Full wwPDB EM Validation Report ⓘ

Jun 10, 2024 – 08:34 AM EDT

PDB ID	:	8G4W
EMDB ID	:	EMD-29732
Title	:	Cryo-EM consensus structure of Escherichia coli que-PEC (paused elongation complex) RNA Polymerase plus preQ1 ligand
Authors	:	Porta, J.C.; Chauvier, A.; Deb, I.; Ellinger, E.; Frank, A.T.; Meze, K.; Ohi, M.D.; Walter, N.G.
Deposited on	:	2023-02-10
Resolution	:	3.80 Å(reported)
Based on initial model	:	6ASX

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

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

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

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

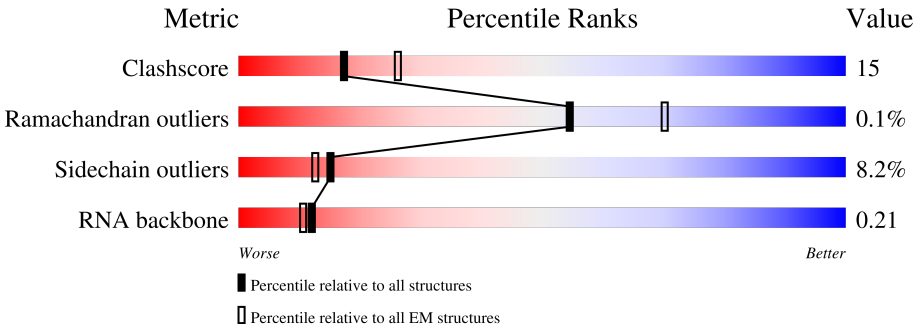
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	39	21% 13% 36% 51%
2	B	31	35% 52% 48%
3	G	235	23% 61% 33% 6%
3	H	235	42% 40% 38% 15% 7%
4	K	79	52% 61% 34% 5%
5	R	47	83% 34% 51% 13%
6	I	1340	41% 65% 32%

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Mol	Chain	Length	Quality of chain
7	J	1358	

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 26842 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 DNA chain called DNA (39-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	19	Total	C	N	O	P	0	0
			388	186	78	107	17		

- Molecule 2 is a DNA chain called DNA (31-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	31	Total	C	N	O	P	0	0
			631	301	107	192	31		

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	221	Total	C	N	O	S	0	0
			1708	1069	303	330	6		
3	H	219	Total	C	N	O	S	0	0
			1693	1058	298	331	6		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	235	GLU	-	expression tag	UNP A0A5B9AW69
H	235	GLU	-	expression tag	UNP A0A5B9AW69

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	K	79	Total	C	N	O	S	0	0
			627	382	118	126	1		

- Molecule 5 is a RNA chain called RNA (47-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	R	47	Total	C	N	O	P	0	0
			997	449	185	317	46		

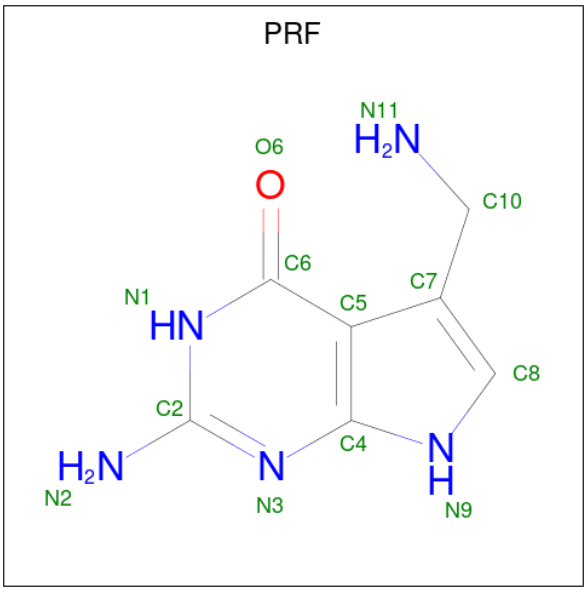
- Molecule 6 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	I	1316	Total	C	N	O	S	0	0
			10381	6514	1810	2014	43		

- Molecule 7 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	J	1337	Total	C	N	O	S	0	0
			10403	6536	1856	1961	50		

- Molecule 8 is 7-DEAZA-7-AMINOMETHYL-GUANINE (three-letter code: PRF) (formula: $C_7H_9N_5O$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
8	R	1	Total	C	N	O	0
			13	7	5	1	

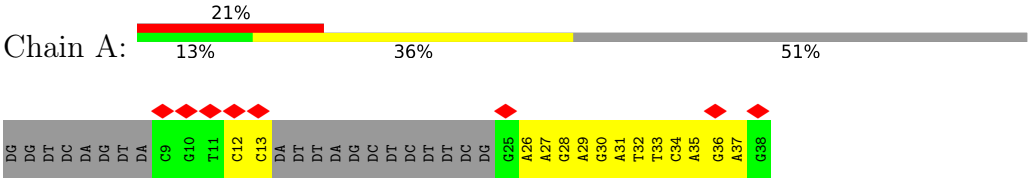
- Molecule 9 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
9	J	1	1	1	0

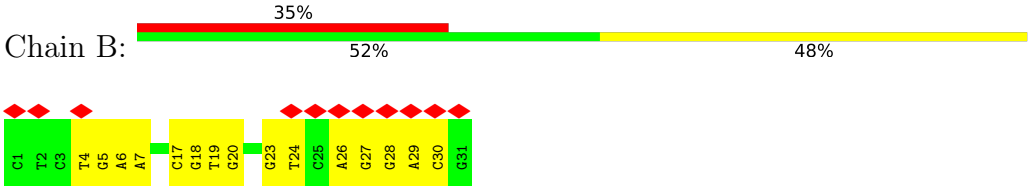
3 Residue-property plots (i)

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

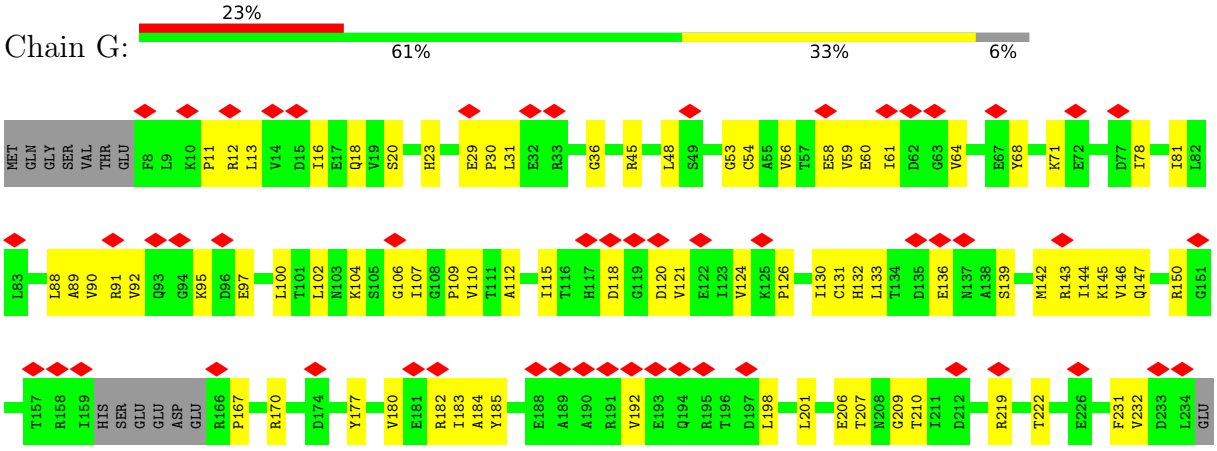
• Molecule 1: DNA (39-mer)



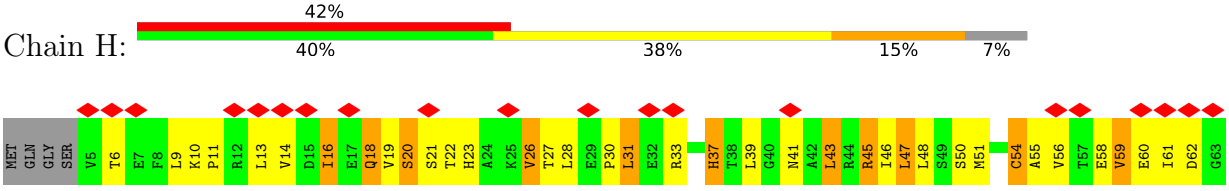
• Molecule 2: DNA (31-MER)

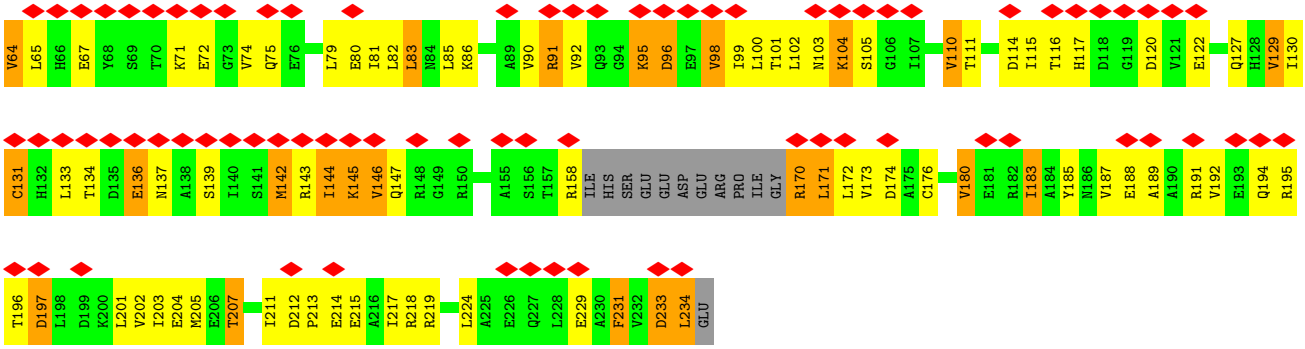


• Molecule 3: DNA-directed RNA polymerase subunit alpha

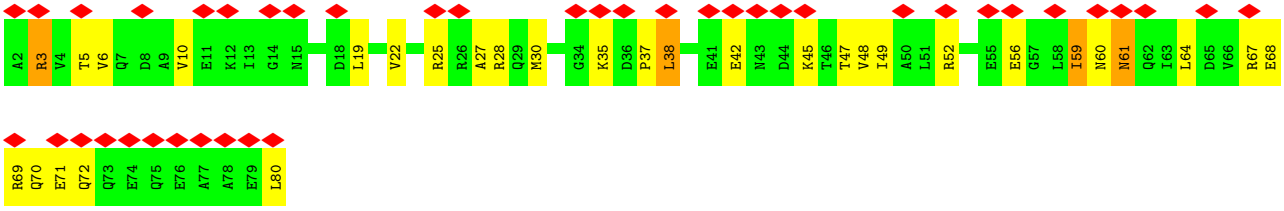


• Molecule 3: DNA-directed RNA polymerase subunit alpha

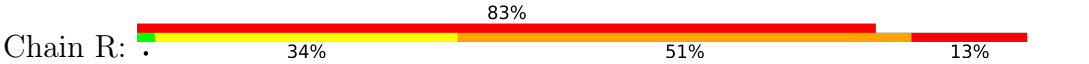




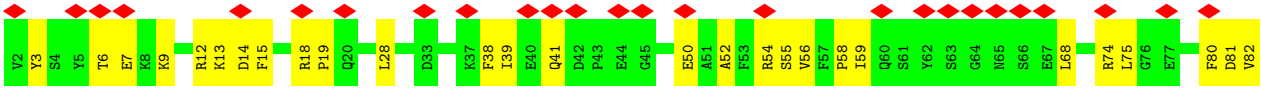
• Molecule 4: DNA-directed RNA polymerase subunit omega

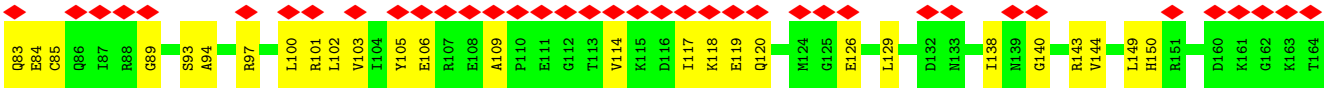


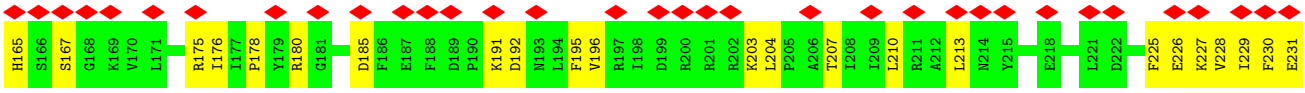
• Molecule 5: RNA (47-MER)

