	0.69
3:E:266:ARG:NE	3:J:137:GLU:OE2	2.25	0.69
3:J:411:GLU:N	3:J:411:GLU:OE1	2.25	0.69
1:B:154:GLU:N	1:B:154:GLU:OE1	2.25	0.68
3:J:287:ASP:OD1	3:J:294:ARG:NH1	2.25	0.68
1:G:154:GLU:N	1:G:154:GLU:OE1	2.27	0.67
2:I:127:LEU:HD12	3:J:375:LYS:HE3	1.77	0.67
2:C:87:LEU:HD12	2:C:119:LEU:HD11	1.77	0.67
3:E:128:ARG:NH2	3:J:198:ASP:OD2	2.27	0.67
1:F:214:LEU:HD13	1:F:993:ALA:HB2	1.77	0.67
3:J:373:ARG:NH2	5:S:13:DA:OP1	2.29	0.66
1:B:753:CYS:O	1:B:757:PHE:N	2.29	0.66
1:A:214:LEU:HD13	1:A:993:ALA:HB2	1.78	0.66
1:G:259:GLN:NE2	1:G:263:GLN:OE1	2.29	0.65
3:J:332:LEU:O	3:J:336:LEU:HD23	1.96	0.65
2:D:55:LEU:O	2:D:59:GLY:N	2.28	0.65
3:E:463:SER:OG	3:E:464:GLN:OE1	2.11	0.65
4:N:23:GLU:O	4:N:27:SER:OG	2.07	0.65
1:F:753:CYS:O	1:F:757:PHE:N	2.29	0.65
1:A:142:LEU:HD11	1:A:180:THR:HB	1.79	0.65
1:F:139:MET:O	1:F:141:ARG:NH1	2.29	0.65
1:B:233:ASP:OD1	1:B:234:ARG:N	2.28	0.64
3:E:62:ILE:HD11	3:E:77:PRO:HB3	1.80	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:490:GLN:NE2	3:J:494:ASP:OD2	2.31	0.64
4:N:39:LYS:NZ	5:P:9:DA:OP2	2.24	0.64
3:E:84:GLU:OE2	3:E:88:TRP:NE1	2.30	0.64
2:C:128:GLU:CG	3:E:350:ARG:HE	2.05	0.63
1:A:302:ARG:NE	1:A:734:GLU:OE2	2.32	0.63
1:F:142:LEU:HD11	1:F:180:THR:HB	1.79	0.63
3:J:47:GLY:O	3:J:100:ARG:NH2	2.32	0.63
1:A:985:SER:OG	6:B:1101:ADP:O5'	2.17	0.63
2:D:125:LEU:N	3:E:373:ARG:O	2.30	0.63
1:B:895:ASP:OD2	1:B:965:SER:OG	2.16	0.63
2:C:194:LEU:HD21	2:C:213:LEU:HD23	1.81	0.62
3:E:47:GLY:O	3:E:100:ARG:NH2	2.32	0.62
2:I:55:LEU:O	2:I:59:GLY:N	2.29	0.62
2:C:120:VAL:HG23	3:E:361:VAL:HG13	1.80	0.62
1:G:1069:HIS:NE2	3:J:455:GLU:OE1	2.32	0.62
3:E:332:LEU:O	3:E:336:LEU:HD23	1.99	0.62
3:E:464:GLN:O	3:E:484:THR:OG1	2.05	0.62
3:J:347:GLN:OE1	3:J:350:ARG:NH1	2.32	0.61
1:A:139:MET:O	1:A:141:ARG:NH1	2.33	0.61
2:I:230:ILE:O	2:I:234:THR:HG23	2.00	0.61
1:F:302:ARG:NE	1:F:734:GLU:OE2	2.33	0.61
1:F:818:ASP:OD1	1:F:821:ASP:N	2.33	0.61
1:A:81:ILE:HD13	1:A:139:MET:CE	2.30	0.61
1:A:818:ASP:OD1	1:A:821:ASP:N	2.33	0.61
1:B:1069:HIS:NE2	3:E:455:GLU:OE1	2.31	0.61
2:I:90:ASP:N	2:I:103:LYS:O	2.33	0.61
3:J:465:ARG:NH2	3:J:481:ASN:OD1	2.33	0.61
4:M:23:GLU:O	4:M:27:SER:OG	2.15	0.61
3:E:137:GLU:OE2	3:J:266:ARG:NE	2.34	0.61
4:M:113:GLY:O	4:M:117:GLN:N	2.33	0.61
3:E:465:ARG:NH2	3:E:481:ASN:OD1	2.33	0.60
1:A:193:ASP:OD2	1:A:194:PHE:N	2.33	0.60
1:A:753:CYS:O	1:A:757:PHE:N	2.34	0.60
2:D:128:GLU:N	2:D:128:GLU:OE1	2.35	0.60
3:E:474:GLU:OE2	3:E:476:ARG:NH2	2.35	0.60
2:D:90:ASP:O	2:D:103:LYS:N	2.34	0.60
1:F:245:LEU:HB3	1:F:848:LEU:HD12	1.84	0.60
1:A:340:TYR:HD2	1:B:341:LEU:HD22	1.67	0.59
3:E:259:GLU:O	3:E:262:ALA:N	2.35	0.59
1:A:305:ILE:HD11	1:A:731:ARG:HA	1.84	0.59
1:G:895:ASP:N	1:G:963:ALA:O	2.34	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:955:ASP:OD1	1:G:957:ARG:N	2.33	0.59
2:H:120:VAL:HG23	3:J:361:VAL:HG13	1.82	0.59
2:I:222:LEU:HD13	3:J:375:LYS:HE2	1.85	0.59
3:J:463:SER:HG	3:J:464:GLN:H	1.51	0.59
1:G:25:GLY:O	1:G:1070:ARG:NH1	2.36	0.59
2:H:129:GLN:O	2:H:133:VAL:HG23	2.03	0.59
1:B:895:ASP:N	1:B:963:ALA:O	2.36	0.58
2:C:224:ALA:O	2:C:228:GLU:OE1	2.20	0.58
2:C:55:LEU:O	2:C:59:GLY:N	2.36	0.58
2:D:92:GLY:N	2:D:101:TYR:O	2.35	0.58
2:I:90:ASP:O	2:I:103:LYS:N	2.35	0.58
2:D:188:GLN:NE2	5:P:33:DA:OP1	2.37	0.58
2:D:90:ASP:N	2:D:103:LYS:O	2.36	0.58
1:G:895:ASP:OD2	1:G:965:SER:OG	2.21	0.57
4:M:39:LYS:NZ	5:R:9:DA:OP2	2.33	0.57
1:B:955:ASP:OD1	1:B:957:ARG:N	2.37	0.57
2:C:129:GLN:O	2:C:133:VAL:HG23	2.04	0.57
3:E:4:ASN:OD1	3:E:5:THR:N	2.37	0.57
1:A:245:LEU:HB3	1:A:848:LEU:HD12	1.86	0.57
1:F:305:ILE:HD11	1:F:731:ARG:HA	1.86	0.57
1:G:302:ARG:NE	1:G:734:GLU:OE2	2.37	0.57
2:I:154:ALA:HB3	2:I:206:ILE:HB	1.85	0.57
1:A:92:ASP:O	1:A:1073:GLN:NE2	2.37	0.57
1:F:18:ILE:HG22	1:F:20:LEU:CD1	2.35	0.57
2:C:104:VAL:HG11	2:C:114:GLU:HB2	1.87	0.57
1:A:1001:LEU:HD22	1:A:1018:ILE:HD12	1.86	0.57
3:J:417:THR:HG22	3:J:449:TRP:HE1	1.70	0.57
6:A:1101:ADP:O1B	1:B:985:SER:N	2.38	0.56
1:G:753:CYS:O	1:G:757:PHE:N	2.37	0.56
2:H:104:VAL:HG11	2:H:114:GLU:HB2	1.87	0.56
3:J:409:ASP:OD1	3:J:410:ARG:N	2.38	0.56
2:H:121:ARG:NH2	3:J:364:THR:O	2.38	0.56
1:A:27:HIS:O	1:A:30:HIS:NE2	2.38	0.56
1:A:912:ARG:NH1	3:J:68:GLU:OE1	2.34	0.56
1:B:737:ALA:O	1:B:741:ALA:N	2.34	0.56
1:F:46:GLY:O	1:F:1070:ARG:NH1	2.34	0.56
1:A:749:GLU:OE1	1:A:749:GLU:N	2.36	0.56
1:F:985:SER:OG	6:G:1101:ADP:O3A	2.19	0.56
1:F:856:VAL:HG11	1:F:934:LEU:HD23	1.87	0.56
2:C:126:ASN:OD1	3:E:350:ARG:NH2	2.39	0.56
1:B:1090:GLN:NE2	1:B:1094:ASN:O	2.37	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:115:GLU:OE2	1:A:116:ARG:N	2.39	0.55
1:F:961:GLU:N	1:F:961:GLU:OE1	2.38	0.55
1:G:803:GLU:OE2	1:G:806:ARG:NH2	2.40	0.55
1:A:865:HIS:NE2	3:E:293:LYS:HB2	2.21	0.55
1:F:985:SER:HG	6:G:1101:ADP:PB	2.29	0.55
1:A:808:ASP:OD2	1:A:812:LEU:N	2.39	0.55
1:F:159:VAL:HG11	1:F:171:MET:HE2	1.88	0.55
1:G:107:VAL:HG12	1:G:128:TRP:HB2	1.87	0.55
1:A:214:LEU:HD12	1:A:220:ILE:HD11	1.89	0.55
1:G:1074:ASN:OD1	1:G:1075:SER:N	2.40	0.55
2:H:55:LEU:O	2:H:59:GLY:N	2.38	0.55
2:I:133:VAL:HG11	3:J:374:PHE:CE1	2.42	0.55
2:H:128:GLU:OE2	3:J:351:LYS:NZ	2.40	0.55
3:J:17:ASN:O	3:J:19:HIS:N	2.40	0.54
3:E:54:ILE:HD12	3:E:82:SER:HA	1.89	0.54
3:J:140:GLU:OE1	3:J:141:THR:N	2.40	0.54
1:A:166:ARG:NH1	1:A:170:GLN:OE1	2.41	0.54
1:A:737:ALA:O	1:A:741:ALA:N	2.38	0.54
1:F:214:LEU:HD12	1:F:220:ILE:HD11	1.90	0.54
1:A:340:TYR:CD2	1:B:341:LEU:HD22	2.42	0.54
1:G:1021:ASP:OD1	1:G:1022:GLU:N	2.41	0.53
1:A:856:VAL:HG11	1:A:934:LEU:HD23	1.89	0.53
1:B:756:HIS:O	1:B:756:HIS:ND1	2.40	0.53
1:G:107:VAL:HG12	1:G:128:TRP:CB	2.39	0.53
3:J:62:ILE:HD11	3:J:77:PRO:HB3	1.90	0.53
1:A:985:SER:HG	6:B:1101:ADP:PA	2.30	0.53
1:B:856:VAL:HG21	1:B:934:LEU:HD22	1.91	0.53
1:G:9:GLY:O	1:G:117:GLU:N	2.41	0.53
3:J:4:ASN:OD1	3:J:5:THR:N	2.42	0.53
1:A:18:ILE:HG22	1:A:20:LEU:CD1	2.39	0.53
1:F:19:GLU:O	1:F:20:LEU:HD12	2.09	0.53
1:F:1084:GLU:O	1:F:1088:HIS:ND1	2.40	0.53
3:J:68:GLU:OE2	3:J:68:GLU:N	2.40	0.53
2:C:44:THR:O	2:C:49:ARG:NH1	2.39	0.53
1:F:337:MET:HE3	1:G:699:LEU:HD21	1.89	0.53
1:G:1078:ALA:HB2	3:J:454:ARG:NH2	2.23	0.53
1:G:1090:GLN:NE2	1:G:1094:ASN:O	2.37	0.53
2:I:62:GLU:OE2	2:I:207:ARG:NH2	2.41	0.53
1:A:297:ALA:HB2	1:A:768:ILE:HD13	1.91	0.53
1:B:108:THR:N	1:B:127:LEU:O	2.41	0.53
3:E:139:LEU:HD23	3:J:188:VAL:HG21	1.91	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:62:GLU:OE2	2:D:207:ARG:NH2	2.42	0.52
3:E:68:GLU:OE2	3:E:68:GLU:N	2.40	0.52
1:B:128:TRP:N	1:B:139:MET:SD	2.82	0.52
2:C:158:ILE:N	2:C:202:GLU:O	2.40	0.52
2:D:73:VAL:HG13	2:D:80:VAL:HG21	1.91	0.52
1:A:807:VAL:HG12	1:A:807:VAL:O	2.10	0.52
3:E:17:ASN:O	3:E:19:HIS:N	2.42	0.52
1:A:48:GLY:N	6:A:1101:ADP:O1A	2.44	0.51
1:B:227:ASP:OD2	1:B:229:HIS:NE2	2.44	0.51
3:E:140:GLU:OE1	3:E:141:THR:N	2.43	0.51
1:F:98:SER:O	1:F:99:HIS:O	2.28	0.51
1:A:42:ILE:HD13	1:A:1055:MET:SD	2.51	0.51
1:F:821:ASP:O	1:F:824:VAL:HG12	2.10	0.51
2:I:216:PRO:O	2:I:219:LEU:N	2.43	0.51
3:E:237:ALA:O	3:E:240:ASN:ND2	2.40	0.51
1:F:214:LEU:HD13	1:F:993:ALA:HB1	1.91	0.51
1:F:1079:SER:C	1:F:1080:LEU:HD22	2.31	0.51
1:G:881:MET:CE	1:G:999:ALA:HB1	2.39	0.51
1:G:968:ASP:HB2	1:G:975:ILE:HD11	1.92	0.51
2:H:194:LEU:HD21	2:H:213:LEU:HD23	1.93	0.51
4:N:113:GLY:O	4:N:117:GLN:N	2.40	0.51
2:I:92:GLY:N	2:I:101:TYR:O	2.38	0.51
1:A:296:GLN:O	1:A:299:HIS:ND1	2.44	0.51
1:B:884:VAL:O	1:B:969:ARG:NH2	2.44	0.51
1:F:292:TRP:NE1	1:F:758:PRO:O	2.40	0.50
1:A:753:CYS:HG	1:A:757:PHE:HE2	1.58	0.50
1:B:990:GLU:N	1:B:990:GLU:OE1	2.43	0.50
1:B:803:GLU:OE2	1:B:806:ARG:NH2	2.44	0.50
3:E:32:LEU:HD12	3:E:60:ILE:CG2	2.41	0.50
1:G:895:ASP:O	1:G:963:ALA:N	2.39	0.50
2:H:158:ILE:N	2:H:202:GLU:O	2.39	0.50
4:M:2:TYR:N	4:M:37:ILE:O	2.38	0.50
1:B:978:ARG:HE	1:B:979:THR:H	1.58	0.50
3:J:54:ILE:HD12	3:J:82:SER:HA	1.93	0.50
3:E:20:PRO:O	3:E:23:ILE:N	2.45	0.50
1:G:305:ILE:HD11	1:G:731:ARG:HA	1.93	0.50
3:J:32:LEU:HD12	3:J:60:ILE:HG22	1.93	0.50
1:B:1021:ASP:OD1	1:B:1022:GLU:N	2.45	0.50
1:G:17:ARG:NH1	1:G:19:GLU:OE2	2.41	0.50
1:F:968:ASP:OD1	1:F:969:ARG:N	2.45	0.50
1:A:81:ILE:HD13	1:A:139:MET:HE1	1.94	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:214:LEU:HD13	1:A:993:ALA:HB1	1.94	0.49
3:J:32:LEU:HD12	3:J:60:ILE:CG2	2.42	0.49
1:F:27:HIS:O	1:F:30:HIS:NE2	2.43	0.49
3:E:347:GLN:O	3:E:351:LYS:N	2.46	0.49
3:E:388:SER:OG	3:E:390:HIS:NE2	2.44	0.49
2:H:108:GLU:OE2	2:I:43:ARG:NH1	2.46	0.49
1:F:807:VAL:HG12	1:F:807:VAL:O	2.13	0.49
3:J:442:ASP:OD1	3:J:443:LEU:N	2.43	0.49
1:F:808:ASP:OD2	1:F:812:LEU:N	2.46	0.49
1:F:96:GLY:O	1:F:97:GLN:HG3	2.13	0.49
4:M:15:TRP:CE2	4:M:104:VAL:HG22	2.48	0.49
1:A:821:ASP:O	1:A:824:VAL:HG12	2.11	0.49
1:B:126:LEU:C	1:B:127:LEU:HD22	2.33	0.49
3:J:51:GLU:OE1	3:J:51:GLU:N	2.40	0.49
1:B:9:GLY:O	1:B:117:GLU:N	2.44	0.49
1:B:968:ASP:HB2	1:B:975:ILE:HD11	1.94	0.49
3:E:16:LYS:O	3:E:16:LYS:HG3	2.11	0.49
3:E:34:LEU:HD22	3:E:111:ILE:HD13	1.95	0.49
1:G:296:GLN:OE1	1:G:760:VAL:N	2.36	0.49
2:I:128:GLU:OE1	2:I:128:GLU:N	2.41	0.49
3:J:235:GLN:O	3:J:235:GLN:NE2	2.41	0.49
1:B:820:ASP:OD1	1:B:820:ASP:N	2.46	0.49
2:D:154:ALA:HB3	2:D:206:ILE:HB	1.94	0.49
1:G:135:SER:N	1:G:138:ASP:OD2	2.46	0.48
3:J:463:SER:HG	3:J:464:GLN:N	2.11	0.48
1:B:1068:VAL:HG12	1:B:1069:HIS:N	2.27	0.48
3:E:307:ALA:O	3:E:310:GLU:N	2.45	0.48
1:F:322:LEU:HD12	1:F:716:ALA:HB2	1.95	0.48
1:B:126:LEU:HD23	1:B:144:LEU:HD11	1.94	0.48
3:E:256:GLN:OE1	3:E:256:GLN:N	2.46	0.48
5:P:15:DA:H2'	5:P:16:DT:H72	1.94	0.48
1:B:213:GLN:N	1:B:213:GLN:OE1	2.41	0.48
3:E:51:GLU:OE1	3:E:51:GLU:N	2.38	0.48
1:F:206:ASN:O	1:F:206:ASN:ND2	2.37	0.48
1:G:1024:PHE:HB3	1:G:1027:SER:HB3	1.95	0.48
5:R:29:DA:H2'	5:R:30:DT:H72	1.95	0.48
3:E:188:VAL:HG21	3:J:139:LEU:HD23	1.94	0.48
3:J:229:GLU:OE2	3:J:233:ASN:ND2	2.46	0.48
3:J:307:ALA:O	3:J:310:GLU:N	2.46	0.48
1:A:968:ASP:OD1	1:A:969:ARG:N	2.47	0.48
1:B:895:ASP:O	1:B:963:ALA:N	2.41	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:32:LEU:HD12	3:E:60:ILE:HG22	1.94	0.48
3:E:235:GLN:O	3:E:235:GLN:NE2	2.44	0.48
3:J:237:ALA:O	3:J:240:ASN:ND2	2.43	0.48
2:H:78:GLU:OE1	2:H:82:ARG:NH2	2.47	0.48
2:D:131:LEU:HD13	2:D:226:LEU:HD13	1.96	0.48
1:G:192:ARG:O	1:G:196:GLU:N	2.40	0.48
2:H:114:GLU:OE1	2:H:114:GLU:N	2.43	0.48
1:B:218:ASP:OD2	1:B:962:PHE:N	2.44	0.48
3:E:29:ARG:NH1	3:E:84:GLU:OE1	2.47	0.48
3:E:350:ARG:HD2	3:E:350:ARG:O	2.14	0.48
2:C:128:GLU:OE2	2:C:185:LEU:HD21	2.14	0.47
1:G:227:ASP:OD2	1:G:229:HIS:NE2	2.47	0.47
1:G:884:VAL:O	1:G:969:ARG:NH2	2.47	0.47
4:N:47:GLU:OE1	4:N:47:GLU:N	2.47	0.47
2:C:73:VAL:HG11	2:C:100:LEU:HD13	1.96	0.47
1:F:81:ILE:HD13	1:F:139:MET:HE1	1.97	0.47
1:G:1068:VAL:HG12	1:G:1069:HIS:N	2.29	0.47
1:A:172:GLU:OE2	1:A:180:THR:N	2.47	0.47
1:A:982:GLN:N	1:B:77:ASP:OD2	2.47	0.47
1:F:887:GLN:O	1:F:889:ASP:N	2.47	0.47
1:F:907:LEU:HD13	1:F:953:LEU:CD1	2.44	0.47
1:F:81:ILE:HD13	1:F:139:MET:CE	2.43	0.47
5:Q:9:DA:H2'	5:Q:10:DT:H72	1.96	0.47
1:B:246:THR:HG23	1:B:928:TYR:OH	2.15	0.47
1:G:889:ASP:OD2	1:G:890:ARG:NE	2.47	0.47
3:J:84:GLU:OE2	3:J:88:TRP:NE1	2.42	0.47
2:D:216:PRO:O	2:D:219:LEU:N	2.48	0.47
1:F:341:LEU:HD13	1:G:340:TYR:CE2	2.50	0.47
1:G:22:ASN:OD1	1:G:28:GLY:N	2.46	0.47
1:B:48:GLY:N	6:B:1101:ADP:O2A	2.43	0.47
1:B:889:ASP:OD2	1:B:890:ARG:NE	2.48	0.47
1:B:1078:ALA:HB2	3:E:454:ARG:NH2	2.29	0.47
2:C:159:ASP:OD1	2:C:160:ASP:N	2.48	0.47
1:B:128:TRP:CE2	1:B:140:LYS:HB2	2.50	0.47
1:B:252:LEU:HA	1:B:840:LYS:HG2	1.97	0.47
3:E:257:SER:O	3:E:258:SER:C	2.54	0.47
1:G:234:ARG:O	1:G:238:VAL:HG23	2.15	0.46
1:G:827:GLN:O	1:G:830:GLN:NE2	2.46	0.46
1:F:50:THR:OG1	6:F:1101:ADP:O3B	2.21	0.46
3:E:229:GLU:OE2	3:E:233:ASN:ND2	2.48	0.46
1:B:192:ARG:O	1:B:196:GLU:N	2.38	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:738:GLN:O	1:B:742:GLN:N	2.47	0.46
3:J:29:ARG:NH1	3:J:84:GLU:OE1	2.48	0.46
1:B:305:ILE:HD11	1:B:731:ARG:HA	1.98	0.46
4:M:34:CYS:SG	4:M:35:LEU:N	2.88	0.46
1:G:42:ILE:HG22	1:G:1050:THR:CG2	2.46	0.46
5:S:29:DA:C2'	5:S:30:DT:H71	2.46	0.46
2:C:164:GLN:OE1	3:E:214:ARG:NH1	2.48	0.46
2:H:82:ARG:NH1	2:I:41:GLU:OE2	2.47	0.46
1:A:818:ASP:OD1	1:A:820:ASP:N	2.48	0.46
1:F:985:SER:HB3	1:F:988:GLU:HG3	1.98	0.46
3:E:327:ARG:CZ	3:E:331:LEU:HD11	2.46	0.46
1:F:297:ALA:HB2	1:F:768:ILE:HD13	1.98	0.46
1:G:300:LEU:CD1	1:G:760:VAL:HG12	2.46	0.46
2:C:127:LEU:HG	3:E:350:ARG:HD2	1.97	0.45
1:G:978:ARG:HE	1:G:979:THR:H	1.64	0.45
5:S:9:DA:H2'	5:S:10:DT:H72	1.98	0.45
3:E:325:HIS:HA	3:E:328:VAL:HG22	1.98	0.45
1:B:42:ILE:HG22	1:B:1050:THR:CG2	2.46	0.45
1:G:220:ILE:HD13	1:G:993:ALA:HB1	1.98	0.45
1:A:92:ASP:OD1	1:A:93:GLY:N	2.50	0.45
1:A:899:VAL:HG22	1:A:961:GLU:OE2	2.16	0.45
2:D:132:LEU:O	2:D:136:LEU:HD23	2.16	0.45
1:G:147:ASP:N	1:G:177:GLY:O	2.44	0.45
3:J:463:SER:OG	3:J:464:GLN:OE1	2.34	0.45
1:A:19:GLU:O	1:A:20:LEU:HD12	2.17	0.45
1:B:300:LEU:HB2	1:B:765:LEU:HD13	1.99	0.45
4:N:46:ALA:HB3	4:N:47:GLU:OE1	2.17	0.45
5:Q:29:DA:C2'	5:Q:30:DT:H71	2.46	0.45
1:A:337:MET:HE1	1:B:337:MET:HG3	1.99	0.45
3:E:417:THR:HG22	3:E:449:TRP:HE1	1.82	0.45
3:E:463:SER:HG	3:E:464:GLN:H	1.64	0.45
2:H:96:ILE:HD12	2:H:96:ILE:H	1.81	0.45
3:J:124:SER:O	3:J:125:THR:OG1	2.29	0.45
2:C:108:GLU:OE2	2:D:43:ARG:NH1	2.46	0.45
1:F:795:ILE:HD13	1:G:795:ILE:HD13	1.99	0.45
2:I:124:ARG:NH1	3:J:376:GLU:OE2	2.49	0.45
3:E:490:GLN:NE2	3:E:494:ASP:OD2	2.45	0.45
1:F:300:LEU:HB2	1:F:765:LEU:HD13	1.99	0.45
1:A:153:LEU:HA	1:A:156:TRP:CE3	2.52	0.45
1:B:228:ASP:OD1	1:B:229:HIS:N	2.45	0.45
3:E:324:GLU:O	3:E:328:VAL:HG22	2.17	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:990:GLU:N	1:G:990:GLU:OE1	2.48	0.45
2:C:78:GLU:OE1	2:C:82:ARG:NH2	2.42	0.44
2:C:127:LEU:O	2:C:130:SER:N	2.49	0.44
1:G:235:ALA:CB	1:G:938:LEU:HD11	2.47	0.44
1:G:848:LEU:O	1:G:852:SER:N	2.50	0.44
1:G:1059:ARG:NE	3:J:442:ASP:OD1	2.50	0.44
4:N:34:CYS:SG	4:N:35:LEU:N	2.90	0.44
1:A:220:ILE:O	1:A:225:VAL:HG23	2.17	0.44
2:C:216:PRO:HA	2:C:219:LEU:HB2	1.97	0.44
1:G:50:THR:HG22	6:G:1101:ADP:O1A	2.17	0.44
3:E:321:LEU:HB3	3:E:326:HIS:HA	1.99	0.44
2:C:127:LEU:HD12	2:C:128:GLU:N	2.33	0.44
1:G:246:THR:HG23	1:G:928:TYR:OH	2.18	0.44
1:B:945:ASN:OD1	1:B:946:ARG:N	2.50	0.44
2:C:155:GLN:O	2:C:156:ILE:HG23	2.16	0.44
5:Q:27:DA:H2"	5:Q:28:DT:C6	2.53	0.44
1:A:301:TRP:CD2	1:A:765:LEU:HD21	2.52	0.44
1:B:1059:ARG:NH2	3:E:442:ASP:OD2	2.46	0.44
1:G:95:GLU:O	1:G:97:GLN:HG2	2.18	0.44
5:P:29:DA:H2'	5:P:30:DT:H72	1.98	0.44
1:A:780:GLN:OE1	1:B:780:GLN:NE2	2.49	0.44
1:A:899:VAL:HG22	1:A:961:GLU:CD	2.38	0.44