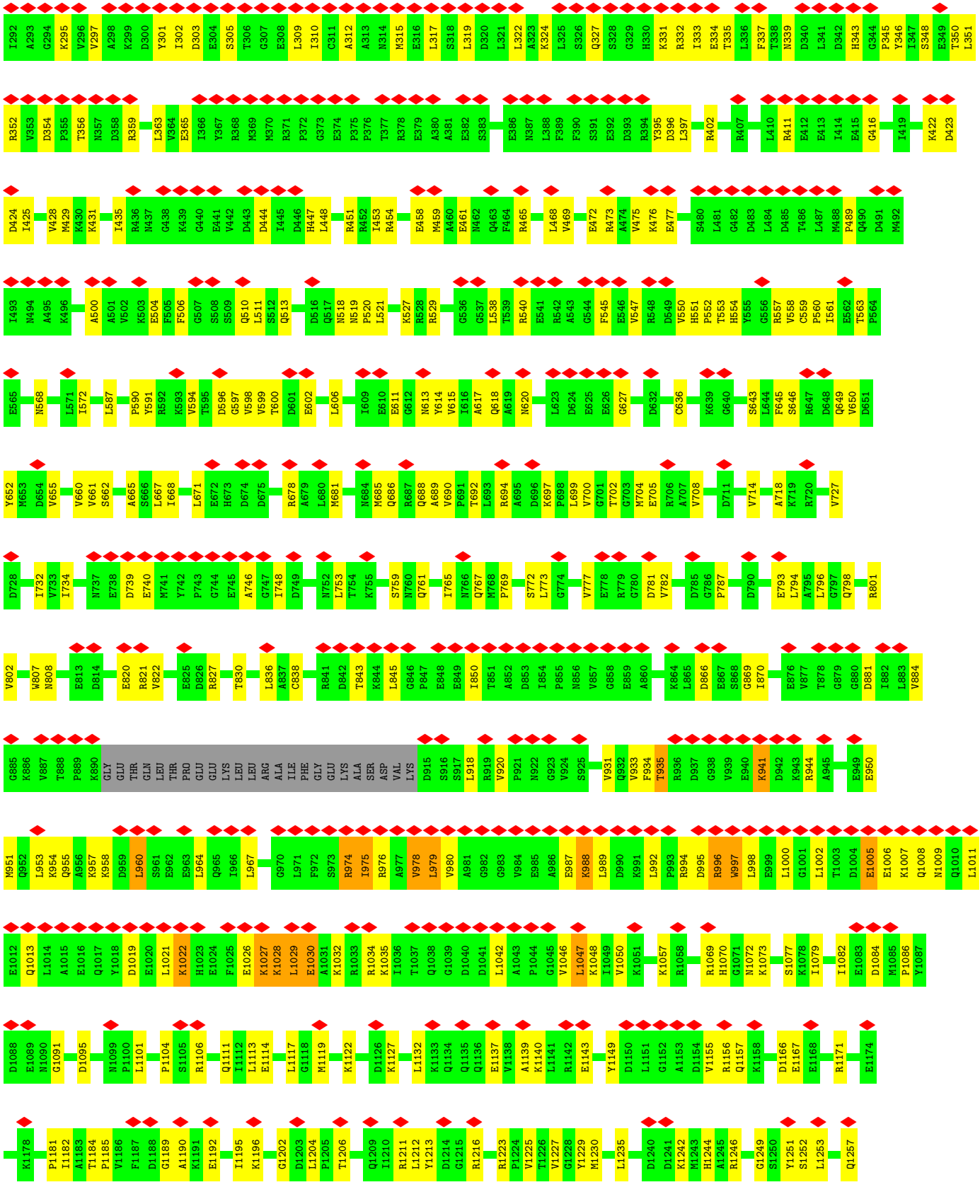


• Molecule 6: DNA-directed RNA polymerase subunit beta





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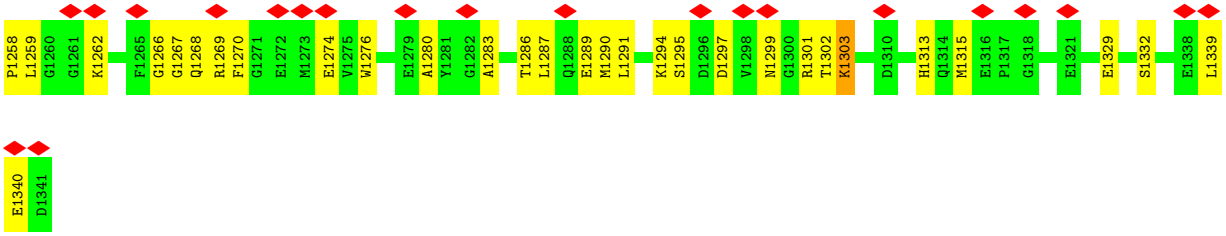
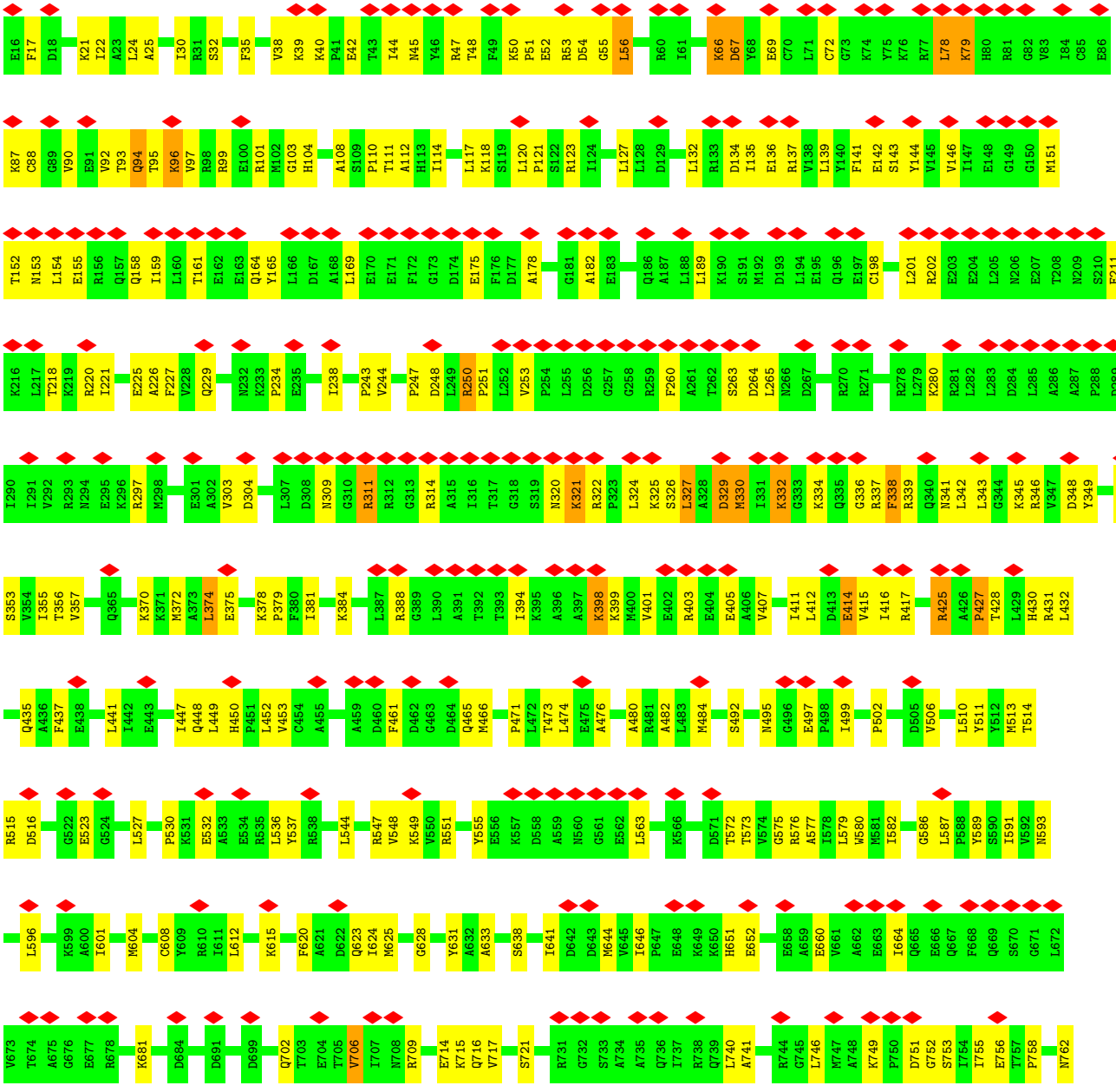
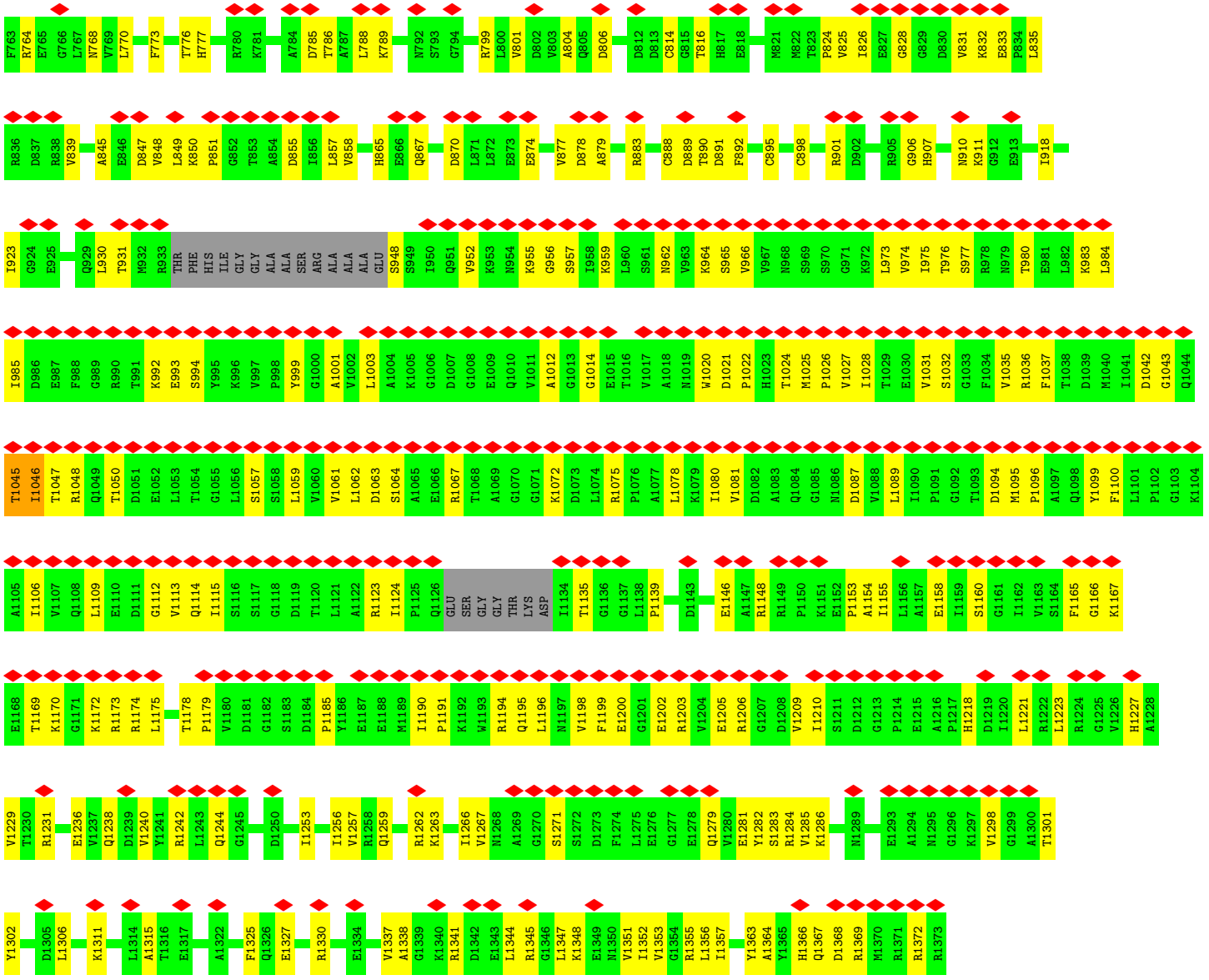
R352 V353 D354 P355 T356 N357 D358 R359 L363 V364 E365 I366 Y367 R368 M369 M370 R371 P372 G373 E374 P375 P376 T377 R378 E379 A380 A381 E382 S383 E386 N387 L388 F389 F390 S391 E392 D393 R394 Y395 D396 L397 R402 R407 L410 R411 E412 E413 I414 E415 G416 I419 K422 D423
D424 I425 V428 M429 K430 K431 I435 R436 N437 G438 K439 G440 E441 V442 D443 D444 I445 D446 H447 L448 R451 R452 I453 R454 E458 M459 A460 E461 N462 Q463 F464 R465 L468 V469 E472 R473 A474 V475 K476 E477 S480 L481 G482 D483 L484 D485 T486 L487 M488 P489 Q490 D491 M492
I493 N494 A495 K496 A500 A501 V502 K503 E504 F505 F506 G507 S508 S509 Q510 L511 S512 Q513 D516 Q517 N518 N519 P520 L521 K527 R528 R529 G536 G537 L538 T539 R540 E541 R542 A543 G544 F545 E546 V547 R548 D549 V550 H551 P552 T553 H554 Y555 G556 R557 V558 C559 P560 I561 E562 T563 P564
E565 N568 L571 I572 L587 P590 Y591 R592 K593 V594 T595 D596 G597 V598 V599 T600 D601 E602 L606 I609 E610 E611 G612 N613 Y614 V615 I616 A617 Q618 A619 N620 L623 D624 E625 E626 G627 D632 C636 K639 G640 S643 L644 F645 S646 R647 D648 Q649 V650 D651
Y652 M653 D654 V655 V660 V661 S662 A665 S666 L667 I668 L671 E672 H673 D674 D675 R678 A679 L680 M681 M684 M685 Q686 R687 Q688 A689 V690 P691 T692 L693 R694 A695 D696 K697 P698 L699 V700 G701 T702 G703 M704 E705 R706 A707 V708 D711 V714 A718 K719 R720 V727
D728 I732 V733 I734 N737 E738 D739 E740 M741 Y742 P743 G744 E745 A746 G747 I748 D749 N752 L753 T754 K755 S759 N760 Q761 I765 N766 Q767 M768 P769 S772 L773 G774 V777 E778 R779 G780 D781 V782 D785 G786 P787 D790 E793 L794 A795 L796 G797 Q798 R801
V802 W807 N808 E813 D814 E820 R821 V822 E825 D826 R827 T830 L836 A837 C838 R841 D842 T843 K844 L845 G846 P847 E848 E849 I850 T851 A852 D853 I854 P855 N856 V857 G858 E859 A860 K864 L865 D866 E867 S868 G869 I870 E876 V877 T878 G879 G880 D881 I882 L883 V884
G885 K886 V887 T888 P889 K890 GLY GLU THR GLN LEU THR PRO GLU GLU LYS LEU LEU ARG ALA ILE PHE GLY GLU LYS ALA SER ASP VAL LYS D915 S916 S917 L918 R919 V920 P921 N922 G923 V924 S925 V931 Q932 V933 F934 T935 R936 D937 G938 V939 E940 K941 D942 K943 R944 A945 E949 E950
M951 Q952 L953 K954 Q955 A956 K957 K958 D959 L960 S961 E962 E963 L964 Q965 I966 L967 G970 L971 F972 S973 R974 I975 R976 A977 V978 L979 V980 A981 G982 G983 V984 E985 A986 E987 K988 L989 D990 K991 L992 P993 R994 D995 R996 W997 L998 E999 L1000 G1001 L1002 T1003 D1004 E1005 E1006 K1007 Q1008 N1009 Q1010 L1011
E1012 Q1013 L1014 A1015 E1016 Q1017 Y1018 D1019 E1020 L1021 K1022 H1023 E1024 F1025 E1026 K1027 K1028 L1029 E1030 A1031 K1032 R1033 R1034 K1035 I1036 T1037 Q1038 G1039 D1040 D1041 L1042 A1043 P1044 G1045 V1046 L1047 K1048 T1049 V1050 K1051 K1057 R1058 R1069 H1070 G1071 N1072 K1073 S1077 K1078 I1079 I1082 E1083 D1084 M1085 P1086 Y1087
D1088 E1089 N1090 G1091 D1095 N1099 P1100 L1101 P1104 S1105 R1106 Q1111 I1112 L1113 E1114 L1117 G1118 M1119 K1122 D1126 K1127 L1132 K1133 Q1134 Q1135 Q1136 E1137 V1138 A1139 K1140 L1141 R1142 E1143 Y1149 D1150 L1151 G1152 A1153 D1154 V1155 R1156 Q1157 K1158 D1166 E1167 E1168 R1171 E1174
K1178 P1181 I1182 A1183 T1184 P1185 V1186 F1187 D1188 G1189 A1190 K1191 E1192 I1195 K1196 G1202 D1203 L1204 P1205 T1206 Q1209 I1210 R1211 L1212 Y1213 D1214 G1215 R1216 R1223 P1224 V1225 T1226 V1227 G1228 Y1229 M1230 L1235 D1240 D1241 K1242 M1243 H1244 A1245 R1246 G1249 S1250 Y1251 S1252 L1253 Q1257