1:A:899:VAL:HG23	1:A:959:ARG:C	2.38	0.44
1:A:961:GLU:N	1:A:961:GLU:OE1	2.51	0.44
1:B:827:GLN:O	1:B:830:GLN:NE2	2.47	0.44
1:A:275:GLN:HB3	1:A:790:LEU:HD11	2.00	0.44
1:A:39:THR:CG2	1:A:40:ALA:N	2.81	0.44
1:F:979:THR:HG23	1:F:979:THR:O	2.18	0.44
1:A:16:THR:O	1:A:34:ILE:N	2.51	0.43
1:G:107:VAL:HG11	1:G:160:TYR:CE1	2.53	0.43
2:I:73:VAL:HG13	2:I:80:VAL:HG21	2.00	0.43
5:P:33:DA:H2'	5:P:34:DT:H72	2.00	0.43
1:A:1092:ARG:NH1	1:A:1092:ARG:HB2	2.33	0.43
1:B:851:SER:O	1:B:855:GLY:N	2.51	0.43
1:G:128:TRP:CE2	1:G:140:LYS:HB2	2.53	0.43
1:G:1058:LEU:O	1:G:1062:THR:OG1	2.35	0.43
1:B:95:GLU:O	1:B:97:GLN:HG2	2.17	0.43
1:B:302:ARG:NH2	1:B:734:GLU:OE2	2.51	0.43
2:C:155:GLN:CG	2:C:205:VAL:HG22	2.47	0.43
1:G:25:GLY:O	1:G:1075:SER:OG	2.36	0.43
1:G:263:GLN:OE1	1:G:829:LEU:HD11	2.18	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:106:LEU:HD23	2:H:106:LEU:H	1.83	0.43
2:I:143:TRP:O	2:I:147:SER:N	2.49	0.43
4:N:70:GLU:O	4:N:83:MET:N	2.43	0.43
5:S:29:DA:H2'	5:S:30:DT:H71	2.00	0.43
1:A:322:LEU:HD12	1:A:716:ALA:HB2	2.01	0.43
2:D:143:TRP:O	2:D:147:SER:N	2.50	0.43
1:F:39:THR:HG22	1:F:40:ALA:N	2.34	0.43
1:F:983:GLY:O	1:G:78:ARG:NH2	2.51	0.43
1:F:985:SER:OG	6:G:1101:ADP:PB	2.77	0.43
1:F:300:LEU:HD11	1:F:760:VAL:O	2.18	0.43
1:G:228:ASP:OD1	1:G:229:HIS:N	2.45	0.43
5:P:19:DA:C2	5:Q:23:DA:C2	3.06	0.43
5:S:27:DA:H2"	5:S:28:DT:C6	2.54	0.43
3:E:134:ARG:O	3:E:137:GLU:HB2	2.18	0.43
1:F:172:GLU:OE2	1:F:180:THR:N	2.51	0.43
1:F:190:ARG:O	1:F:193:ASP:OD1	2.37	0.43
2:H:167:ILE:HG23	2:H:168:TYR:CD1	2.54	0.43
1:A:887:GLN:O	1:A:889:ASP:N	2.51	0.43
3:E:463:SER:HG	3:E:464:GLN:N	2.16	0.43
1:F:39:THR:CG2	1:F:40:ALA:N	2.81	0.43
1:F:1044:LEU:N	1:F:1044:LEU:HD12	2.34	0.43
1:G:108:THR:N	1:G:127:LEU:O	2.51	0.43
1:G:822:ILE:N	1:G:823:PRO:HD2	2.33	0.42
5:Q:29:DA:H2'	5:Q:30:DT:H71	2.00	0.42
1:A:187:TYR:CZ	1:A:191:LEU:HD11	2.54	0.42
5:Q:11:DA:H1'	5:Q:12:DT:C6	2.54	0.42
1:B:259:GLN:OE1	1:B:260:GLN:N	2.52	0.42
2:C:121:ARG:NH2	3:E:364:THR:O	2.45	0.42
2:D:61:LEU:O	2:D:99:LEU:HD12	2.19	0.42
3:J:20:PRO:O	3:J:23:ILE:N	2.52	0.42
5:Q:26:DT:H2"	5:Q:27:DA:C8	2.54	0.42
1:A:121:VAL:O	1:A:121:VAL:HG13	2.19	0.42
2:C:109:THR:O	2:C:111:ALA:N	2.45	0.42
2:C:131:LEU:HD22	3:E:344:TRP:CH2	2.55	0.42
1:F:53:VAL:O	1:F:57:MET:HG2	2.18	0.42
1:G:250:GLN:NE2	1:G:254:THR:OG1	2.52	0.42
2:H:109:THR:O	2:H:111:ALA:N	2.43	0.42
1:F:66:TYR:O	1:F:76:SER:OG	2.30	0.42
1:F:125:ALA:HB2	1:F:143:TRP:CE3	2.54	0.42
2:H:213:LEU:HD11	3:J:356:LEU:HD13	2.01	0.42
5:P:17:DA:H2"	5:P:18:DT:C6	2.55	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:334:SER:HA	1:G:337:MET:HG2	2.02	0.42
2:H:73:VAL:HG11	2:H:100:LEU:HD13	2.02	0.42
5:P:16:DT:H2"	5:P:17:DA:C8	2.55	0.42
1:A:791:HIS:CD2	1:A:791:HIS:C	2.93	0.42
1:G:933:VAL:O	1:G:936:ALA:HB3	2.19	0.42
5:S:6:DT:H2"	5:S:7:DA:C8	2.55	0.42
2:C:88:ASP:OD2	2:D:53:GLN:NE2	2.38	0.42
2:D:124:ARG:NH2	5:Q:13:DA:OP2	2.53	0.42
5:S:30:DT:H2"	5:S:31:DA:C8	2.55	0.42
1:A:85:ARG:NH1	1:A:103:PRO:O	2.53	0.42
1:B:220:ILE:HD13	1:B:993:ALA:HB1	2.00	0.42
1:B:939:ARG:O	1:B:943:GLU:OE1	2.38	0.42
1:F:14:ILE:HG22	1:F:15:LEU:N	2.35	0.42
1:F:220:ILE:O	1:F:225:VAL:HG23	2.19	0.42
1:F:341:LEU:HD21	1:G:341:LEU:HD23	2.02	0.42
5:P:34:DT:H2"	5:P:35:DA:C8	2.55	0.42
5:Q:30:DT:H2"	5:Q:31:DA:C8	2.55	0.42
1:A:1019:ILE:HG22	1:A:1020:LEU:N	2.35	0.41
1:B:234:ARG:O	1:B:238:VAL:HG23	2.20	0.41
2:C:213:LEU:HD11	3:E:356:LEU:HD13	2.01	0.41
1:F:301:TRP:CD2	1:F:765:LEU:HD21	2.54	0.41
1:G:123:LEU:HD23	1:G:187:TYR:OH	2.20	0.41
2:I:124:ARG:NH2	5:S:13:DA:OP1	2.53	0.41
2:H:144:GLU:O	2:H:148:GLY:N	2.44	0.41
5:S:20:DT:H2"	5:S:21:DA:C8	2.55	0.41
1:A:14:ILE:HG22	1:A:15:LEU:N	2.34	0.41
1:A:337:MET:CE	1:B:337:MET:HG3	2.50	0.41
1:B:42:ILE:HG22	1:B:1050:THR:HG22	2.02	0.41
5:R:19:DA:C2	5:S:23:DA:C2	3.08	0.41
1:A:1054:GLU:O	1:A:1054:GLU:HG3	2.20	0.41
1:B:822:ILE:N	1:B:823:PRO:HD2	2.35	0.41
1:B:147:ASP:N	1:B:177:GLY:O	2.46	0.41
1:F:818:ASP:OD1	1:F:818:ASP:C	2.59	0.41
1:G:120:GLN:OE1	1:G:122:ARG:NH1	2.52	0.41
2:H:155:GLN:CG	2:H:205:VAL:HG22	2.51	0.41
5:R:13:DA:H2"	5:R:14:DT:C6	2.55	0.41
5:R:33:DA:H2'	5:R:34:DT:H72	2.03	0.41
5:R:34:DT:H2"	5:R:35:DA:C8	2.54	0.41
2:C:70:TYR:CE1	2:C:74:LEU:HD12	2.56	0.41
2:D:94:ASP:O	2:D:98:GLY:N	2.53	0.41
3:E:408:LEU:HD22	3:E:441:HIS:CB	2.51	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:46:GLY:HA2	1:G:984:GLY:CA	2.51	0.41
1:A:105:LYS:NZ	1:A:130:ASP:OD1	2.40	0.41
2:C:156:ILE:HD11	2:C:161:LEU:HD21	2.02	0.41
1:F:865:HIS:CE1	3:J:293:LYS:HB2	2.56	0.41
3:J:472:ASP:OD2	3:J:476:ARG:NE	2.50	0.41
1:B:57:MET:HE1	1:B:206:ASN:HA	2.02	0.41
2:C:106:LEU:HD23	2:C:106:LEU:H	1.86	0.41
1:F:1091:ARG:O	1:F:1095:ALA:N	2.54	0.41
3:J:79:LEU:HD21	3:J:83:ARG:HD2	2.02	0.41
1:A:282:TRP:HD1	1:A:285:LEU:HD12	1.86	0.41
1:B:35:HIS:CG	1:B:36:GLN:N	2.89	0.41
2:C:128:GLU:HG2	3:E:350:ARG:NE	2.10	0.41
2:D:143:TRP:CE2	2:D:154:ALA:HA	2.56	0.41
2:D:227:ARG:HA	2:D:230:ILE:HG22	2.02	0.41
1:G:35:HIS:CG	1:G:36:GLN:N	2.89	0.41
1:G:153:LEU:O	1:G:157:LEU:HD23	2.21	0.41
3:J:1:MET:SD	3:J:1:MET:C	2.99	0.41
3:J:363:VAL:HG13	3:J:363:VAL:O	2.21	0.41
4:M:75:ARG:HD2	5:S:27:DA:H5"	2.03	0.41
4:N:15:TRP:CE2	4:N:104:VAL:HG22	2.56	0.41
4:N:101:ASP:HB2	4:N:104:VAL:HG23	2.02	0.41
5:R:4:DT:H2"	5:R:5:DA:C8	2.55	0.41
1:A:947:THR:O	1:A:951:LYS:HG2	2.21	0.41
1:B:300:LEU:CB	1:B:765:LEU:HD13	2.50	0.41
2:D:123:GLN:N	3:E:371:ARG:O	2.48	0.41
1:F:37:ASP:OD1	1:F:1040:ARG:NH1	2.54	0.41
2:H:79:GLU:OE2	2:H:82:ARG:NH2	2.54	0.41
2:I:127:LEU:HD12	3:J:375:LYS:CE	2.49	0.41
1:G:169:ARG:O	1:G:173:LYS:HG2	2.21	0.40
3:J:383:GLN:O	3:J:383:GLN:HG3	2.21	0.40
1:A:781:HIS:HA	1:A:784:GLU:HG2	2.03	0.40
1:A:1091:ARG:O	1:A:1095:ALA:N	2.54	0.40
1:B:148:ASN:OD1	1:B:150:GLY:N	2.49	0.40
2:D:133:VAL:HG11	3:E:374:PHE:CZ	2.56	0.40
3:E:124:SER:OG	3:E:130:SER:HB2	2.21	0.40
3:E:347:GLN:HA	3:E:350:ARG:HB3	2.03	0.40
2:I:227:ARG:HA	2:I:230:ILE:HG22	2.03	0.40
5:P:3:DA:C2	5:Q:39:DA:C2	3.09	0.40
1:A:1018:ILE:CG2	1:A:1044:LEU:HD23	2.52	0.40
1:G:925:GLU:CD	1:G:929:LYS:HZ3	2.25	0.40
2:I:85:GLU:N	2:I:86:PRO:CD	2.84	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:P:15:DA:C2'	5:P:16:DT:H72	2.51	0.40
1:B:881:MET:SD	1:B:999:ALA:HB1	2.62	0.40
1:F:40:ALA:HA	1:F:1048:PHE:O	2.22	0.40
1:F:187:TYR:CZ	1:F:191:LEU:HD11	2.56	0.40
2:I:138:GLN:HG3	2:I:139:HIS:N	2.37	0.40
2:H:61:LEU:N	2:H:100:LEU:O	2.47	0.40
5:Q:6:DT:H2"	5:Q:7:DA:C8	2.57	0.40
5:S:24:DT:H2"	5:S:25:DA:C8	2.57	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	
1	A	746/1096 (68%)	720 (96%)	26 (4%)	0	100	100
1	B	746/1096 (68%)	721 (97%)	25 (3%)	0	100	100
1	F	746/1096 (68%)	713 (96%)	32 (4%)	1 (0%)	51	85
1	G	746/1096 (68%)	724 (97%)	22 (3%)	0	100	100
2	C	193/250 (77%)	189 (98%)	4 (2%)	0	100	100
2	D	193/250 (77%)	187 (97%)	6 (3%)	0	100	100
2	H	193/250 (77%)	186 (96%)	7 (4%)	0	100	100
2	I	193/250 (77%)	185 (96%)	8 (4%)	0	100	100
3	E	462/503 (92%)	441 (96%)	20 (4%)	1 (0%)	47	80
3	J	462/503 (92%)	442 (96%)	20 (4%)	0	100	100
4	M	115/390 (30%)	114 (99%)	1 (1%)	0	100	100
4	N	115/390 (30%)	113 (98%)	2 (2%)	0	100	100
All	All	4910/7170 (68%)	4735 (96%)	173 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	E	258	SER
1	F	99	HIS

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	635/929 (68%)	635 (100%)	0	100	100
1	B	635/929 (68%)	633 (100%)	2 (0%)	92	95
1	F	635/929 (68%)	633 (100%)	2 (0%)	92	95
1	G	635/929 (68%)	633 (100%)	2 (0%)	92	95
2	C	171/218 (78%)	171 (100%)	0	100	100
2	D	171/218 (78%)	171 (100%)	0	100	100
2	H	171/218 (78%)	171 (100%)	0	100	100
2	I	171/218 (78%)	171 (100%)	0	100	100
3	E	408/436 (94%)	408 (100%)	0	100	100
3	J	408/436 (94%)	408 (100%)	0	100	100
4	M	103/336 (31%)	103 (100%)	0	100	100
4	N	103/336 (31%)	103 (100%)	0	100	100
All	All	4246/6132 (69%)	4240 (100%)	6 (0%)	93	97

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

Mol	Chain	Res	Type
1	B	1011	ARG
1	B	1026	ARG
1	F	206	ASN
1	F	1092	ARG
1	G	1011	ARG
1	G	1026	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	27	HIS
1	A	791	HIS
1	B	74	HIS
1	F	161	HIS
1	F	791	HIS
1	F	865	HIS
1	F	1069	HIS
1	G	250	GLN
1	G	259	GLN
1	G	260	GLN
2	H	139	HIS
2	H	164	GLN
3	J	19	HIS
4	N	55	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
6	ADP	B	1101	-	24,29,29	1.76	4 (16%)	29,45,45	1.32	3 (10%)
6	ADP	F	1101	-	24,29,29	1.76	3 (12%)	29,45,45	1.37	2 (6%)
6	ADP	A	1101	-	24,29,29	1.79	4 (16%)	29,45,45	1.36	2 (6%)
6	ADP	G	1101	-	24,29,29	1.76	4 (16%)	29,45,45	1.30	3 (10%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	ADP	B	1101	-	-	3/12/32/32	0/3/3/3
6	ADP	F	1101	-	-	7/12/32/32	0/3/3/3
6	ADP	A	1101	-	-	6/12/32/32	0/3/3/3
6	ADP	G	1101	-	-	4/12/32/32	0/3/3/3

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	F	1101	ADP	PA-O5'	5.40	1.81	1.59
6	G	1101	ADP	PA-O5'	5.32	1.80	1.59
6	A	1101	ADP	PA-O5'	5.17	1.80	1.59
6	B	1101	ADP	PA-O5'	5.14	1.80	1.59
6	A	1101	ADP	C2'-C1'	4.00	1.59	1.53
6	B	1101	ADP	C2'-C1'	3.57	1.59	1.53
6	G	1101	ADP	C2'-C1'	3.42	1.59	1.53
6	F	1101	ADP	C2'-C1'	3.40	1.58	1.53
6	B	1101	ADP	O5'-C5'	-2.77	1.34	1.44
6	F	1101	ADP	O5'-C5'	-2.73	1.34	1.44
6	A	1101	ADP	O5'-C5'	-2.73	1.34	1.44
6	G	1101	ADP	O5'-C5'	-2.50	1.35	1.44
6	G	1101	ADP	C2-N1	2.15	1.37	1.33
6	A	1101	ADP	C2-N1	2.10	1.37	1.33
6	B	1101	ADP	C2-N1	2.07	1.37	1.33

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	1101	ADP	O5'-PA-O1A	-3.62	94.93	109.07
6	F	1101	ADP	O5'-PA-O1A	-3.59	95.05	109.07

Continued on next page...

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	B	1101	ADP	O3B-PB-O2B	2.74	118.12	107.64
6	B	1101	ADP	O2A-PA-O5'	-2.73	95.07	107.75
6	G	1101	ADP	O2A-PA-O5'	-2.67	95.34	107.75
6	G	1101	ADP	O3B-PB-O2B	2.67	117.83	107.64
6	F	1101	ADP	C3'-C2'-C1'	-2.61	97.06	100.98
6	B	1101	ADP	C1'-N9-C4	-2.25	122.68	126.64
6	A	1101	ADP	C1'-N9-C4	-2.18	122.81	126.64
6	G	1101	ADP	C1'-N9-C4	-2.15	122.86	126.64

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	1101	ADP	PA-O3A-PB-O2B
6	A	1101	ADP	C5'-O5'-PA-O3A
6	F	1101	ADP	PA-O3A-PB-O2B
6	F	1101	ADP	C5'-O5'-PA-O2A
6	F	1101	ADP	C5'-O5'-PA-O3A
6	G	1101	ADP	C5'-O5'-PA-O3A
6	A	1101	ADP	C4'-C5'-O5'-PA
6	B	1101	ADP	C4'-C5'-O5'-PA
6	G	1101	ADP	C4'-C5'-O5'-PA
6	F	1101	ADP	C4'-C5'-O5'-PA
6	A	1101	ADP	C5'-O5'-PA-O1A
6	F	1101	ADP	C5'-O5'-PA-O1A
6	G	1101	ADP	C5'-O5'-PA-O2A
6	F	1101	ADP	PA-O3A-PB-O1B
6	A	1101	ADP	PA-O3A-PB-O3B
6	B	1101	ADP	C5'-O5'-PA-O3A
6	G	1101	ADP	O4'-C4'-C5'-O5'
6	A	1101	ADP	O4'-C4'-C5'-O5'
6	B	1101	ADP	O4'-C4'-C5'-O5'
6	F	1101	ADP	O4'-C4'-C5'-O5'

There are no ring outliers.

4 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	1101	ADP	3	0
6	F	1101	ADP	2	0
6	A	1101	ADP	3	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	G	1101	ADP	4	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand ADP B 1101