• Molecule 7: DNA-directed RNA polymerase subunit beta'

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R836 D837 R838 V839 A845 E846 D847 V848 L849 K850 P851 G852 T853 A854 D855 I856 L857 V858 H865 E866 Q867 D870 L871 L872 E873 E874 V877 D878 A879 R883 C888 D889 T890 D891 F892 C895 C898 R901 D902 R905 G906 H907 N910 K911 G912 E913 I918
I923 G924 E925 Q929 L930 T931 M932 R933 THR PHE HIS ILE GLY GLY ALA ALA SER ARG ALA ALA ALA GLU S948 S949 I950 Q951 V952 K953 N954 K955 G956 S957 I958 K959 L960 S961 N962 V963 K964 S965 V966 V967 N968 S969 S970 G971 K972 L973 V974 I975 T976 S977 R978 N979 T980 E981 L982 K983 L984
I985 D986 E987 F988 G989 R990 T991 K992 E993 S994 Y995 K996 V997 P998 Y999 G1000 A1001 V1002 L1003 A1004 K1005 G1006 D1007 G1008 E1009 Q1010 V1011 A1012 G1013 G1014 E1015 T1016 V1017 A1018 N1019 W1020 D1021 P1022 H1023 T1024 M1025 P1026 V1027 I1028 T1029 E1030 V1031 S1032 G1033 F1034 V1035 R1036 F1037 T1038 D1039 M1040 I1041 D1042 G1043 Q1044
T1045 I1046 T1047 R1048 Q1049 T1050 D1051 E1052 L1053 T1054 G1055 L1056 S1057 S1058 L1059 V1060 V1061 L1062 D1063 S1064 A1065 E1066 R1067 T1068 A1069 G1070 G1071 K1072 D1073 L1074 R1075 P1076 A1077 L1078 K1079 I1080 V1081 D1082 A1083 Q1084 G1085 N1086 D1087 V1088 L1089 I1090 P1091 G1092 T1093 D1094 M1095 P1096 A1097 Q1098 Y1099 F1100 L1101 P1102 G1103 K1104
A1105 I1106 V1107 Q1108 L1109 E1110 D1111 G1112 V1113 Q1114 I1115 S1116 S1117 G1118 D1119 T1120 L1121 A1122 R1123 I1124 P1125 Q1126 GLU SER GLY GLY THR LYS ASP I1134 T1135 G1136 G1137 L1138 P1139 D1143 E1146 A1147 R1148 R1149 P1150 K1151 E1152 P1153 A1154 I1155 L1156 A1157 E1158 I1159 S1160 G1161 I1162 V1163 S1164 F1165 G1166 K1167
E1168 T1169 K1170 G1171 K1172 R1173 R1174 L1175 T1178 P1179 V1180 D1181 G1182 S1183 D1184 P1185 Y1186 E1187 E1188 M1189 I1190 P1191 K1192 W1193 R1194 Q1195 L1196 N1197 V1198 F1199 E1200 G1201 E1202 R1203 V1204 E1205 R1206 G1207 D1208 V1209 I1210 S1211 D1212 G1213 P1214 E1215 A1216 P1217 H1218 D1219 I1220 L1221 R1222 L1223 R1224 G1225 V1226 H1227 A1228
V1229 T1230 R1231 E1236 V1237 Q1238 D1239 V1240 Y1241 R1242 L1243 Q1244 G1245 D1250 I1253 I1256 V1257 R1258 Q1259 R1262 K1263 I1266 V1267 N1268 A1269 G1270 S1271 S1272 D1273 F1274 L1275 E1276 G1277 E1278 Q1279 V1280 E1281 Y1282 S1283 R1284 V1285 K1286 N1289 E1293 A1294 N1295 G1296 K1297 V1298 G1299 A1300 T1301
Y1302 D1305 L1306 K1311 L1314 A1315 T1316 E1317 A1322 F1325 Q1326 E1327 R1330 E1334 V1337 A1338 G1339 K1340 R1341 D1342 E1343 L1344 R1345 G1346 L1347 K1348 E1349 N1350 V1351 I1352 V1353 G1354 R1355 L1356 I1357 Y1363 A1364 Y1365 H1366 Q1367 D1368 R1369 M1370 R1371 R1372 R1373

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	51824	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	62.00	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.135	Depositor
Minimum map value	-0.541	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.047	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	300.0, 300.0, 300.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0, 1.0, 1.0	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.57	0/436	0.85	0/670
2	B	0.49	0/704	0.95	0/1084
3	G	0.27	0/1728	0.50	0/2341
3	H	0.62	0/1712	0.73	0/2320
4	K	0.59	0/629	0.68	0/847
5	R	2.95	109/1116 (9.8%)	3.01	179/1736 (10.3%)
6	I	0.34	0/10547	0.53	0/14232
7	J	0.35	0/10560	0.54	0/14257
All	All	0.70	109/27432 (0.4%)	0.86	179/37487 (0.5%)

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
5	R	0	13

All (109) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	13	G	C6-N1	12.38	1.48	1.39
5	R	18	A	N7-C5	-11.81	1.32	1.39
5	R	4	G	N7-C5	-11.62	1.32	1.39
5	R	28	A	C6-N6	11.09	1.42	1.33
5	R	4	G	N1-C2	10.81	1.46	1.37
5	R	27	A	P-O5'	-10.69	1.49	1.59
5	R	1	G	C6-N1	10.63	1.47	1.39
5	R	32	A	C6-N1	10.21	1.42	1.35
5	R	33	C	N1-C6	10.17	1.43	1.37
5	R	25	A	C5-C4	10.12	1.45	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	8	U	N3-C4	10.05	1.47	1.38
5	R	24	U	C4-C5	9.87	1.52	1.43
5	R	9	U	N1-C6	9.21	1.46	1.38
5	R	33	C	P-O5'	-9.08	1.50	1.59
5	R	24	U	O3'-P	-9.08	1.50	1.61
5	R	25	A	C6-N6	8.96	1.41	1.33
5	R	25	A	C6-N1	8.95	1.41	1.35
5	R	20	C	C3'-C2'	8.94	1.62	1.52
5	R	32	A	N3-C4	-8.89	1.29	1.34
5	R	21	C	N3-C4	8.81	1.40	1.33
5	R	3	A	C5'-C4'	8.59	1.61	1.51
5	R	13	G	C2'-C1'	-8.57	1.44	1.53
5	R	33	C	N3-C4	8.53	1.40	1.33
5	R	12	A	N7-C5	-8.46	1.34	1.39
5	R	7	G	N7-C5	-8.44	1.34	1.39
5	R	14	C	C5'-C4'	8.41	1.61	1.51
5	R	4	G	C2-N2	8.39	1.43	1.34
5	R	6	G	C2-N3	8.13	1.39	1.32
5	R	12	A	N9-C8	8.11	1.44	1.37
5	R	29	A	C2'-C1'	-8.07	1.44	1.53
5	R	7	G	N9-C4	8.01	1.44	1.38
5	R	18	A	C5'-C4'	7.96	1.60	1.51
5	R	30	A	C6-N6	7.86	1.40	1.33
5	R	22	U	C2-N3	7.84	1.43	1.37
5	R	17	C	C2'-C1'	7.68	1.61	1.53
5	R	6	G	N9-C4	-7.44	1.31	1.38
5	R	15	U	C5'-C4'	7.43	1.60	1.51
5	R	1	G	N1-C2	7.42	1.43	1.37
5	R	4	G	C5'-C4'	7.42	1.60	1.51
5	R	20	C	N1-C6	-7.39	1.32	1.37
5	R	13	G	C8-N7	7.35	1.35	1.30
5	R	3	A	C4'-O4'	-7.32	1.36	1.45
5	R	29	A	C5-C4	7.22	1.43	1.38
5	R	24	U	C3'-C2'	7.21	1.60	1.52
5	R	6	G	C5'-C4'	7.17	1.59	1.51
5	R	8	U	N1-C2	7.15	1.45	1.38
5	R	18	A	C6-N6	6.90	1.39	1.33
5	R	5	A	N9-C4	6.84	1.42	1.37
5	R	31	A	N7-C5	-6.84	1.35	1.39
5	R	27	A	C8-N7	-6.83	1.26	1.31
5	R	20	C	O3'-P	-6.80	1.52	1.61
5	R	2	C	N1-C6	6.80	1.41	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	21	C	C5'-C4'	6.79	1.59	1.51
5	R	7	G	N1-C2	6.75	1.43	1.37
5	R	8	U	C4'-O4'	6.73	1.54	1.45
5	R	9	U	N3-C4	6.47	1.44	1.38
5	R	1	G	C2-N3	6.40	1.37	1.32
5	R	14	C	P-O5'	-6.37	1.53	1.59
5	R	9	U	C2'-C1'	-6.36	1.46	1.53
5	R	30	A	N1-C2	-6.34	1.28	1.34
5	R	10	C	N3-C4	6.31	1.38	1.33
5	R	10	C	C1'-N1	6.26	1.58	1.48
5	R	10	C	C2-N3	6.18	1.40	1.35
5	R	32	A	N9-C8	6.14	1.42	1.37
5	R	18	A	C2'-C1'	-6.11	1.46	1.53
5	R	5	A	C4'-C3'	-6.08	1.46	1.53
5	R	11	U	N3-C4	6.06	1.44	1.38
5	R	19	C	P-O5'	-6.05	1.53	1.59
5	R	10	C	N1-C6	6.02	1.40	1.37
5	R	21	C	C4'-C3'	6.02	1.59	1.53
5	R	31	A	C2-N3	6.00	1.39	1.33
5	R	16	A	N1-C2	-5.98	1.28	1.34
5	R	2	C	C2'-C1'	-5.94	1.46	1.53
5	R	7	G	N9-C8	-5.94	1.33	1.37
5	R	10	C	O3'-P	-5.81	1.54	1.61
5	R	21	C	C5-C6	5.79	1.39	1.34
5	R	13	G	C2-N2	5.78	1.40	1.34
5	R	24	U	C2-N3	5.76	1.41	1.37
5	R	14	C	C4-N4	5.71	1.39	1.33
5	R	11	U	C5-C6	-5.67	1.29	1.34
5	R	25	A	N9-C8	5.63	1.42	1.37
5	R	6	G	C6-O6	-5.61	1.19	1.24
5	R	14	C	C2'-C1'	5.61	1.59	1.53
5	R	25	A	N7-C5	-5.59	1.35	1.39
5	R	30	A	C6-N1	5.51	1.39	1.35
5	R	19	C	C4-N4	5.49	1.38	1.33
5	R	20	C	C2-N3	5.47	1.40	1.35
5	R	15	U	C4'-C3'	5.46	1.59	1.53
5	R	12	A	C2'-O2'	-5.46	1.34	1.41
5	R	26	U	C5-C6	5.45	1.39	1.34
5	R	20	C	N3-C4	5.41	1.37	1.33
5	R	15	U	N1-C2	5.38	1.43	1.38
5	R	4	G	C2-N3	5.38	1.37	1.32
5	R	24	U	C2'-C1'	-5.37	1.47	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	18	A	N3-C4	5.31	1.38	1.34
5	R	30	A	N3-C4	-5.29	1.31	1.34
5	R	29	A	C3'-O3'	5.24	1.49	1.42
5	R	22	U	C5-C6	-5.22	1.29	1.34
5	R	27	A	C4'-O4'	-5.22	1.38	1.45
5	R	27	A	C5-C6	5.21	1.45	1.41
5	R	25	A	C5'-C4'	5.20	1.57	1.51
5	R	2	C	C2-N3	-5.18	1.31	1.35
5	R	5	A	C6-N6	5.17	1.38	1.33
5	R	8	U	C4-C5	5.12	1.48	1.43
5	R	10	C	P-O5'	-5.10	1.54	1.59
5	R	13	G	N9-C4	5.08	1.42	1.38
5	R	9	U	O3'-P	-5.07	1.55	1.61
5	R	23	C	C2-O2	5.01	1.28	1.24
5	R	19	C	O5'-C5'	5.00	1.52	1.44