Bond lengths

Bond angles

Torsions

Rings

Ligand ADP F 1101

Bond lengths

Bond angles

Torsions

Rings

Ligand ADP A 1101

Bond lengths

Bond angles

Torsions

Rings

Ligand ADP G 1101
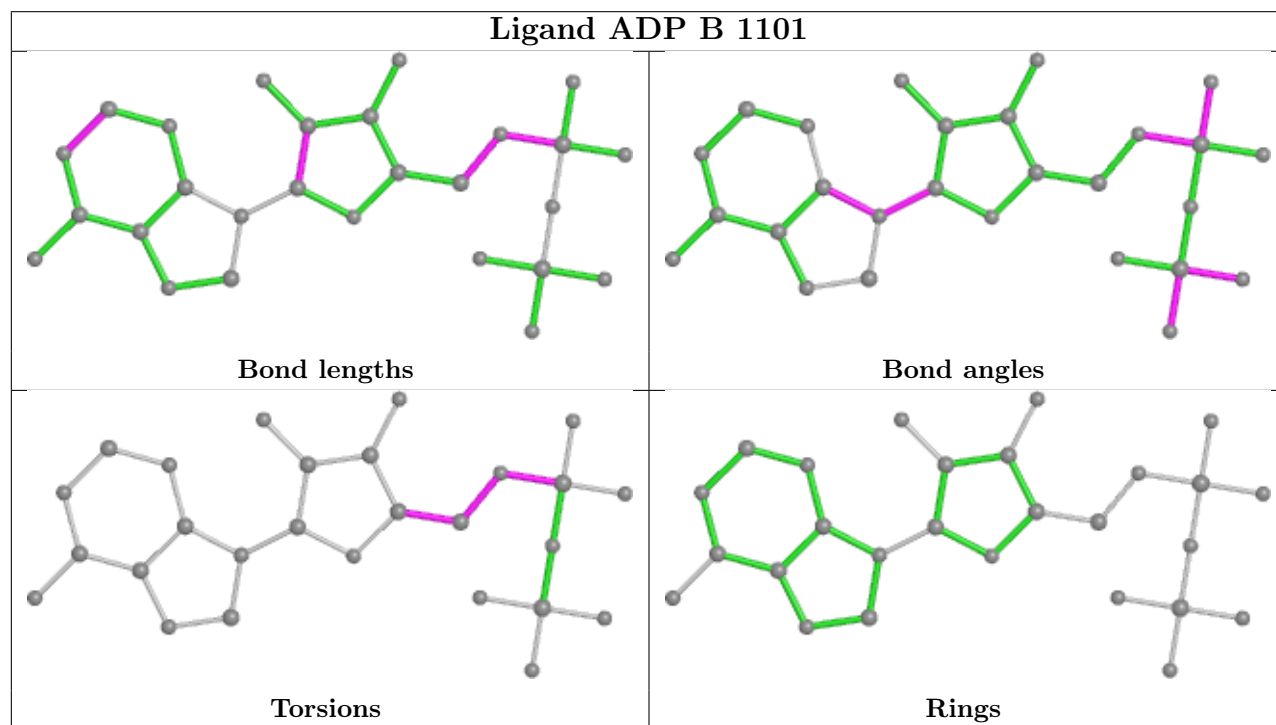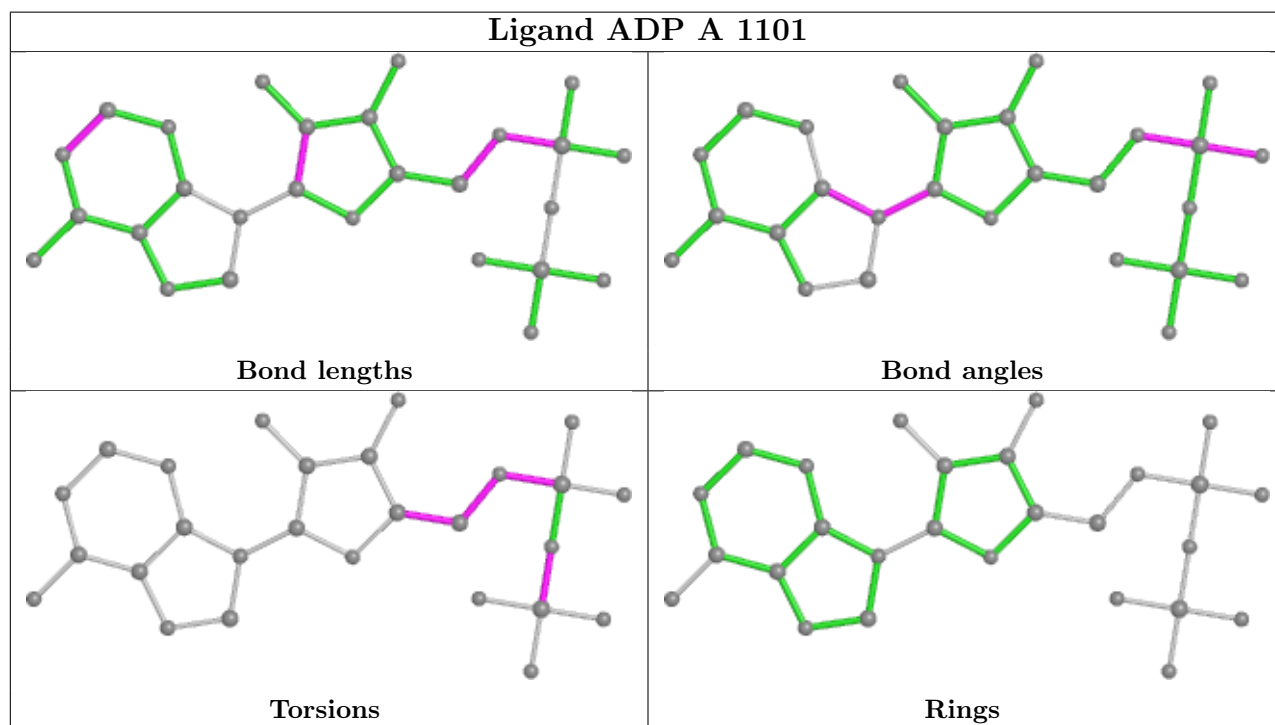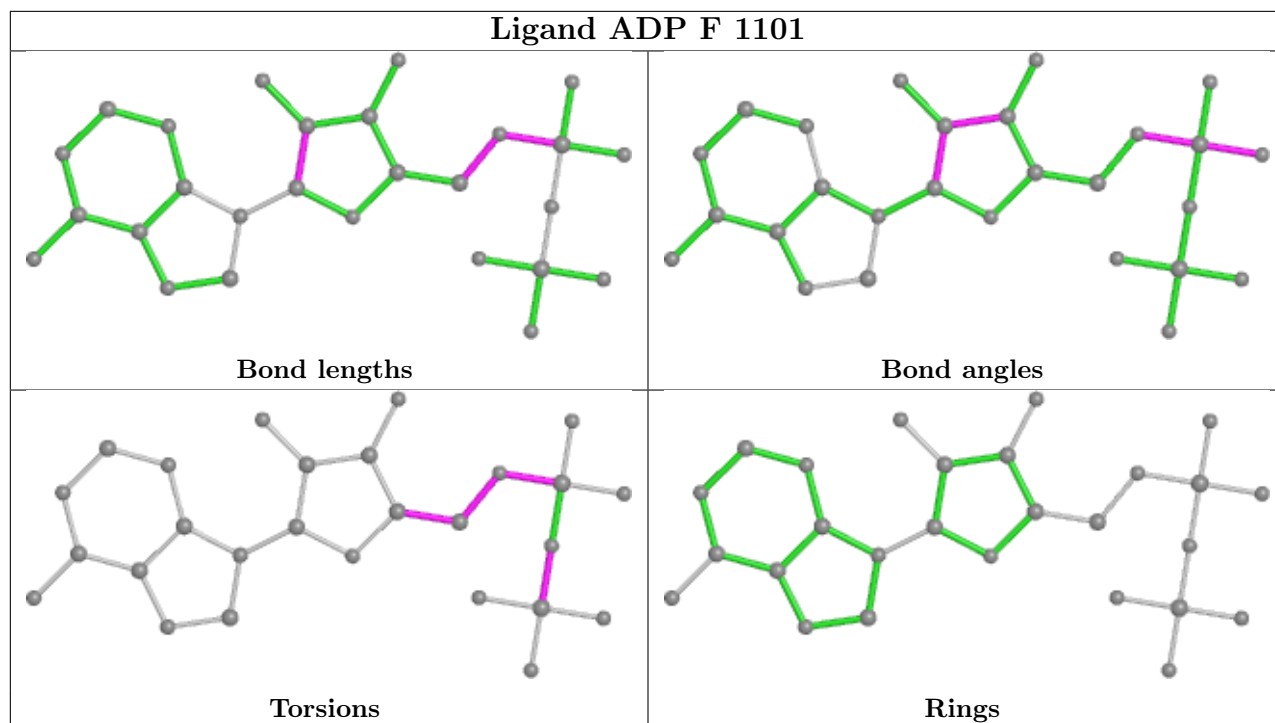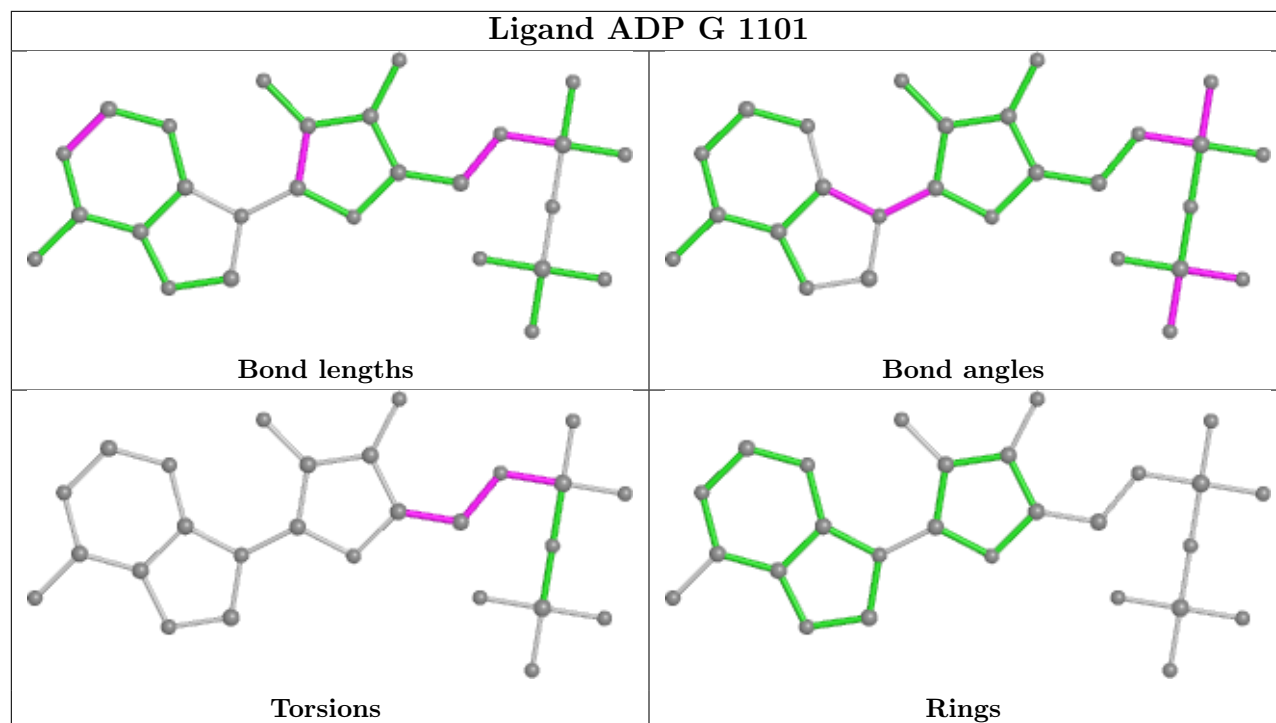
5.7   Other polymers ⓘ

There are no such residues in this entry.

5.8   Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6　Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-18201. 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 ⓘ
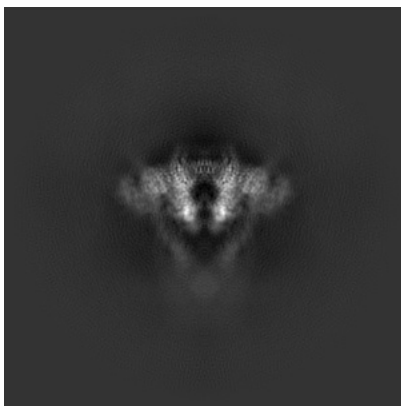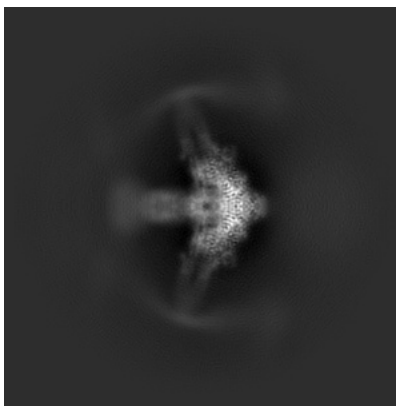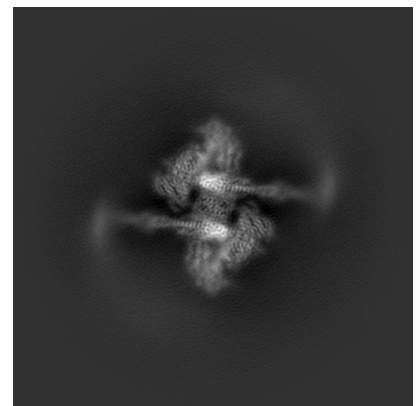
6.1.1　Primary map

X　　　　　　　　　Y　　　　　　　　　Z

6.1.2　Raw map

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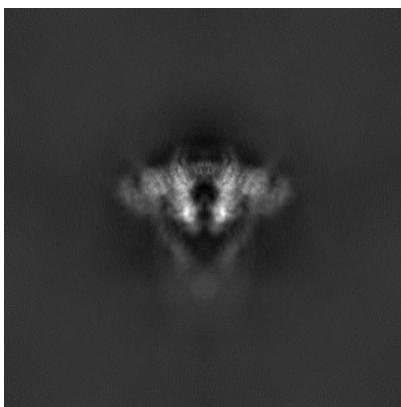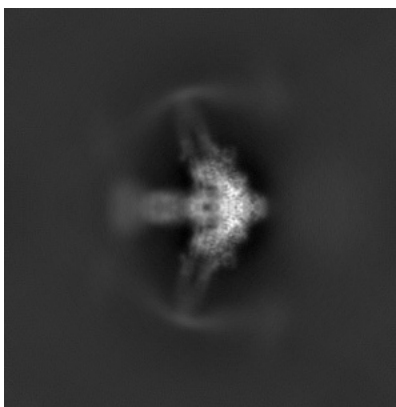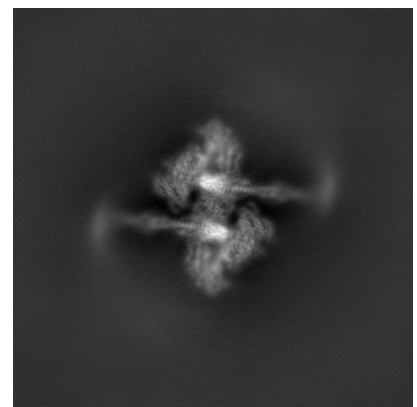
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
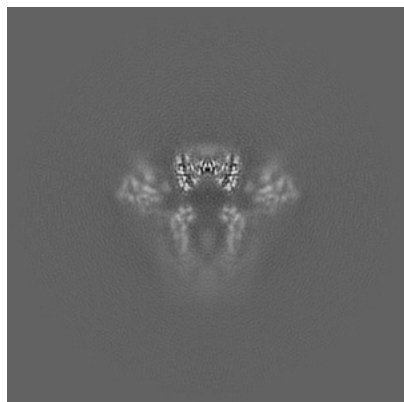
6.2.1 Primary map
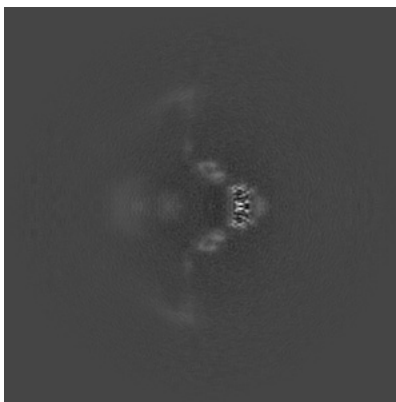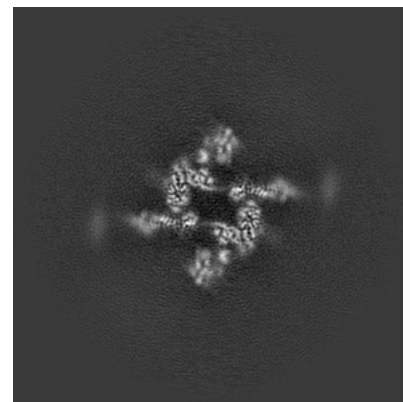
| X Index: 160 | Y Index: 160 | Z Index: 160 |

6.2.2 Raw map
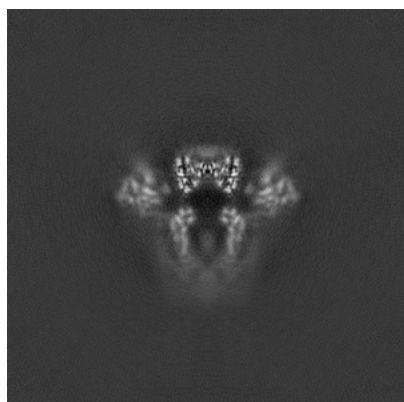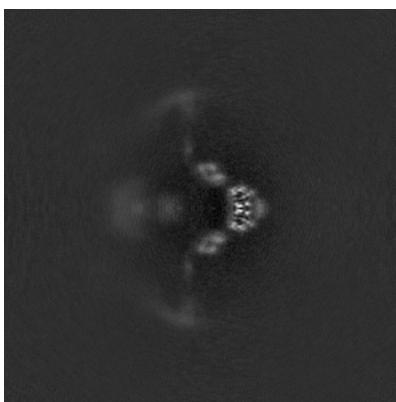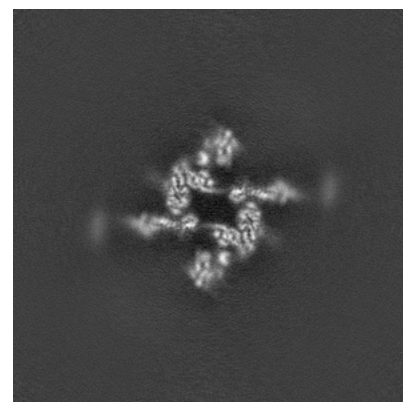
| X Index: 160 | Y Index: 160 | Z Index: 160 |

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

6.3 Largest variance slices (i)

6.3.1 Primary map
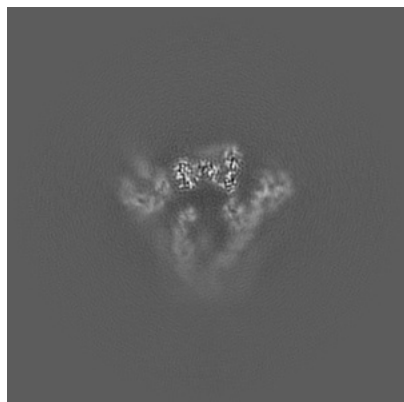
| X Index: 155 | Y Index: 145 | Z Index: 181 |
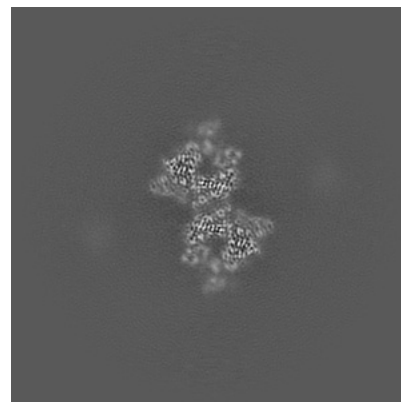
6.3.2 Raw map
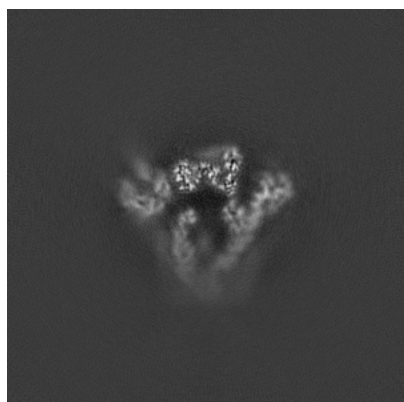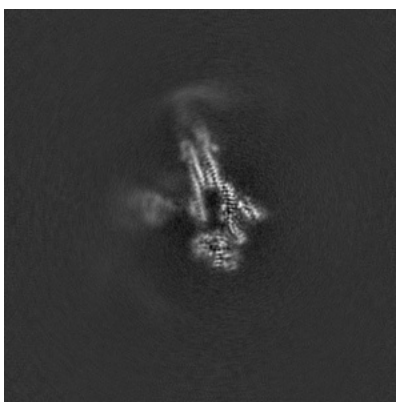
| X Index: 155 | Y Index: 175 | Z Index: 181 |
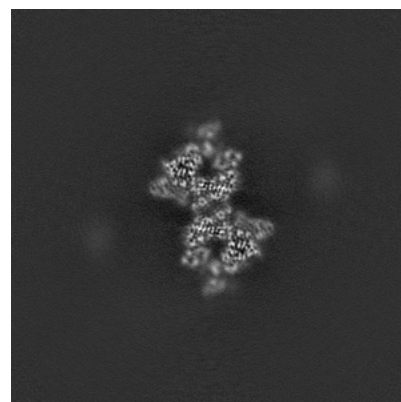
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1　Primary map
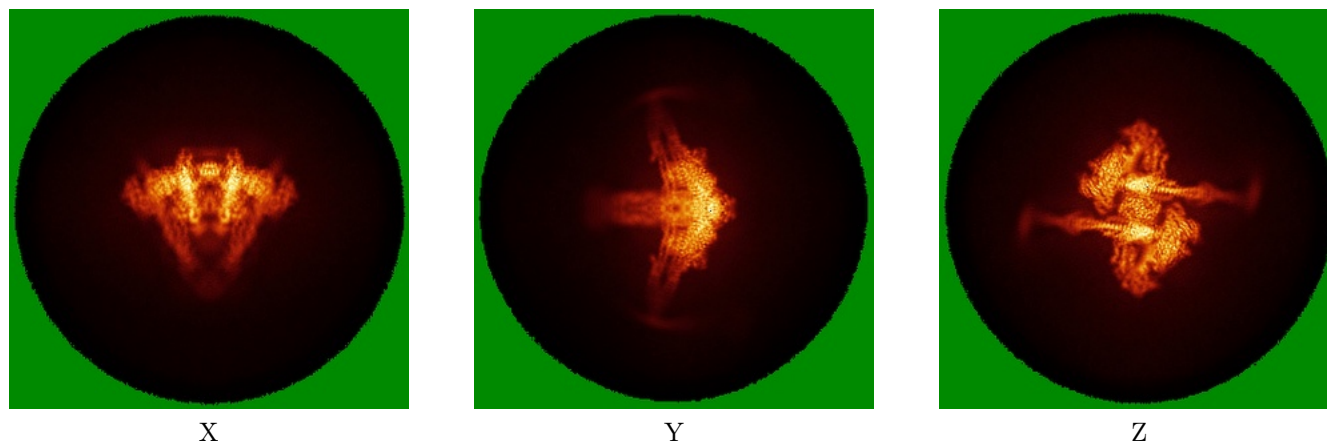
X　　　　　　　　　　Y　　　　　　　　　　Z

6.4.2　Raw map

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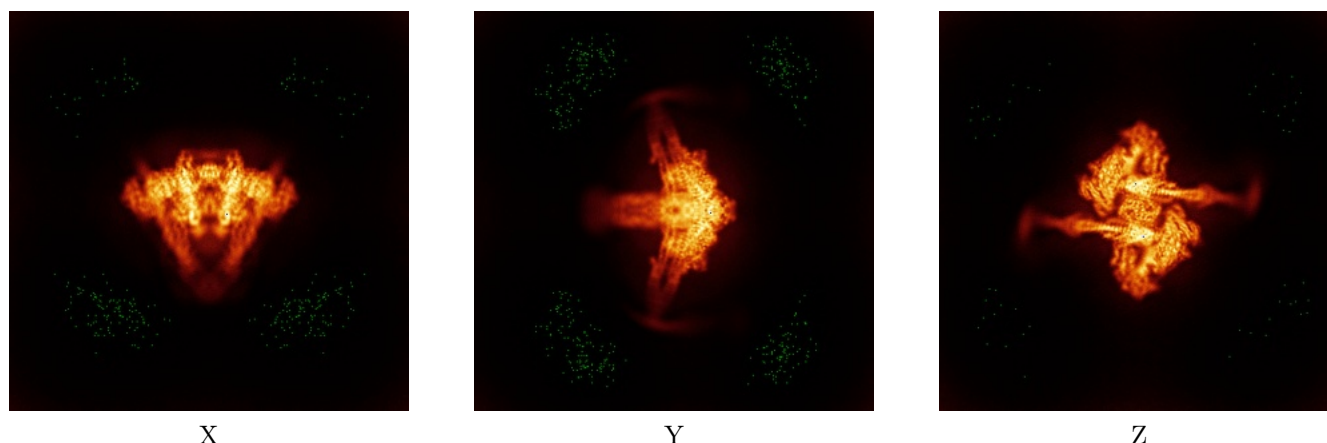
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X	Y	Z
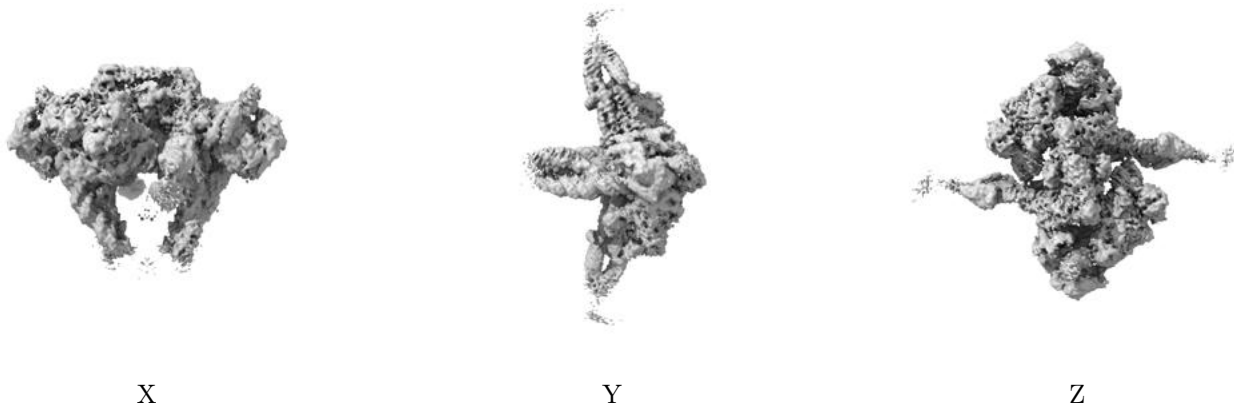
The images above show the 3D surface view of the map at the recommended contour level 0.102. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X	Y	Z
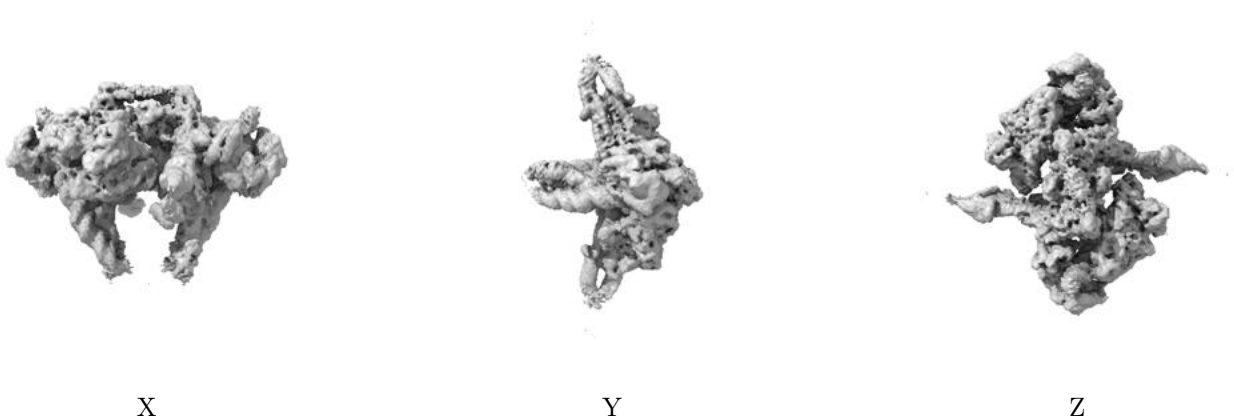
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6　Mask visualisation　ⓘ