All (179) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	18	A	N1-C6-N6	16.24	128.34	118.60
5	R	27	A	N1-C6-N6	16.08	128.25	118.60
5	R	3	A	N1-C6-N6	14.99	127.59	118.60
5	R	29	A	N1-C6-N6	14.57	127.34	118.60
5	R	14	C	N3-C4-N4	13.81	127.67	118.00
5	R	12	A	N1-C6-N6	13.79	126.87	118.60
5	R	32	A	N1-C6-N6	13.26	126.56	118.60
5	R	16	A	C5-C6-N1	-13.21	111.09	117.70
5	R	16	A	N1-C6-N6	13.02	126.41	118.60
5	R	27	A	C5-C6-N1	-12.91	111.25	117.70
5	R	14	C	N3-C4-C5	-12.30	116.98	121.90
5	R	5	A	N1-C6-N6	12.22	125.94	118.60
5	R	33	C	N3-C4-N4	11.87	126.31	118.00
5	R	29	A	C5-C6-N6	-11.79	114.27	123.70
5	R	21	C	O4'-C1'-N1	11.56	117.44	108.20
5	R	27	A	C4-C5-C6	11.28	122.64	117.00
5	R	3	A	C5-C6-N6	-11.11	114.81	123.70
5	R	6	G	N1-C6-O6	10.97	126.48	119.90
5	R	13	G	C2-N3-C4	10.90	117.35	111.90
5	R	30	A	N1-C6-N6	10.74	125.05	118.60
5	R	6	G	N9-C4-C5	10.67	109.67	105.40
5	R	18	A	C5-C6-N6	-10.35	115.42	123.70
5	R	28	A	N1-C6-N6	10.27	124.76	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	6	G	C4-C5-N7	-9.67	106.93	110.80
5	R	15	U	C6-N1-C2	-9.59	115.25	121.00
5	R	32	A	C2-N3-C4	9.45	115.32	110.60
5	R	15	U	C2-N1-C1'	9.38	128.96	117.70
5	R	13	G	N3-C4-C5	-9.38	123.91	128.60
5	R	13	G	C5-C6-O6	-9.36	122.99	128.60
5	R	22	U	C2-N3-C4	-9.24	121.46	127.00
5	R	33	C	C5-C4-N4	-9.19	113.77	120.20
5	R	8	U	C2-N3-C4	-9.18	121.49	127.00
5	R	17	C	N3-C4-C5	-9.15	118.24	121.90
5	R	31	A	C5-C6-N1	-9.14	113.13	117.70
5	R	7	G	C8-N9-C4	-9.12	102.75	106.40
5	R	20	C	N3-C4-C5	-9.07	118.27	121.90
5	R	11	U	C5-C6-N1	9.03	127.21	122.70
5	R	11	U	O4'-C1'-N1	9.03	115.42	108.20
5	R	10	C	C2-N3-C4	-8.73	115.53	119.90
5	R	13	G	N3-C4-N9	8.61	131.16	126.00
5	R	28	A	O4'-C1'-N9	8.54	115.03	108.20
5	R	32	A	C5-N7-C8	8.49	108.15	103.90
5	R	3	A	P-O5'-C5'	8.48	134.47	120.90
5	R	20	C	O4'-C1'-N1	8.42	114.94	108.20
5	R	13	G	N1-C6-O6	8.35	124.91	119.90
5	R	19	C	C5'-C4'-O4'	8.29	119.05	109.10
5	R	26	U	N1-C2-O2	-8.25	117.02	122.80
5	R	31	A	C4-C5-N7	-8.12	106.64	110.70
5	R	22	U	O4'-C1'-N1	8.04	114.63	108.20
5	R	26	U	N1-C2-N3	7.99	119.69	114.90
5	R	18	A	C4-C5-C6	7.99	120.99	117.00
5	R	2	C	N3-C4-C5	-7.80	118.78	121.90
5	R	28	A	C5-C6-N6	-7.75	117.50	123.70
5	R	28	A	N1-C2-N3	7.67	133.13	129.30
5	R	17	C	N3-C4-N4	7.66	123.36	118.00
5	R	2	C	C2-N3-C4	7.65	123.73	119.90
5	R	16	A	C4-C5-C6	7.63	120.82	117.00
5	R	29	A	N9-C4-C5	7.63	108.85	105.80
5	R	7	G	N3-C2-N2	7.62	125.24	119.90
5	R	11	U	C1'-O4'-C4'	-7.58	103.83	109.90
5	R	14	C	C2-N3-C4	7.43	123.62	119.90
5	R	32	A	C5-C6-N6	-7.39	117.78	123.70
5	R	18	A	C5-N7-C8	7.37	107.58	103.90
5	R	12	A	C5-N7-C8	7.36	107.58	103.90
5	R	29	A	C2-N3-C4	7.34	114.27	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	31	A	C5-N7-C8	7.29	107.54	103.90
5	R	2	C	O4'-C1'-N1	7.26	114.01	108.20
5	R	5	A	C5-C6-N6	-7.26	117.89	123.70
5	R	7	G	C5-C6-N1	-7.26	107.87	111.50
5	R	30	A	C5-C6-N6	-7.21	117.94	123.70
5	R	14	C	C5-C4-N4	-7.12	115.22	120.20
5	R	12	A	O4'-C1'-N9	7.10	113.88	108.20
5	R	32	A	P-O3'-C3'	7.09	128.21	119.70
5	R	6	G	C5-C6-O6	-7.07	124.36	128.60
5	R	17	C	C4-C5-C6	7.04	120.92	117.40
5	R	31	A	C2-N3-C4	-7.00	107.10	110.60
5	R	7	G	C6-C5-N7	-7.00	126.20	130.40
5	R	5	A	O4'-C1'-N9	6.99	113.80	108.20
5	R	14	C	C2-N1-C1'	6.99	126.49	118.80
5	R	1	G	C4-C5-C6	6.92	122.95	118.80
5	R	22	U	N3-C4-O4	-6.76	114.67	119.40
5	R	2	C	C6-N1-C2	-6.74	117.60	120.30
5	R	12	A	C5-C6-N6	-6.71	118.33	123.70
5	R	28	A	N7-C8-N9	-6.68	110.46	113.80
5	R	21	C	P-O3'-C3'	6.67	127.70	119.70
5	R	4	G	N1-C6-O6	6.63	123.88	119.90
5	R	10	C	N3-C4-C5	6.61	124.54	121.90
5	R	1	G	C5-C6-N1	-6.60	108.20	111.50
5	R	28	A	C2-N3-C4	-6.60	107.30	110.60
5	R	17	C	P-O5'-C5'	6.59	131.45	120.90
5	R	6	G	C4-C5-C6	6.57	122.74	118.80
5	R	7	G	N1-C6-O6	6.55	123.83	119.90
5	R	13	G	C6-C5-N7	-6.54	126.48	130.40
5	R	5	A	C2-N3-C4	-6.47	107.37	110.60
5	R	33	C	O4'-C1'-N1	6.46	113.37	108.20
5	R	18	A	N7-C8-N9	-6.45	110.58	113.80
5	R	1	G	O4'-C1'-N9	6.41	113.33	108.20
5	R	14	C	O4'-C1'-N1	6.40	113.32	108.20
5	R	31	A	C4-C5-C6	6.38	120.19	117.00
5	R	12	A	C4-C5-C6	6.35	120.18	117.00
5	R	29	A	C6-C5-N7	6.35	136.75	132.30
5	R	19	C	N1-C2-O2	6.32	122.69	118.90
5	R	28	A	C4-C5-C6	6.29	120.14	117.00
5	R	1	G	N1-C2-N3	-6.27	120.14	123.90
5	R	32	A	C5'-C4'-O4'	6.23	116.58	109.10
5	R	23	C	O4'-C1'-N1	6.11	113.09	108.20
5	R	31	A	N9-C4-C5	6.10	108.24	105.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	27	A	C8-N9-C4	-6.08	103.37	105.80
5	R	7	G	C4-C5-C6	6.06	122.44	118.80
5	R	21	C	C2-N3-C4	5.98	122.89	119.90
5	R	22	U	N3-C4-C5	5.96	118.17	114.60
5	R	31	A	P-O3'-C3'	5.95	126.83	119.70
5	R	19	C	C5-C6-N1	5.94	123.97	121.00
5	R	13	G	O4'-C1'-N9	5.93	112.95	108.20
5	R	27	A	N3-C4-C5	-5.93	122.65	126.80
5	R	32	A	P-O5'-C5'	5.86	130.28	120.90
5	R	33	C	N3-C4-C5	-5.84	119.56	121.90
5	R	1	G	C4-C5-N7	-5.82	108.47	110.80
5	R	12	A	C5-C6-N1	-5.82	114.79	117.70
5	R	20	C	C4'-C3'-C2'	-5.79	96.81	102.60
5	R	6	G	P-O3'-C3'	-5.77	112.78	119.70
5	R	12	A	N7-C8-N9	-5.72	110.94	113.80
5	R	31	A	C6-N1-C2	5.69	122.02	118.60
5	R	24	U	C2-N3-C4	-5.69	123.59	127.00
5	R	11	U	C6-N1-C2	-5.68	117.59	121.00
5	R	24	U	C5-C4-O4	-5.66	122.50	125.90
5	R	28	A	C5-N7-C8	5.65	106.72	103.90
5	R	5	A	N1-C2-N3	5.63	132.12	129.30
5	R	20	C	C3'-C2'-C1'	5.63	106.00	101.50
5	R	19	C	N3-C4-N4	5.62	121.93	118.00
5	R	19	C	C2-N3-C4	5.60	122.70	119.90
5	R	6	G	O4'-C1'-N9	5.59	112.67	108.20
5	R	9	U	N1-C2-O2	-5.58	118.89	122.80
5	R	26	U	C2-N3-C4	-5.58	123.65	127.00
5	R	19	C	O5'-P-OP2	5.58	117.39	110.70
5	R	13	G	C3'-C2'-C1'	5.57	105.96	101.50
5	R	19	C	C5-C4-N4	-5.56	116.31	120.20
5	R	23	C	C5-C4-N4	-5.54	116.32	120.20
5	R	23	C	N3-C4-N4	5.53	121.87	118.00
5	R	4	G	N1-C2-N3	-5.52	120.59	123.90
5	R	4	G	O4'-C1'-N9	5.52	112.62	108.20
5	R	25	A	C5-C6-N1	5.47	120.44	117.70
5	R	31	A	N1-C6-N6	5.46	121.88	118.60
5	R	29	A	C4-C5-N7	-5.45	107.97	110.70
5	R	25	A	C5-N7-C8	5.45	106.62	103.90
5	R	28	A	P-O3'-C3'	5.44	126.22	119.70
5	R	11	U	C2-N1-C1'	5.41	124.20	117.70
5	R	32	A	O4'-C1'-N9	5.40	112.52	108.20
5	R	12	A	N1-C2-N3	-5.40	126.60	129.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	12	A	C6-N1-C2	5.38	121.83	118.60
5	R	23	C	C4'-C3'-C2'	-5.38	97.22	102.60
5	R	4	G	C8-N9-C4	-5.38	104.25	106.40
5	R	27	A	O4'-C1'-N9	5.37	112.49	108.20
5	R	9	U	N3-C4-C5	-5.32	111.41	114.60
5	R	6	G	N3-C4-C5	-5.31	125.94	128.60
5	R	22	U	P-O5'-C5'	5.30	129.38	120.90
5	R	4	G	OP1-P-OP2	-5.30	111.66	119.60
5	R	2	C	C2-N1-C1'	5.29	124.62	118.80
5	R	15	U	C5-C6-N1	5.29	125.34	122.70
5	R	20	C	C4-C5-C6	5.28	120.04	117.40
5	R	4	G	N3-C2-N2	5.28	123.59	119.90
5	R	29	A	C8-N9-C4	-5.27	103.69	105.80
5	R	14	C	C5-C6-N1	5.25	123.63	121.00
5	R	13	G	C1'-O4'-C4'	-5.24	105.71	109.90
5	R	19	C	O4'-C1'-N1	5.21	112.37	108.20
5	R	30	A	O4'-C1'-N9	5.18	112.34	108.20
5	R	12	A	N3-C4-C5	-5.17	123.18	126.80
5	R	16	A	C6-C5-N7	-5.16	128.69	132.30
5	R	3	A	C4-C5-C6	5.14	119.57	117.00
5	R	17	C	O4'-C1'-N1	5.13	112.31	108.20
5	R	7	G	N9-C1'-C2'	-5.12	106.37	112.00
5	R	8	U	N3-C4-C5	5.12	117.67	114.60
5	R	22	U	C6-N1-C2	5.12	124.07	121.00
5	R	4	G	C5-C6-O6	-5.11	125.54	128.60
5	R	3	A	C2-N3-C4	5.08	113.14	110.60
5	R	6	G	O4'-C4'-C3'	-5.06	98.94	104.00
5	R	14	C	C6-N1-C1'	-5.05	114.73	120.80
5	R	31	A	N3-C4-N9	-5.05	123.36	127.40
5	R	25	A	C8-N9-C4	-5.05	103.78	105.80

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	R	1	G	Sidechain
5	R	10	C	Sidechain
5	R	12	A	Sidechain
5	R	13	G	Sidechain
5	R	19	C	Sidechain
5	R	21	C	Sidechain
5	R	23	C	Sidechain

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Mol	Chain	Res	Type	Group
5	R	24	U	Sidechain
5	R	30	A	Sidechain
5	R	31	A	Sidechain
5	R	4	G	Sidechain
5	R	7	G	Sidechain
5	R	9	U	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	388	0	216	11	0
2	B	631	0	352	13	0
3	G	1708	0	1752	53	0
3	H	1693	0	1727	66	0
4	K	627	0	634	10	0
5	R	997	0	511	10	0
6	I	10381	0	10391	321	0
7	J	10403	0	10636	374	0
8	R	13	0	9	0	0
9	J	1	0	0	0	0
All	All	26842	0	26228	792	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 15.

All (792) 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)
3:H:16:ILE:CG2	3:H:26:VAL:HG13	1.63	1.25
7:J:1048:ARG:HG2	7:J:1059:LEU:CD2	1.68	1.21
7:J:1048:ARG:CG	7:J:1059:LEU:CD2	2.19	1.19
7:J:118:LYS:CE	7:J:136:GLU:OE2	1.90	1.19
6:I:1294:LYS:HG2	7:J:348:ASP:OD1	1.44	1.15
7:J:118:LYS:HE2	7:J:136:GLU:OE2	0.99	1.15
7:J:1048:ARG:CG	7:J:1059:LEU:HD23	1.79	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:1048:ARG:HG2	7:J:1059:LEU:HD23	1.28	1.09
7:J:375:GLU:HA	7:J:378:LYS:HE3	1.12	1.08
3:H:16:ILE:HG23	3:H:26:VAL:CG1	1.82	1.08
7:J:1048:ARG:CG	7:J:1059:LEU:HD21	1.84	1.06
3:H:41:ASN:ND2	3:H:45:ARG:NH1	2.09	1.00
7:J:114:ILE:HD11	7:J:118:LYS:HD2	1.43	0.99
7:J:348:ASP:OD2	7:J:349:TYR:CE2	2.17	0.97
7:J:1048:ARG:HG3	7:J:1059:LEU:CD2	1.90	0.97
6:I:1257:GLN:CG	6:I:1258:PRO:HD3	1.95	0.96
7:J:375:GLU:CA	7:J:378:LYS:HE3	1.94	0.96
3:H:16:ILE:HG23	3:H:26:VAL:HG13	0.98	0.96
3:H:41:ASN:HD21	3:H:45:ARG:NH1	1.63	0.95
7:J:375:GLU:HA	7:J:378:LYS:CE	1.94	0.95
7:J:251:PRO:HB2	7:J:253:VAL:HG22	1.48	0.94
3:H:22:THR:CG2	3:H:207:THR:O	2.18	0.92
3:H:22:THR:HG23	3:H:207:THR:O	1.70	0.90
6:I:850:ILE:HG21	6:I:1048:LYS:NZ	1.86	0.90
6:I:1294:LYS:CG	7:J:348:ASP:OD1	2.22	0.87
3:H:26:VAL:HG21	3:H:217:ILE:HD13	1.57	0.87
7:J:1048:ARG:HG3	7:J:1059:LEU:HD21	1.50	0.87
6:I:1257:GLN:HG3	6:I:1258:PRO:HD3	1.57	0.85
7:J:263:SER:O	7:J:264:ASP:OD1	1.95	0.84
3:H:41:ASN:ND2	3:H:45:ARG:CZ	2.40	0.84
7:J:506:VAL:HG23	7:J:628:GLY:HA3	1.61	0.82
6:I:1257:GLN:HG2	6:I:1258:PRO:HD3	1.63	0.80
4:K:25:ARG:NH1	4:K:61:ASN:HD21	1.81	0.79
3:G:232:VAL:HA	3:H:218:ARG:HD2	1.63	0.79
5:R:45:C:H2'	5:R:46:G:H8	1.48	0.78
6:I:253:PHE:HA	6:I:265:LYS:HD2	1.65	0.78
3:G:91:ARG:NH2	3:G:209:GLY:O	2.17	0.77
7:J:44:ILE:HG22	7:J:51:PRO:HA	1.66	0.77
6:I:1257:GLN:NE2	7:J:348:ASP:HB3	2.00	0.77
7:J:814:CYS:SG	7:J:890:THR:OG1	2.44	0.74
6:I:598:VAL:HG23	6:I:627:GLY:HA3	1.69	0.74
7:J:1368:ASP:O	7:J:1372:ARG:HG3	1.87	0.73
7:J:349:TYR:HE1	7:J:379:PRO:HG2	1.54	0.73
6:I:1072:ASN:ND2	6:I:1111:GLN:OE1	2.21	0.73
7:J:591:ILE:HD12	7:J:604:MET:HG3	1.71	0.73
6:I:560:PRO:HB2	7:J:776:THR:HG21	1.70	0.73
5:R:45:C:H2'	5:R:46:G:C8	2.24	0.73
7:J:348:ASP:CG	7:J:349:TYR:CD2	2.63	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:195:PHE:HD2	6:I:203:LYS:HE2	1.55	0.72
7:J:582:ILE:HD12	7:J:623:GLN:HB3	1.72	0.72
6:I:1212:LEU:HD22	6:I:1225:VAL:HG11	1.72	0.71
2:B:23:DG:OP1	6:I:143:ARG:NH2	2.23	0.70
3:H:16:ILE:HG22	3:H:26:VAL:HG13	1.69	0.70
6:I:1030:GLU:CG	6:I:1034:ARG:HE	2.05	0.70
7:J:1067:ARG:HE	7:J:1072:LYS:HA	1.56	0.70
6:I:317:LEU:HD11	6:I:335:THR:HG21	1.74	0.70
6:I:1253:LEU:HD22	7:J:251:PRO:HG3	1.74	0.70
7:J:1158:GLU:HA	7:J:1223:LEU:HD11	1.74	0.69
7:J:99:ARG:HB3	7:J:248:ASP:HB2	1.75	0.69
7:J:348:ASP:CG	7:J:349:TYR:CE2	2.65	0.69
3:G:61:ILE:HB	3:G:64:VAL:HG12	1.74	0.69
6:I:557:ARG:NH1	6:I:611:GLU:OE1	2.23	0.69
7:J:1035:VAL:HG12	7:J:1078:LEU:HD21	1.74	0.69
3:G:60:GLU:OE1	3:G:143:ARG:NH2	2.25	0.69
3:H:41:ASN:ND2	3:H:45:ARG:HH12	1.89	0.69
6:I:551:HIS:HD2	6:I:552:PRO:HD2	1.56	0.69
3:H:86:LYS:HG2	3:H:176:CYS:HB2	1.74	0.69
6:I:102:LEU:HD23	6:I:118:LYS:HD3	1.76	0.68
7:J:848:VAL:HB	7:J:858:VAL:HB	1.76	0.68
3:H:212:ASP:HB2	3:H:215:GLU:HG2	1.75	0.67
7:J:889:ASP:O	7:J:1286:LYS:NZ	2.27	0.67
7:J:1178:THR:HB	7:J:1185:PRO:HB3	1.77	0.67
2:B:26:DA:H8	2:B:27:DG:H2'	1.58	0.67
7:J:1032:SER:OG	7:J:1114:GLN:NE2	2.27	0.67
7:J:1281:GLU:HB2	7:J:1284:ARG:HG3	1.76	0.67
7:J:348:ASP:OD2	7:J:349:TYR:HE2	1.74	0.67
6:I:302:ILE:HA	6:I:309:LEU:HA	1.77	0.67
7:J:247:PRO:HG3	7:J:250:ARG:HH21	1.58	0.67
7:J:514:THR:HG21	7:J:596:LEU:HD12	1.77	0.67
6:I:727:VAL:HG11	6:I:772:SER:HA	1.77	0.67
6:I:1257:GLN:HG3	6:I:1258:PRO:CD	2.23	0.67
6:I:1313:HIS:HB2	7:J:474:LEU:HD12	1.77	0.67
7:J:1109:LEU:HD22	7:J:1115:ILE:HG12	1.77	0.66
3:H:26:VAL:HG21	3:H:217:ILE:CD1	2.25	0.66
7:J:1135:THR:HG21	7:J:1139:PRO:HB2	1.78	0.66
6:I:836:LEU:HB3	6:I:918:LEU:HD21	1.78	0.66
6:I:808:ASN:H	7:J:633:ALA:HB2	1.60	0.66
3:H:41:ASN:HD22	3:H:45:ARG:NH2	1.92	0.65
6:I:180:ARG:NH2	6:I:396:ASP:OD2	2.29	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:185:TYR:HB2	3:G:201:LEU:HD11	1.79	0.65
6:I:55:SER:OG	6:I:465:ARG:NH1	2.29	0.65
6:I:454:ARG:HG2	6:I:458:GLU:HB3	1.78	0.65
3:G:45:ARG:NH2	6:I:1084:ASP:OD1	2.30	0.65
6:I:681:MET:SD	6:I:1073:LYS:NZ	2.68	0.65
3:G:102:LEU:HD12	3:G:115:ILE:HG12	1.78	0.65
6:I:552:PRO:HA	7:J:773:PHE:HE2	1.62	0.65
6:I:933:VAL:HG13	6:I:1050:VAL:HG22	1.79	0.65
7:J:955:LYS:HG2	7:J:1012:ALA:HA	1.79	0.65
6:I:798:GLN:OE1	6:I:827:ARG:NH1	2.30	0.64
7:J:799:ARG:HG2	7:J:1325:PHE:HE1	1.63	0.64
7:J:1238:GLN:HB3	7:J:1242:ARG:HE	1.63	0.64
7:J:144:TYR:HB3	7:J:178:ALA:HB1	1.79	0.64
6:I:448:LEU:H	6:I:553:THR:HG21	1.62	0.64
6:I:989:LEU:HD22	6:I:997:TRP:HD1	1.63	0.64
7:J:127:LEU:O	7:J:220:ARG:NH2	2.30	0.64
6:I:801:ARG:HB3	6:I:1095:ASP:H	1.62	0.64
7:J:515:ARG:HH22	7:J:717:VAL:HG22	1.61	0.64
7:J:948:SER:N	7:J:1020:TRP:O	2.31	0.64
7:J:824:PRO:HD3	7:J:835:LEU:HB2	1.80	0.63
3:G:145:LYS:NZ	3:G:147:GLN:OE1	2.30	0.63
3:G:12:ARG:H	3:G:30:PRO:HD2	1.64	0.63
7:J:749:LYS:HZ2	7:J:753:SER:HB3	1.62	0.63
7:J:1089:LEU:HA	7:J:1096:PRO:HA	1.80	0.63
6:I:41:GLN:NE2	6:I:50:GLU:OE1	2.31	0.62
7:J:225:GLU:O	7:J:229:GLN:NE2	2.32	0.62
7:J:1081:VAL:HG12	7:J:1087:ASP:HA	1.80	0.62
6:I:551:HIS:CD2	6:I:552:PRO:HD2	2.34	0.62
7:J:1356:LEU:O	7:J:1366:HIS:NE2	2.28	0.62
7:J:247:PRO:HA	7:J:250:ARG:HE	1.65	0.62
7:J:975:ILE:HG21	7:J:980:THR:HG21	1.81	0.61
3:G:104:LYS:HG2	3:G:110:VAL:HG12	1.82	0.61
3:H:16:ILE:CG2	3:H:26:VAL:CG1	2.56	0.61
6:I:9:LYS:HG2	6:I:1171:ARG:HD3	1.82	0.61
6:I:850:ILE:HG21	6:I:1048:LYS:HZ1	1.64	0.61
3:H:41:ASN:HD22	3:H:45:ARG:CZ	2.11	0.61
3:G:91:ARG:NH1	3:G:210:THR:O	2.34	0.61
6:I:283:LYS:HG3	6:I:284:LEU:HD12	1.82	0.61
6:I:106:GLU:HB2	6:I:109:ALA:HB3	1.81	0.61
6:I:402:ARG:HD3	6:I:416:GLY:H	1.66	0.61
7:J:374:LEU:O	7:J:378:LYS:HG3	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:646:SER:HB3	6:I:649:GLN:HG3	1.82	0.60
7:J:151:MET:HB2	7:J:175:GLU:HG2	1.83	0.60
3:G:58:GLU:OE1	3:G:170:ARG:NH2	2.29	0.60
3:G:167:PRO:HD2	3:G:170:ARG:HD3	1.82	0.60
5:R:42:A:O3'	6:I:510:GLN:NE2	2.34	0.60
6:I:559:CYS:HB2	6:I:662:SER:HB3	1.83	0.60
7:J:370:LYS:HA	7:J:441:LEU:HD22	1.83	0.60
7:J:1075:ARG:HH21	7:J:1200:GLU:HB3	1.66	0.60
6:I:1257:GLN:NE2	7:J:348:ASP:CB	2.65	0.60
7:J:114:ILE:HD11	7:J:118:LYS:CD	2.27	0.60
7:J:120:LEU:HD12	7:J:1330:ARG:HD3	1.82	0.60
7:J:21:LYS:NZ	7:J:22:ILE:O	2.35	0.60
7:J:892:PHE:HB3	7:J:1345:ARG:HH12	1.65	0.60
6:I:1223:ARG:HH22	7:J:721:SER:N	1.99	0.59
7:J:339:ARG:HA	7:J:343:LEU:HD12	1.83	0.59
7:J:983:LYS:HA	7:J:994:SER:HA	1.84	0.59
6:I:228:VAL:HG13	6:I:337:PHE:HB2	1.82	0.59
6:I:240:GLU:HA	6:I:284:LEU:HA	1.83	0.59
6:I:1294:LYS:CB	7:J:348:ASP:OD1	2.49	0.59
7:J:586:GLY:HA3	7:J:612:LEU:HD21	1.84	0.59
7:J:664:ILE:HD12	7:J:681:LYS:HE2	1.84	0.59
6:I:850:ILE:HG21	6:I:1048:LYS:HZ3	1.67	0.59
6:I:50:GLU:OE2	6:I:54:ARG:NH2	2.34	0.59
6:I:1251:TYR:HB3	6:I:1257:GLN:HA	1.84	0.59
7:J:789:LYS:HE2	7:J:931:THR:HA	1.85	0.59
7:J:901:ARG:HD3	7:J:906:GLY:HA2	1.83	0.59
6:I:19:PRO:HA	6:I:1156:ARG:HD3	1.85	0.59
6:I:93:SER:HB2	6:I:126:GLU:HG2	1.85	0.59
6:I:521:LEU:HD22	6:I:667:LEU:HD12	1.84	0.59
6:I:660:VAL:HG13	6:I:661:VAL:HG13	1.84	0.59
7:J:911:LYS:HE2	7:J:1363:TYR:HE2	1.67	0.59
6:I:681:MET:O	6:I:685:MET:HG2	2.03	0.58
3:G:29:GLU:HB3	3:G:30:PRO:HD3	1.85	0.58
3:G:97:GLU:HB2	3:G:145:LYS:HE2	1.85	0.58
4:K:37:PRO:HB3	4:K:49:ILE:HG21	1.86	0.58
7:J:1024:THR:HG23	7:J:1026:PRO:HD3	1.86	0.58
3:G:102:LEU:HB3	3:G:142:MET:HG2	1.85	0.58
7:J:384:LYS:O	7:J:388:ARG:HG2	2.02	0.58
7:J:544:LEU:HD11	7:J:631:TYR:HD1	1.68	0.58
7:J:1100:PHE:HB2	7:J:1200:GLU:HB2	1.85	0.58
7:J:1199:PHE:HB3	7:J:1202:GLU:HB2	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:694:ARG:O	6:I:798:GLN:NE2	2.36	0.58
3:H:18:GLN:OE1	3:H:20:SER:N	2.07	0.58
7:J:329:ASP:HA	7:J:332:LYS:HE2	1.85	0.58
6:I:348:SER:O	6:I:352:ARG:HG2	2.04	0.57
6:I:1005:GLU:H	6:I:1008:GLN:HB2	1.68	0.57
6:I:1340:GLU:HG2	7:J:1341:ARG:HH22	1.69	0.57
7:J:814:CYS:SG	7:J:895:CYS:HB2	2.44	0.57