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_18201_msk_1.map　ⓘ

X　　　　　　　　　　Y　　　　　　　　　　Z
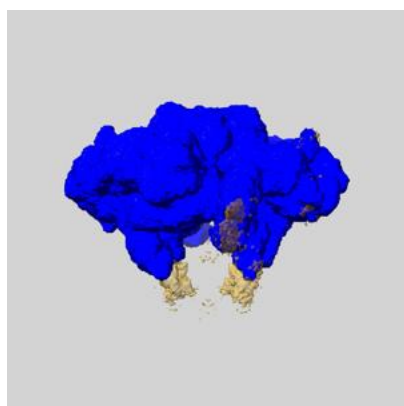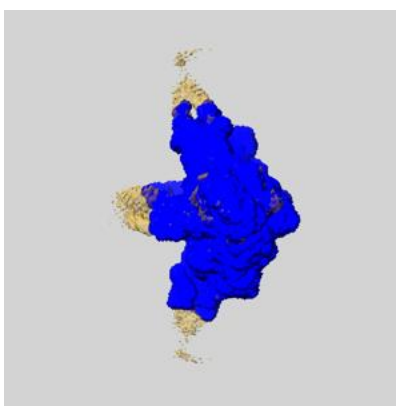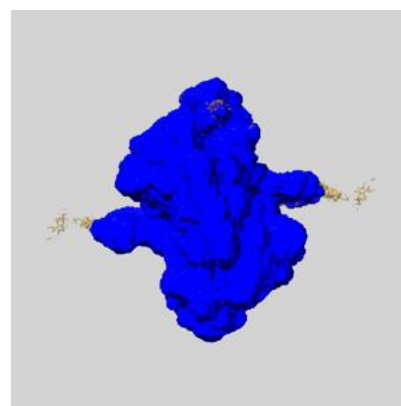
7 Map analysis ⓘ

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)
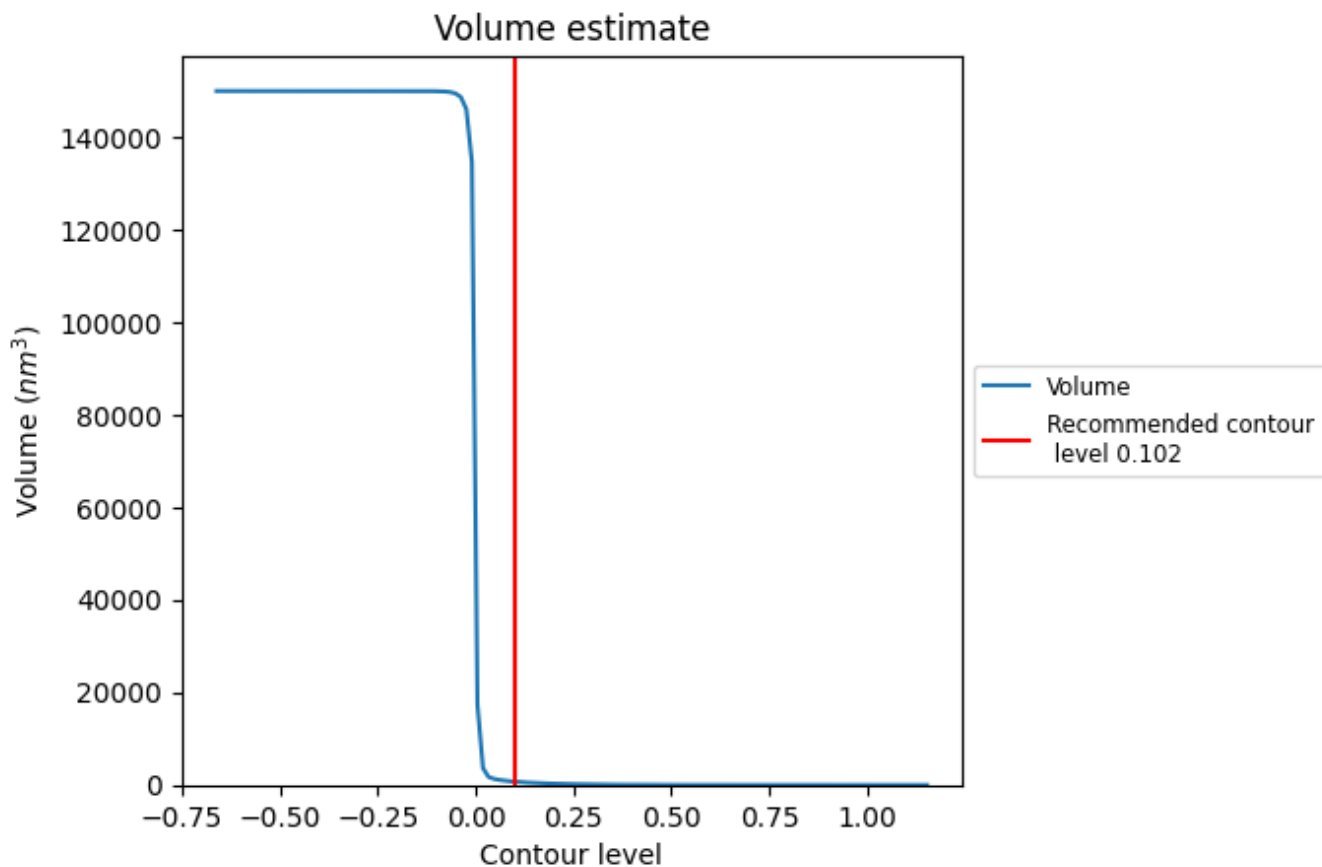
The volume at the recommended contour level is 701 nm^3; this corresponds to an approximate mass of 633 kDa.

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 ⓘ
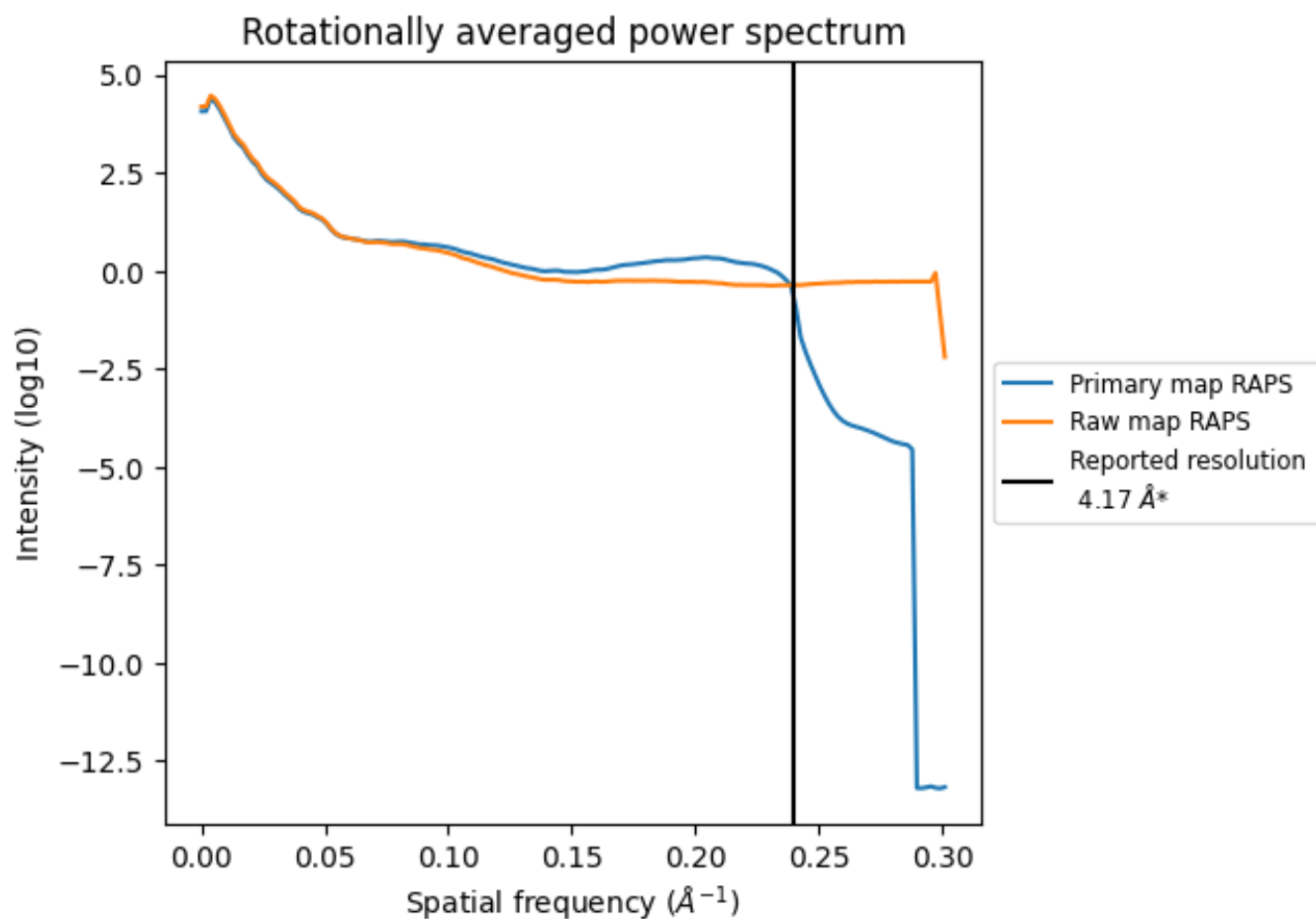
*Reported resolution corresponds to spatial frequency of 0.240 Å^{-1}