6:I:12:ARG:HG3	6:I:1181:PRO:HB2	1.85	0.57
3:H:41:ASN:HD22	3:H:45:ARG:NH1	2.01	0.57
5:R:41:C:H2'	5:R:42:A:C8	2.40	0.57
6:I:692:THR:HA	6:I:830:THR:HG22	1.87	0.57
7:J:537:TYR:CZ	7:J:544:LEU:HG	2.40	0.57
5:R:41:C:H2'	5:R:42:A:H8	1.69	0.57
6:I:105:TYR:HA	6:I:114:VAL:HA	1.87	0.57
6:I:870:ILE:HG21	6:I:931:VAL:HG11	1.86	0.57
6:I:975:ILE:HG23	6:I:979:LEU:HD22	1.86	0.57
7:J:660:GLU:O	7:J:664:ILE:HG12	2.04	0.57
6:I:233:ARG:H	6:I:237:LEU:HA	1.70	0.57
7:J:572:THR:HG21	7:J:589:TYR:HE2	1.69	0.57
7:J:576:ARG:NH1	7:J:593:ASN:O	2.38	0.57
6:I:1257:GLN:HE22	7:J:348:ASP:CG	2.07	0.57
7:J:108:ALA:HB2	7:J:280:LYS:HG3	1.86	0.57
7:J:527:LEU:HD22	7:J:548:VAL:HG21	1.86	0.57
7:J:646:ILE:HD11	7:J:764:ARG:HD3	1.87	0.57
7:J:1263:LYS:HD2	7:J:1279:GLN:HG2	1.85	0.57
6:I:594:VAL:HG22	6:I:599:VAL:HA	1.86	0.57
7:J:1062:LEU:O	7:J:1067:ARG:NH1	2.35	0.57
6:I:850:ILE:HG21	6:I:1048:LYS:CE	2.34	0.57
6:I:979:LEU:HG	6:I:989:LEU:HD13	1.85	0.57
7:J:825:VAL:HG12	7:J:833:GLU:HB2	1.86	0.57
3:H:23:HIS:HE1	3:H:204:GLU:HB3	1.70	0.56
6:I:1246:ARG:HH21	6:I:1249:GLY:N	2.03	0.56
6:I:1313:HIS:HB3	7:J:473:THR:HA	1.86	0.56
7:J:146:VAL:HG12	7:J:178:ALA:HB2	1.85	0.56
6:I:339:ASN:O	6:I:343:HIS:N	2.37	0.56
6:I:444:ASP:HB3	6:I:447:HIS:HB2	1.86	0.56
6:I:268:ARG:NH1	6:I:269:ILE:O	2.37	0.56
7:J:134:ASP:OD1	7:J:137:ARG:NH2	2.39	0.56
7:J:375:GLU:HG2	7:J:378:LYS:HE3	1.87	0.56
7:J:502:PRO:HB3	7:J:506:VAL:CG1	2.34	0.56
5:R:44:A:OP2	6:I:540:ARG:NH2	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:973:LEU:HB2	7:J:1003:LEU:HB3	1.87	0.56
6:I:94:ALA:HB2	6:I:129:LEU:HD11	1.87	0.56
7:J:1198:VAL:HG23	7:J:1210:ILE:HA	1.86	0.56
7:J:826:ILE:HG21	7:J:993:GLU:HA	1.88	0.56
7:J:826:ILE:HG22	7:J:828:GLY:H	1.70	0.56
3:G:231:PHE:HE2	3:H:39:LEU:HD23	1.71	0.56
7:J:201:LEU:HD11	7:J:220:ARG:HH11	1.71	0.56
7:J:506:VAL:HG21	7:J:625:MET:HA	1.88	0.56
6:I:207:THR:HA	6:I:210:LEU:HD12	1.88	0.56
6:I:265:LYS:O	6:I:267:ARG:NH1	2.39	0.56
3:H:144:ILE:HG22	3:H:146:VAL:HG22	1.88	0.55
7:J:161:THR:O	7:J:165:TYR:N	2.32	0.55
6:I:176:ILE:HD11	6:I:428:VAL:HG11	1.89	0.55
6:I:319:LEU:HD23	6:I:322:LEU:HD12	1.89	0.55
3:G:54:CYS:SG	3:G:92:VAL:HG22	2.46	0.55
6:I:453:ILE:HD12	6:I:587:LEU:HD21	1.89	0.55
6:I:613:ASN:OD1	6:I:614:TYR:N	2.39	0.55
2:B:29:DA:H2"	2:B:30:DC:H5'	1.88	0.55
6:I:1287:LEU:HD23	7:J:1357:ILE:HD13	1.89	0.55
7:J:965:SER:HB2	7:J:975:ILE:HG12	1.89	0.55
3:G:23:HIS:HB3	3:G:206:GLU:HA	1.87	0.55
6:I:303:ASP:HB3	6:I:310:ILE:HD11	1.88	0.55
6:I:1289:GLU:HG2	6:I:1294:LYS:HD2	1.89	0.55
7:J:895:CYS:HB3	7:J:898:CYS:HB2	1.88	0.55
3:G:71:LYS:NZ	3:G:139:SER:O	2.37	0.55
6:I:226:GLU:HG2	6:I:337:PHE:HB3	1.88	0.55
6:I:231:GLU:OE2	6:I:332:ARG:NH1	2.39	0.55
6:I:1253:LEU:HD22	7:J:251:PRO:CG	2.37	0.55
3:G:180:VAL:HG12	3:G:207:THR:HG22	1.88	0.54
6:I:255:ILE:N	6:I:263:VAL:O	2.37	0.54
6:I:1291:LEU:HD11	7:J:1351:VAL:HG13	1.89	0.54
7:J:751:ASP:OD1	7:J:752:GLY:N	2.39	0.54
7:J:1046:ILE:HG22	7:J:1062:LEU:H	1.72	0.54
7:J:1062:LEU:HB2	7:J:1067:ARG:HB3	1.89	0.54
7:J:1153:PRO:O	7:J:1194:ARG:NH1	2.40	0.54
6:I:230:PHE:HB2	6:I:333:ILE:HB	1.89	0.54
6:I:1030:GLU:HG2	6:I:1034:ARG:HE	1.73	0.54
7:J:374:LEU:O	7:J:378:LYS:CG	2.55	0.54
6:I:520:PRO:HG3	6:I:714:VAL:HG11	1.88	0.54
7:J:572:THR:HG21	7:J:589:TYR:CE2	2.42	0.54
7:J:1042:ASP:O	7:J:1047:THR:HG22	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:105:SER:HB2	3:H:139:SER:HA	1.89	0.54
3:H:189:ALA:HB1	3:H:197:ASP:HB2	1.88	0.54
7:J:338:PHE:HA	7:J:342:LEU:HD12	1.89	0.54
7:J:381:ILE:HD11	7:J:412:LEU:HD13	1.89	0.54
7:J:112:ALA:HA	7:J:238:ILE:HA	1.90	0.54
7:J:826:ILE:HG13	7:J:831:VAL:HA	1.88	0.54
3:G:192:VAL:HG21	3:G:198:LEU:HD12	1.90	0.54
7:J:480:ALA:HA	7:J:484:MET:HB2	1.90	0.54
6:I:138:ILE:HD12	6:I:143:ARG:HD2	1.89	0.54
7:J:348:ASP:OD1	7:J:349:TYR:CD2	2.61	0.54
4:K:27:ALA:HB1	7:J:474:LEU:HD23	1.90	0.54
6:I:256:GLU:HB3	6:I:261:VAL:HG22	1.90	0.54
6:I:617:ALA:HB2	6:I:650:VAL:HG21	1.90	0.54
6:I:727:VAL:HG23	6:I:732:ILE:HG12	1.90	0.54
6:I:975:ILE:HA	6:I:1011:LEU:HD22	1.89	0.54
7:J:511:TYR:OH	7:J:515:ARG:NH1	2.41	0.54
3:G:11:PRO:HG2	3:H:231:PHE:HZ	1.74	0.53
6:I:6:THR:HA	6:I:9:LYS:HE2	1.90	0.53
3:H:98:VAL:HA	3:H:146:VAL:HG23	1.89	0.53
7:J:226:ALA:HB1	7:J:1338:ALA:HA	1.89	0.53
7:J:646:ILE:HD12	7:J:762:ASN:ND2	2.24	0.53
6:I:243:PRO:HB3	6:I:277:LEU:HB3	1.90	0.53
6:I:518:ASN:HB2	6:I:761:GLN:HG3	1.91	0.53
6:I:1030:GLU:OE2	6:I:1034:ARG:HD2	2.08	0.53
7:J:1099:TYR:HB3	7:J:1199:PHE:HZ	1.74	0.53
7:J:956:GLY:HA3	7:J:984:LEU:HD21	1.90	0.53
3:G:184:ALA:HB2	6:I:1091:GLY:HA3	1.90	0.53
7:J:338:PHE:CZ	7:J:1352:ILE:HG12	2.44	0.53
3:G:13:LEU:HB3	3:G:16:ILE:HD11	1.91	0.53
6:I:12:ARG:NH2	6:I:793:GLU:OE1	2.31	0.53
6:I:807:TRP:CZ2	6:I:1216:ARG:HD2	2.44	0.53
7:J:870:ASP:O	7:J:874:GLU:HG2	2.09	0.53
7:J:1253:ILE:O	7:J:1257:VAL:HG23	2.08	0.53
6:I:89:GLY:HA2	6:I:140:GLY:HA3	1.91	0.53
6:I:519:ASN:ND2	6:I:796:LEU:HD22	2.24	0.53
6:I:821:ARG:HB2	6:I:1082:ILE:HD12	1.90	0.53
7:J:851:PRO:HD3	7:J:877:VAL:HG22	1.91	0.53
7:J:962:ASN:OD1	7:J:964:LYS:NZ	2.42	0.53
6:I:934:PHE:O	6:I:1048:LYS:HG3	2.10	0.52
6:I:83:GLN:NE2	6:I:84:GLU:HG3	2.25	0.52
6:I:101:ARG:HG3	6:I:119:GLU:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:102:LEU:O	6:I:118:LYS:N	2.41	0.52
6:I:1030:GLU:O	6:I:1034:ARG:HG3	2.09	0.52
6:I:1339:LEU:HD23	7:J:17:PHE:CD1	2.44	0.52
7:J:114:ILE:HA	7:J:117:LEU:HB3	1.91	0.52
6:I:81:ASP:OD2	6:I:82:VAL:N	2.38	0.52
6:I:301:TYR:O	6:I:310:ILE:N	2.41	0.52
7:J:114:ILE:HD13	7:J:304:ASP:OD2	2.09	0.52
3:G:107:ILE:HD11	6:I:773:LEU:HD22	1.91	0.52
7:J:1025:MET:HB2	7:J:1124:ILE:HB	1.91	0.52
7:J:17:PHE:O	7:J:1369:ARG:NH2	2.43	0.52
3:G:109:PRO:HA	3:G:132:HIS:HA	1.92	0.52
6:I:838:CYS:SG	6:I:884:VAL:HG11	2.50	0.52
6:I:997:TRP:HE1	6:I:1002:LEU:HB2	1.75	0.52
2:B:19:DT:H2'	2:B:20:DG:C8	2.45	0.52
7:J:375:GLU:HG2	7:J:378:LYS:CE	2.40	0.52
7:J:513:MET:SD	7:J:579:LEU:HB2	2.50	0.52
3:G:222:THR:HG21	3:H:233:ASP:HB2	1.91	0.52
6:I:192:ASP:HB3	6:I:346:TYR:HD1	1.75	0.52
6:I:1242:LYS:HD2	7:J:465:GLN:HE22	1.74	0.51
7:J:337:ARG:HG2	7:J:341:ASN:HD21	1.76	0.51
7:J:1050:THR:HA	7:J:1057:SER:HA	1.92	0.51
3:G:31:LEU:HD13	3:G:36:GLY:HA2	1.91	0.51
5:R:37:G:H22	6:I:1259:LEU:HD11	1.75	0.51
6:I:561:ILE:HD13	6:I:661:VAL:HG12	1.92	0.51
7:J:375:GLU:HA	7:J:378:LYS:HG3	1.93	0.51
7:J:930:LEU:HG	7:J:1244:GLN:HG3	1.92	0.51
1:A:28:DG:H5"	7:J:1148:ARG:NH1	2.25	0.51
3:H:111:THR:HA	3:H:129:VAL:HA	1.92	0.51
7:J:123:ARG:HG2	7:J:1337:VAL:HG21	1.92	0.51
6:I:700:VAL:HG13	6:I:1069:ARG:HH22	1.75	0.51
7:J:964:LYS:HG2	7:J:977:SER:HB2	1.93	0.51
6:I:232:ILE:HA	6:I:237:LEU:HG	1.93	0.51
6:I:714:VAL:HB	6:I:787:PRO:HD2	1.93	0.51
6:I:359:ARG:HG2	6:I:363:LEU:HD13	1.93	0.51
7:J:651:HIS:CE1	7:J:652:GLU:HG3	2.46	0.51
3:H:21:SER:O	3:H:213:PRO:CD	2.59	0.51
6:I:822:VAL:HG13	6:I:827:ARG:HB2	1.93	0.51
7:J:799:ARG:HG2	7:J:1325:PHE:CE1	2.43	0.51
7:J:1263:LYS:NZ	7:J:1315:ALA:O	2.38	0.51
3:H:41:ASN:ND2	3:H:45:ARG:NH2	2.57	0.50
6:I:705:GLU:HB3	6:I:794:LEU:H	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:865:HIS:ND1	7:J:867:GLN:OE1	2.43	0.50
7:J:865:HIS:HA	7:J:901:ARG:HH21	1.76	0.50
6:I:1246:ARG:HH21	6:I:1249:GLY:H	1.60	0.50
6:I:1140:LYS:O	6:I:1143:GLU:HG3	2.10	0.50
6:I:1315:MET:HB2	7:J:473:THR:HG21	1.93	0.50
3:H:56:VAL:HB	3:H:147:GLN:HB3	1.93	0.50
6:I:13:LYS:HD3	6:I:1149:TYR:HA	1.92	0.50
7:J:132:LEU:O	7:J:135:ILE:N	2.45	0.50
7:J:816:THR:O	7:J:883:ARG:NH1	2.44	0.50
6:I:262:TYR:HB3	6:I:276:GLN:HE22	1.76	0.50
6:I:448:LEU:HD21	6:I:587:LEU:HD12	1.94	0.50
7:J:375:GLU:CB	7:J:378:LYS:HE3	2.41	0.50
7:J:1045:THR:HG21	7:J:1067:ARG:HB2	1.93	0.50
3:H:11:PRO:HB3	3:H:31:LEU:HG	1.94	0.50
6:I:149:LEU:HD11	6:I:451:ARG:HB3	1.94	0.50
6:I:838:CYS:SG	6:I:1050:VAL:HB	2.52	0.50
7:J:1036:ARG:HH12	7:J:1112:GLY:HA2	1.75	0.50
7:J:1048:ARG:HE	7:J:1059:LEU:HD21	1.77	0.50
6:I:68:LEU:HD11	6:I:100:LEU:HB3	1.94	0.50
6:I:144:VAL:HG11	6:I:527:LYS:HA	1.94	0.50
4:K:25:ARG:HH12	4:K:61:ASN:HD21	1.60	0.49
7:J:1206:ARG:NH1	7:J:1223:LEU:O	2.45	0.49
7:J:1267:VAL:N	7:J:1301:THR:O	2.45	0.49
7:J:1271:SER:OG	7:J:1298:VAL:O	2.22	0.49
3:G:59:VAL:HG22	3:G:144:ILE:HG22	1.94	0.49
3:G:100:LEU:HD21	3:G:121:VAL:HG11	1.93	0.49
6:I:1257:GLN:HB3	6:I:1301:ARG:CZ	2.42	0.49
7:J:135:ILE:O	7:J:139:LEU:HD23	2.12	0.49
7:J:189:LEU:HB3	7:J:234:PRO:HB2	1.93	0.49
1:A:31:DA:C8	1:A:32:DT:H72	2.47	0.49
6:I:866:ASP:OD1	6:I:869:GLY:N	2.45	0.49
7:J:35:PHE:HB3	7:J:101:ARG:HH21	1.77	0.49
7:J:334:LYS:HE3	7:J:339:ARG:HH12	1.77	0.49
7:J:118:LYS:HE2	7:J:136:GLU:CD	2.10	0.49
7:J:1021:ASP:HB3	7:J:1024:THR:HG22	1.93	0.49
6:I:678:ARG:HD3	6:I:1106:ARG:HB3	1.95	0.49
6:I:1297:ASP:H	6:I:1301:ARG:HD3	1.78	0.49
7:J:948:SER:N	7:J:1022:PRO:HD3	2.27	0.49
7:J:1166:GLY:N	7:J:1174:ARG:O	2.45	0.49
3:G:81:ILE:HG12	3:G:131:CYS:HB3	1.93	0.49
6:I:178:PRO:HB3	6:I:395:TYR:CZ	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:353:SER:HB3	7:J:447:ILE:HG13	1.95	0.49
7:J:587:LEU:HD21	7:J:608:CYS:HA	1.94	0.49
7:J:1031:VAL:HG23	7:J:1080:ILE:HG21	1.94	0.49
6:I:13:LYS:HB3	6:I:1182:ILE:HD13	1.93	0.49
6:I:618:GLN:HE22	7:J:770:LEU:HB2	1.78	0.49
6:I:600:THR:HG22	6:I:602:GLU:HG2	1.95	0.49
3:G:61:ILE:HD13	3:G:142:MET:HB3	1.95	0.49
6:I:519:ASN:HD21	6:I:796:LEU:HD22	1.78	0.49
6:I:1294:LYS:HB3	7:J:348:ASP:OD1	2.11	0.49
6:I:1332:SER:HA	7:J:243:PRO:HB2	1.94	0.49
7:J:227:PHE:CE1	7:J:1337:VAL:HG13	2.47	0.49
7:J:620:PHE:CZ	7:J:624:ILE:HD11	2.48	0.49
6:I:661:VAL:HB	6:I:665:ALA:HB3	1.94	0.48
6:I:1119:MET:HG3	6:I:1204:LEU:HD13	1.95	0.48
7:J:94:GLN:HB3	7:J:96:LYS:HG2	1.95	0.48
7:J:907:HIS:NE2	7:J:910:ASN:OD1	2.46	0.48
7:J:1042:ASP:OD1	7:J:1043:GLY:N	2.46	0.48
6:I:1283:ALA:HB2	7:J:484:MET:HE1	1.94	0.48
6:I:746:ALA:H	6:I:974:ARG:HH22	1.62	0.48
6:I:411:ARG:NH2	6:I:424:ASP:OD1	2.45	0.48
3:G:18:GLN:NE2	3:G:20:SER:O	2.32	0.48
6:I:232:ILE:O	6:I:331:LYS:NZ	2.47	0.48
6:I:1211:ARG:NH1	6:I:1213:TYR:OH	2.46	0.48
7:J:247:PRO:HG3	7:J:250:ARG:NH2	2.28	0.48
7:J:321:LYS:HA	7:J:321:LYS:HD2	1.47	0.48
7:J:555:TYR:HB3	7:J:563:LEU:HD22	1.95	0.48
6:I:297:VAL:HA	6:I:335:THR:HG22	1.95	0.48
7:J:161:THR:HB	7:J:164:GLN:HB2	1.95	0.48
7:J:355:ILE:HD11	7:J:466:MET:HG3	1.96	0.48
6:I:732:ILE:HD11	6:I:769:PRO:HB3	1.94	0.48
6:I:56:VAL:HG11	6:I:468:LEU:HB3	1.96	0.48
7:J:375:GLU:CG	7:J:378:LYS:HE3	2.43	0.48
6:I:954:LYS:O	6:I:958:LYS:HG3	2.13	0.48
6:I:1027:LYS:HA	6:I:1027:LYS:HD3	1.61	0.48
3:H:47:LEU:HD13	3:H:180:VAL:HG11	1.96	0.47
7:J:388:ARG:HG3	7:J:411:ILE:HD11	1.95	0.47
5:R:40:C:H2'	5:R:41:C:C6	2.50	0.47
6:I:3:TYR:HB3	6:I:7:GLU:HB3	1.96	0.47
7:J:1155:ILE:HB	7:J:1210:ILE:HB	1.96	0.47
7:J:1344:LEU:O	7:J:1345:ARG:HG2	2.14	0.47
3:G:11:PRO:HG2	3:H:231:PHE:CZ	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:352:ARG:HH21	7:J:465:GLN:HB2	1.79	0.47
7:J:878:ASP:OD1	7:J:879:ALA:N	2.47	0.47
6:I:1077:SER:HA	7:J:356:THR:HG23	1.96	0.47
6:I:1166:ASP:OD1	6:I:1167:GLU:N	2.46	0.47
7:J:338:PHE:CE2	7:J:1352:ILE:HG12	2.48	0.47
7:J:348:ASP:OD1	7:J:349:TYR:HD2	1.97	0.47
7:J:1203:ARG:NH2	7:J:1205:GLU:OE2	2.48	0.47
7:J:398:LYS:HE2	7:J:398:LYS:HB2	1.77	0.47
3:H:130:ILE:HG21	3:H:142:MET:HA	1.97	0.47
7:J:132:LEU:HD12	7:J:135:ILE:HB	1.97	0.47
7:J:198:CYS:SG	7:J:202:ARG:NH1	2.88	0.47
7:J:432:LEU:HD13	7:J:499:ILE:HG12	1.97	0.47
2:B:18:DG:OP2	7:J:346:ARG:NH2	2.48	0.47
3:H:41:ASN:HD22	3:H:45:ARG:HH22	1.60	0.47
3:H:59:VAL:HB	3:H:143:ARG:HD2	1.96	0.47
6:I:52:ALA:HA	6:I:465:ARG:HH12	1.80	0.47
6:I:213:LEU:HB3	6:I:422:LYS:HD3	1.97	0.47
6:I:753:LEU:HB3	6:I:767:GLN:HB3	1.97	0.47
6:I:802:VAL:HG21	6:I:1230:MET:HB3	1.96	0.47
7:J:111:THR:HG21	7:J:303:VAL:HB	1.95	0.47
4:K:6:VAL:HG11	7:J:482:ALA:HA	1.96	0.47
6:I:28:LEU:HD22	6:I:527:LYS:HD2	1.96	0.47
7:J:510:LEU:HD11	7:J:624:ILE:HG23	1.96	0.47
7:J:865:HIS:CE1	7:J:867:GLN:HB2	2.50	0.47
3:G:11:PRO:HB3	3:G:31:LEU:HG	1.97	0.47
7:J:152:THR:HG23	7:J:175:GLU:HG3	1.96	0.47
7:J:502:PRO:HB3	7:J:506:VAL:HG13	1.96	0.47
7:J:1048:ARG:HG2	7:J:1059:LEU:CG	2.42	0.47
7:J:1327:GLU:OE1	7:J:1330:ARG:NH2	2.48	0.47
1:A:33:DT:H2"	1:A:34:DC:H2'	1.96	0.47
6:I:1047:LEU:H	6:I:1047:LEU:HG	1.55	0.47
6:I:1268:GLN:HG3	7:J:352:ARG:HG3	1.96	0.47
7:J:847:ASP:OD1	7:J:847:ASP:O	2.33	0.47
7:J:1175:LEU:HD22	7:J:1190:ILE:HD11	1.97	0.47
3:G:219:ARG:O	3:G:222:THR:OG1	2.27	0.46
7:J:218:THR:HA	7:J:221:ILE:HG22	1.97	0.46
7:J:137:ARG:HH21	7:J:159:ILE:HG12	1.79	0.46
7:J:741:ALA:O	7:J:762:ASN:ND2	2.30	0.46
7:J:1063:ASP:O	7:J:1067:ARG:HG2	2.16	0.46
7:J:1173:ARG:HH21	7:J:1190:ILE:HG21	1.80	0.46
6:I:690:VAL:HG13	6:I:830:THR:HG21	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:537:TYR:CE1	7:J:544:LEU:HG	2.51	0.46
7:J:806:ASP:OD1	7:J:1259:GLN:NE2	2.48	0.46
7:J:1259:GLN:HA	7:J:1262:ARG:HG3	1.97	0.46
3:H:54:CYS:HB2	3:H:92:VAL:HA	1.96	0.46
6:I:1280:ALA:HB1	7:J:918:ILE:HG12	1.97	0.46
7:J:104:HIS:HA	7:J:243:PRO:HA	1.97	0.46
6:I:473:ARG:O	6:I:477:GLU:HG2	2.16	0.46
6:I:545:PHE:CZ	7:J:788:LEU:HD22	2.51	0.46
7:J:356:THR:HB	7:J:448:GLN:HG2	1.97	0.46
1:A:33:DT:H2"	1:A:34:DC:H5'	1.98	0.46
3:H:115:ILE:HG21	3:H:144:ILE:HG12	1.97	0.46
6:I:270:THR:OG1	6:I:273:HIS:ND1	2.35	0.46
6:I:423:ASP:OD1	6:I:424:ASP:N	2.49	0.46
7:J:66:LYS:HA	7:J:66:LYS:HD3	1.55	0.46
7:J:601:ILE:HD11	7:J:624:ILE:HG21	1.98	0.46
3:H:102:LEU:HD23	3:H:102:LEU:HA	1.80	0.46
6:I:459:MET:SD	6:I:511:LEU:HD13	2.56	0.46
7:J:850:LYS:HB3	7:J:855:ASP:HB2	1.98	0.46
7:J:891:ASP:HB3	7:J:1283:SER:HB2	1.97	0.46
6:I:1070:HIS:ND1	6:I:1114:GLU:OE1	2.47	0.46
6:I:1303:LYS:HD2	6:I:1303:LYS:HA	1.51	0.46
3:G:89:ALA:HB1	3:G:124:VAL:HB	1.99	0.46
3:H:185:TYR:HB2	3:H:201:LEU:HD11	1.98	0.46
6:I:13:LYS:HZ1	6:I:1155:VAL:HG11	1.80	0.46
6:I:356:THR:HG21	6:I:365:GLU:HG3	1.98	0.46
6:I:596:ASP:OD1	6:I:597:GLY:N	2.44	0.46
6:I:1258:PRO:HG2	7:J:346:ARG:C	2.37	0.46
7:J:1198:VAL:HG12	7:J:1199:PHE:O	2.16	0.46
3:G:64:VAL:HG21	3:G:78:ILE:HG13	1.97	0.45
6:I:6:THR:HG23	6:I:781:ASP:OD2	2.17	0.45
6:I:472:GLU:HA	6:I:475:VAL:HG12	1.97	0.45
6:I:636:CYS:HB2	6:I:645:PHE:HD2	1.80	0.45
6:I:935:THR:HG21	6:I:941:LYS:HD2	1.98	0.45
7:J:265:LEU:HD11	7:J:327:LEU:HG	1.97	0.45
7:J:437:PHE:CZ	7:J:453:VAL:HG11	2.52	0.45
3:G:106:GLY:HA2	3:G:136:GLU:HA	1.97	0.45
6:I:425:ILE:O	6:I:429:MET:HG3	2.16	0.45
6:I:615:VAL:HG13	6:I:650:VAL:HA	1.98	0.45
6:I:1225:VAL:HG13	6:I:1227:VAL:HG23	1.98	0.45
2:B:6:DA:H2"	2:B:7:DA:C8	2.51	0.45
6:I:989:LEU:HD22	6:I:997:TRP:CD1	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:688:GLN:HB2	6:I:1235:LEU:HD22	1.98	0.45
6:I:772:SER:OG	6:I:773:LEU:N	2.49	0.45
6:I:1002:LEU:HB3	6:I:1008:GLN:HE21	1.81	0.45
6:I:1137:GLU:HG3	6:I:1139:ALA:H	1.80	0.45
7:J:330:MET:O	7:J:336:GLY:HA2	2.16	0.45
7:J:1155:ILE:HG22	7:J:1210:ILE:HD12	1.99	0.45
6:I:590:PRO:HG2	6:I:655:VAL:HG11	1.97	0.45
7:J:549:LYS:HE3	7:J:549:LYS:HB3	1.70	0.45
7:J:52:GLU:HB3	7:J:55:GLY:HA3	1.97	0.45
3:G:56:VAL:HG12	3:G:146:VAL:HG22	1.97	0.45
7:J:141:PHE:HB2	7:J:297:ARG:NE	2.32	0.45
7:J:253:VAL:HG12	7:J:260:PHE:CZ	2.52	0.45
1:A:12:DC:H2"	1:A:13:DC:C6	2.51	0.45
3:H:170:ARG:HB2	3:H:171:LEU:H	1.51	0.45
6:I:15:PHE:CD2	6:I:1190:ALA:HB2	2.52	0.45
6:I:519:ASN:ND2	6:I:689:ALA:HB3	2.32	0.45
6:I:554:HIS:HD2	6:I:558:VAL:HB	1.82	0.45
6:I:1132:LEU:HD23	6:I:1132:LEU:HA	1.83	0.45
6:I:1276:TRP:CD2	7:J:801:VAL:HG11	2.52	0.45
3:G:182:ARG:HB3	3:G:206:GLU:HB3	1.99	0.45
5:R:40:C:H2'	5:R:41:C:H6	1.82	0.45
6:I:1257:GLN:HG2	6:I:1295:SER:HA	1.98	0.45
7:J:137:ARG:HG2	7:J:142:GLU:OE1	2.17	0.45
7:J:1106:ILE:O	7:J:1123:ARG:NH2	2.50	0.45
3:H:105:SER:HA	3:H:110:VAL:HG11	1.98	0.44
6:I:820:GLU:HG2	6:I:1079:ILE:HG22	2.00	0.44
7:J:341:ASN:O	7:J:345:LYS:HG3	2.17	0.44
2:B:17:DC:C2	2:B:18:DG:C8	3.05	0.44
3:G:54:CYS:HB2	3:G:90:VAL:O	2.16	0.44
5:R:46:G:H2'	5:R:47:A:C8	2.52	0.44
6:I:1030:GLU:HG2	6:I:1034:ARG:NE	2.31	0.44
6:I:1122:LYS:HG2	6:I:1229:TYR:CE2	2.52	0.44
7:J:532:GLU:O	7:J:536:LEU:HD23	2.18	0.44
7:J:999:TYR:HE2	7:J:1027:VAL:HG22	1.82	0.44
7:J:1146:GLU:OE2	7:J:1148:ARG:NH2	2.50	0.44
7:J:1160:SER:O	7:J:1179:PRO:HB3	2.17	0.44
7:J:1167:LYS:HE3	7:J:1170:LYS:HB3	1.98	0.44
1:A:36:DG:H1'	1:A:37:DA:C8	2.52	0.44
2:B:17:DC:H5'	6:I:1269:ARG:HD3	1.98	0.44
6:I:348:SER:HA	6:I:351:LEU:HD12	1.99	0.44
6:I:697:LYS:HD2	6:I:1181:PRO:HG3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:801:ARG:HD2	6:I:1229:TYR:HE1	1.82	0.44