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 ⓘ
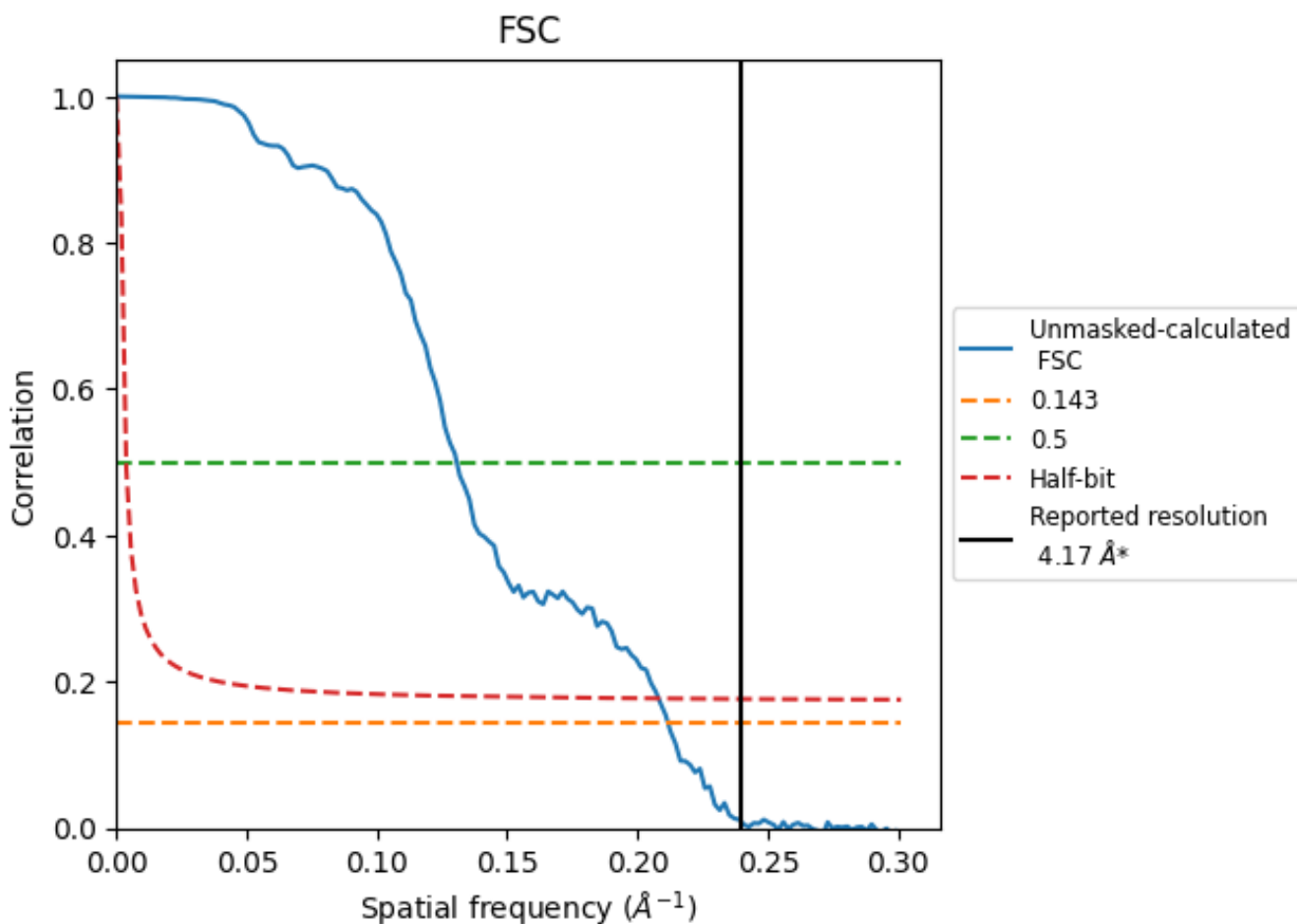
*Reported resolution corresponds to spatial frequency of 0.240 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.17	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.72	7.66	4.81

*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 4.72 differs from the reported value 4.17 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-18201 and PDB model 8Q72. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay ⓘ

X				Y				Z
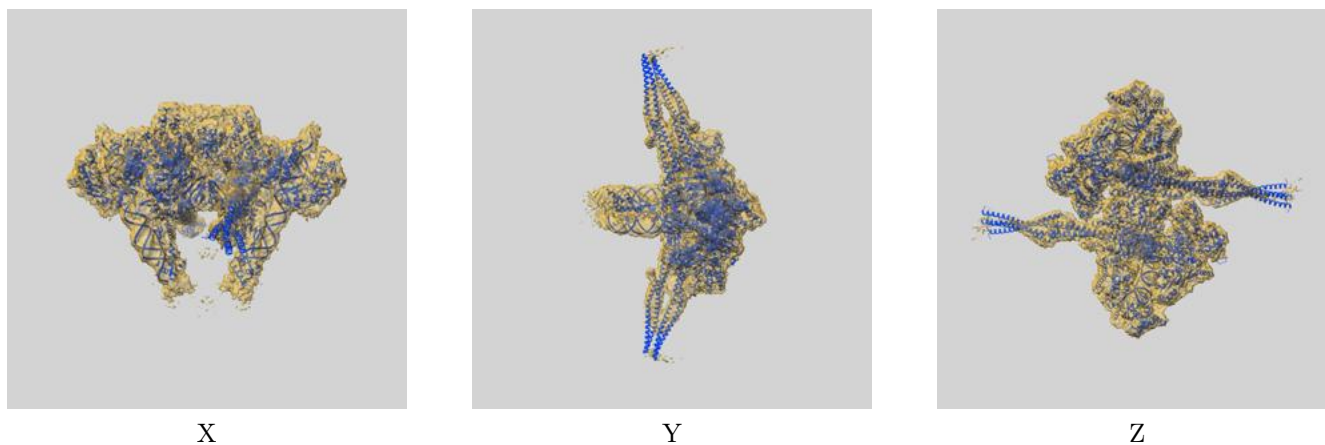
The images above show the 3D surface view of the map at the recommended contour level 0.102 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2　Q-score mapped to coordinate model ⓘ

X　　　　　　　Y　　　　　　　Z
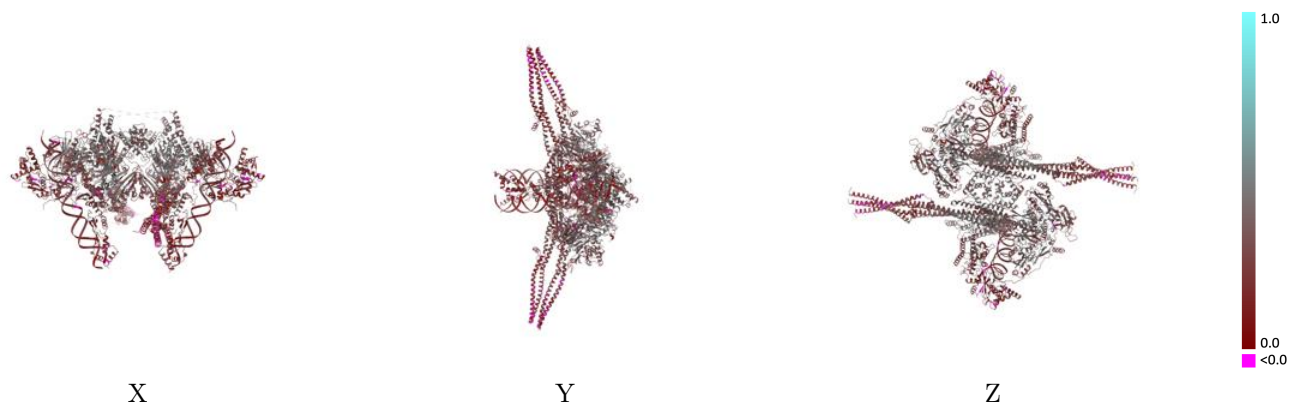
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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
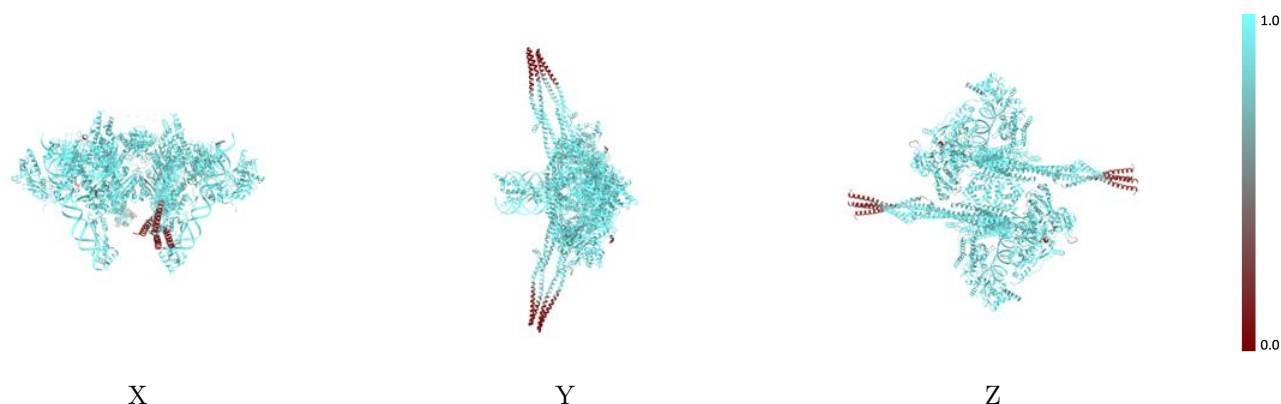
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.102).

9.4   Atom inclusion (i)
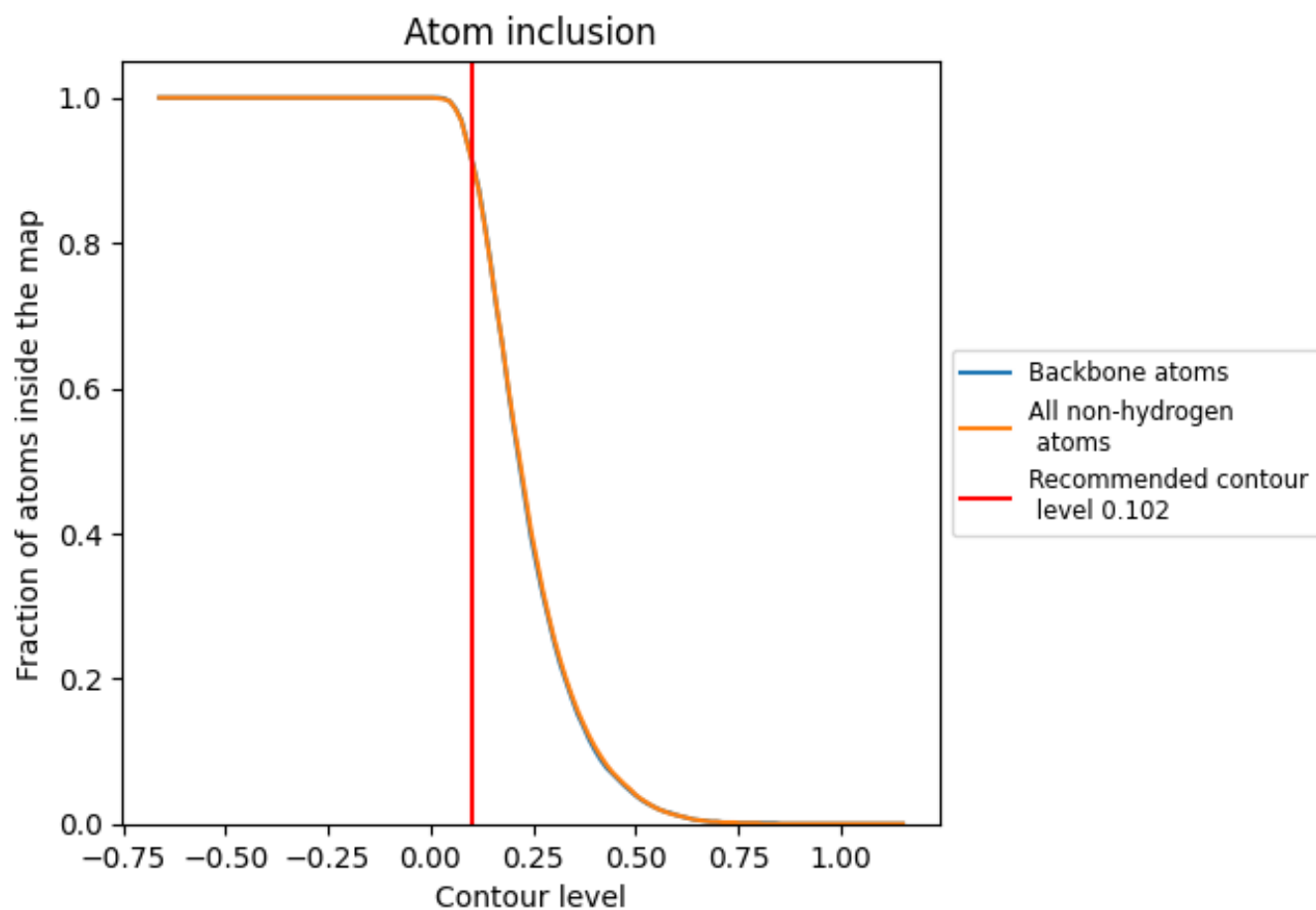
Atom inclusion

At the recommended contour level, 91% of all backbone atoms, 91% 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 (0.102) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9120	0.3070
A	0.9010	0.3600
B	0.8640	0.2950
C	0.9330	0.2610
D	0.9290	0.2080
E	0.9700	0.3750
F	0.9000	0.3600
G	0.8630	0.2940
H	0.9270	0.2590
I	0.9330	0.2080
J	0.9690	0.3750
M	0.9240	0.2230
N	0.9300	0.2270
P	0.9500	0.1920
Q	0.9760	0.1950
R	0.9550	0.1900
S	0.9760	0.1950

1.0

0.0
<0.0