6:I:1113:LEU:HD13	7:J:641:ILE:HG13	1.99	0.44
7:J:375:GLU:HA	7:J:378:LYS:CD	2.45	0.44
7:J:992:LYS:HA	7:J:992:LYS:HD3	1.82	0.44
7:J:1046:ILE:HB	7:J:1061:VAL:HA	1.99	0.44
1:A:31:DA:H4'	7:J:120:LEU:O	2.17	0.44
6:I:560:PRO:HG2	6:I:561:ILE:HD12	2.00	0.44
6:I:801:ARG:HA	6:I:1229:TYR:CD1	2.52	0.44
6:I:979:LEU:HD12	6:I:979:LEU:HA	1.72	0.44
7:J:984:LEU:N	7:J:993:GLU:O	2.44	0.44
6:I:297:VAL:HB	6:I:317:LEU:HD21	1.98	0.44
7:J:437:PHE:HZ	7:J:453:VAL:HG11	1.83	0.44
7:J:596:LEU:HD23	7:J:596:LEU:HA	1.83	0.44
7:J:835:LEU:O	7:J:839:VAL:HG12	2.16	0.44
7:J:1227:HIS:O	7:J:1231:ARG:HG3	2.16	0.44
6:I:14:ASP:HB3	6:I:1157:GLN:HG3	2.00	0.44
6:I:80:PHE:HB2	6:I:85:CYS:SG	2.58	0.44
6:I:175:ARG:NH1	6:I:185:ASP:OD2	2.50	0.44
6:I:431:LYS:O	6:I:435:ILE:HG12	2.17	0.44
6:I:618:GLN:HG3	6:I:620:ASN:H	1.82	0.44
6:I:988:LYS:HA	6:I:988:LYS:HD3	1.45	0.44
7:J:1094:ASP:OD1	7:J:1095:MET:N	2.50	0.44
6:I:297:VAL:HG12	6:I:315:MET:O	2.17	0.44
7:J:311:ARG:HA	7:J:311:ARG:HD2	1.45	0.44
3:H:136:GLU:H	3:H:136:GLU:HG3	1.43	0.44
4:K:38:LEU:H	4:K:38:LEU:HG	1.58	0.44
7:J:78:LEU:HD12	7:J:79:LYS:H	1.82	0.44
4:K:3:ARG:HH22	7:J:615:LYS:HD2	1.82	0.44
6:I:120:GLN:HE21	6:I:489:PRO:HD2	1.83	0.44
6:I:1117:LEU:HD12	6:I:1195:ILE:HG12	2.00	0.44
7:J:746:LEU:HD23	7:J:758:PRO:HB3	2.00	0.44
7:J:1158:GLU:OE1	7:J:1223:LEU:HD21	2.18	0.44
1:A:27:DA:H4'	1:A:28:DG:OP1	2.18	0.43
1:A:35:DA:H2"	1:A:36:DG:N7	2.32	0.43
2:B:19:DT:H5"	6:I:1262:LYS:HB2	2.00	0.43
3:H:85:LEU:HB3	3:H:145:LYS:HE2	2.00	0.43
6:I:196:VAL:N	6:I:204:LEU:O	2.44	0.43
6:I:951:MET:O	6:I:955:GLN:HG3	2.17	0.43
6:I:996:ARG:HD2	6:I:996:ARG:HA	1.32	0.43
6:I:1286:THR:O	6:I:1290:MET:HG3	2.18	0.43
7:J:357:VAL:HG22	7:J:461:PHE:CE2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:845:ALA:HA	7:J:883:ARG:HG3	1.99	0.43
7:J:957:SER:N	7:J:985:ILE:O	2.50	0.43
7:J:1221:LEU:HD13	7:J:1229:VAL:HG11	1.99	0.43
3:G:112:ALA:HB3	3:G:126:PRO:HA	2.00	0.43
6:I:587:LEU:HD23	6:I:587:LEU:HA	1.83	0.43
6:I:1257:GLN:NE2	7:J:348:ASP:CG	2.71	0.43
7:J:24:LEU:HD12	7:J:25:ALA:H	1.83	0.43
7:J:1169:THR:HG22	7:J:1173:ARG:HB2	2.01	0.43
6:I:103:VAL:HG12	6:I:117:ILE:HG22	2.00	0.43
7:J:530:PRO:HB3	7:J:577:ALA:O	2.18	0.43
7:J:749:LYS:HB3	7:J:755:ILE:HD11	2.00	0.43
6:I:303:ASP:OD2	6:I:305:SER:OG	2.35	0.43
6:I:617:ALA:N	6:I:652:TYR:O	2.36	0.43
7:J:1347:LEU:HD12	7:J:1357:ILE:HB	2.01	0.43
3:G:45:ARG:HH12	3:H:37:HIS:HB3	1.84	0.43
3:G:118:ASP:HB2	3:G:121:VAL:HG12	2.00	0.43
3:H:234:LEU:HD13	3:H:234:LEU:HA	1.84	0.43
6:I:39:ILE:HB	6:I:75:LEU:HD11	2.00	0.43
6:I:239:MET:SD	6:I:241:LEU:HB2	2.59	0.43
6:I:264:GLU:HB2	6:I:267:ARG:HG3	2.00	0.43
6:I:500:ALA:O	6:I:504:GLU:HG3	2.19	0.43
6:I:807:TRP:CH2	6:I:1216:ARG:HD2	2.53	0.43
7:J:110:PRO:O	7:J:182:ALA:HB3	2.18	0.43
7:J:1075:ARG:NH1	7:J:1165:PHE:H	2.16	0.43
1:A:29:DA:H2"	1:A:30:DG:C8	2.53	0.43
3:H:47:LEU:H	3:H:47:LEU:HG	1.74	0.43
7:J:375:GLU:HA	7:J:378:LYS:CG	2.49	0.43
7:J:471:PRO:HB3	7:J:476:ALA:HB1	2.01	0.43
7:J:523:GLU:OE1	7:J:547:ARG:N	2.52	0.43
7:J:1227:HIS:HB3	7:J:1231:ARG:NH1	2.33	0.43
7:J:1238:GLN:O	7:J:1242:ARG:N	2.40	0.43
7:J:1348:LYS:O	7:J:1352:ILE:HD12	2.18	0.43
2:B:23:DG:H2'	2:B:24:DT:C6	2.53	0.43
3:G:68:TYR:OH	6:I:1057:LYS:HE3	2.18	0.43
6:I:350:THR:O	6:I:354:ASP:N	2.49	0.43
6:I:1270:PHE:CE1	6:I:1274:GLU:HB3	2.53	0.43
7:J:127:LEU:HD22	7:J:227:PHE:HE2	1.84	0.43
7:J:959:LYS:HD2	7:J:959:LYS:HA	1.84	0.43
3:H:96:ASP:O	3:H:147:GLN:HA	2.19	0.43
6:I:165:HIS:CG	6:I:167:SER:HG	2.36	0.43
6:I:312:ALA:H	6:I:315:MET:HE1	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:740:LEU:O	7:J:762:ASN:HB2	2.19	0.43
6:I:101:ARG:HA	6:I:119:GLU:HA	2.01	0.43
6:I:273:HIS:O	6:I:276:GLN:HG3	2.18	0.43
6:I:1042:LEU:HD23	6:I:1042:LEU:HA	1.85	0.43
7:J:1353:VAL:HG11	7:J:1355:ARG:HE	1.84	0.43
3:H:58:GLU:HG3	3:H:173:VAL:H	1.84	0.43
6:I:777:VAL:HG13	6:I:781:ASP:HB3	2.00	0.43
6:I:1252:SER:OG	6:I:1253:LEU:N	2.52	0.43
7:J:66:LYS:HB3	7:J:69:GLU:HG3	2.01	0.43
7:J:155:GLU:OE2	7:J:158:GLN:HB2	2.17	0.43
7:J:414:GLU:HG2	7:J:417:ARG:HH21	1.84	0.43
7:J:441:LEU:HD23	7:J:441:LEU:HA	1.81	0.43
7:J:832:LYS:HG2	7:J:1242:ARG:HD2	2.00	0.43
4:K:22:VAL:HG23	4:K:64:LEU:HD12	2.01	0.42
6:I:850:ILE:HD12	6:I:850:ILE:HA	1.86	0.42
6:I:1225:VAL:HG23	7:J:638:SER:HB2	2.01	0.42
7:J:375:GLU:HG2	7:J:378:LYS:NZ	2.34	0.42
7:J:547:ARG:HA	7:J:573:THR:HA	2.01	0.42
6:I:150:HIS:CG	6:I:454:ARG:HH21	2.37	0.42
7:J:450:HIS:O	7:J:453:VAL:HG12	2.19	0.42
6:I:765:ILE:HD13	6:I:787:PRO:HG3	2.01	0.42
7:J:1218:HIS:ND1	7:J:1306:LEU:HB3	2.34	0.42
6:I:74:ARG:NH2	6:I:97:ARG:HG3	2.34	0.42
6:I:233:ARG:HH21	6:I:331:LYS:HD3	1.85	0.42
6:I:957:LYS:HG3	6:I:1029:LEU:HD11	2.01	0.42
7:J:785:ASP:OD2	7:J:789:LYS:HE3	2.19	0.42
2:B:27:DG:H2"	2:B:28:DG:OP1	2.19	0.42
3:G:95:LYS:NZ	3:G:120:ASP:OD2	2.30	0.42
3:H:82:LEU:HD13	3:H:173:VAL:HG22	2.02	0.42
3:H:95:LYS:H	3:H:95:LYS:HG3	1.62	0.42
3:H:104:LYS:HB2	3:H:104:LYS:HE2	1.95	0.42
6:I:102:LEU:HB3	6:I:118:LYS:HB2	2.01	0.42
6:I:513:GLN:OE1	6:I:529:ARG:NH2	2.53	0.42
6:I:643:SER:OG	7:J:756:GLU:OE2	2.38	0.42
7:J:30:ILE:HG12	7:J:243:PRO:HG3	2.02	0.42
7:J:67:ASP:HB2	7:J:95:THR:H	1.84	0.42
6:I:295:LYS:HB2	6:I:317:LEU:HD12	2.00	0.42
6:I:591:TYR:CD2	6:I:606:LEU:HD12	2.54	0.42
6:I:618:GLN:HG2	7:J:768:ASN:HD21	1.84	0.42
6:I:978:VAL:HB	6:I:1011:LEU:HD11	2.01	0.42
7:J:582:ILE:HG23	7:J:623:GLN:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:706:VAL:HG22	7:J:715:LYS:HD3	2.01	0.42
6:I:225:PHE:HZ	6:I:345:PRO:HA	1.84	0.42
6:I:1101:LEU:O	6:I:1104:PRO:HD2	2.19	0.42
7:J:1064:SER:OG	7:J:1067:ARG:NH2	2.52	0.42
7:J:1109:LEU:HD23	7:J:1113:VAL:HG12	2.01	0.42
3:H:81:ILE:HG12	3:H:131:CYS:HB2	2.02	0.42
6:I:229:ILE:HD13	6:I:334:GLU:OE2	2.20	0.42
7:J:165:TYR:CZ	7:J:169:LEU:HD11	2.54	0.42
7:J:449:LEU:HB2	7:J:466:MET:HE1	2.02	0.42
7:J:502:PRO:HB3	7:J:506:VAL:HG11	2.00	0.42
7:J:888:CYS:HB3	7:J:898:CYS:SG	2.60	0.42
7:J:976:THR:HG23	7:J:999:TYR:HE1	1.85	0.42
6:I:225:PHE:CZ	6:I:345:PRO:HA	2.54	0.42
7:J:544:LEU:O	7:J:575:GLY:N	2.49	0.42
6:I:6:THR:HG21	6:I:782:VAL:HG22	2.02	0.42
6:I:465:ARG:O	6:I:469:VAL:HG13	2.20	0.42
6:I:1028:LYS:HB3	6:I:1028:LYS:HE2	1.39	0.42
6:I:1127:LYS:HD2	6:I:1202:GLY:HA2	2.02	0.42
6:I:1192:GLU:OE1	7:J:764:ARG:NH1	2.52	0.42
7:J:425:ARG:HD3	7:J:427:PRO:HD2	2.01	0.42
7:J:530:PRO:HG2	7:J:580:TRP:HD1	1.85	0.42
7:J:931:THR:H	7:J:1244:GLN:NE2	2.18	0.42
7:J:1364:ALA:O	7:J:1367:GLN:HG3	2.19	0.42
4:K:3:ARG:HD2	4:K:3:ARG:HA	1.28	0.41
6:I:138:ILE:HD13	6:I:506:PHE:HB3	2.01	0.41
6:I:668:ILE:HB	6:I:671:LEU:HD12	2.01	0.41
6:I:686:GLN:HE21	6:I:1069:ARG:HG2	1.85	0.41
6:I:870:ILE:HD12	6:I:1050:VAL:HG11	2.01	0.41
7:J:495:ASN:OD1	7:J:497:GLU:HB2	2.20	0.41
6:I:545:PHE:CE2	7:J:788:LEU:HD22	2.56	0.41
6:I:1196:LYS:HD3	6:I:1206:THR:O	2.20	0.41
7:J:72:CYS:H	7:J:88:CYS:HB3	1.85	0.41
7:J:375:GLU:CA	7:J:378:LYS:HG3	2.50	0.41
7:J:923:ILE:HD12	7:J:1256:ILE:HG13	2.02	0.41
7:J:974:VAL:HA	7:J:1001:ALA:O	2.21	0.41
3:G:53:GLY:HA3	3:G:177:TYR:O	2.20	0.41
3:G:133:LEU:HA	3:G:133:LEU:HD23	1.79	0.41
3:H:55:ALA:HA	3:H:145:LYS:HB3	2.02	0.41
3:H:91:ARG:HE	3:H:91:ARG:HB2	1.54	0.41
6:I:447:HIS:HA	6:I:551:HIS:ND1	2.34	0.41
6:I:1022:LYS:HD2	6:I:1022:LYS:HA	1.58	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:143:SER:HB2	7:J:159:ILE:HD11	2.03	0.41
7:J:857:LEU:HG	7:J:858:VAL:HG23	2.01	0.41
7:J:1236:GLU:O	7:J:1240:VAL:HG23	2.20	0.41
3:G:110:VAL:HG23	3:G:130:ILE:HB	2.03	0.41
3:H:214:GLU:HA	3:H:217:ILE:HD12	2.03	0.41
6:I:97:ARG:HA	6:I:97:ARG:HD3	1.75	0.41
6:I:165:HIS:CE1	6:I:167:SER:HG	2.35	0.41
7:J:1154:ALA:HB1	7:J:1209:VAL:HG23	2.03	0.41
3:H:47:LEU:CD1	3:H:183:ILE:HG21	2.51	0.41
6:I:38:PHE:HD1	6:I:461:GLU:HG3	1.85	0.41
6:I:881:ASP:O	6:I:920:VAL:HG23	2.20	0.41
6:I:1244:HIS:NE2	6:I:1266:GLY:O	2.53	0.41
7:J:786:THR:HA	7:J:789:LYS:HD2	2.02	0.41
7:J:804:ALA:HA	7:J:1259:GLN:HG3	2.02	0.41
7:J:824:PRO:HD3	7:J:835:LEU:HD13	2.03	0.41
7:J:966:VAL:HB	7:J:1028:ILE:HD12	2.02	0.41
2:B:19:DT:OP1	6:I:1262:LYS:N	2.54	0.41
3:G:48:LEU:HG	3:G:183:ILE:HD12	2.02	0.41
3:H:21:SER:O	3:H:213:PRO:HD3	2.21	0.41
3:H:23:HIS:CE1	3:H:204:GLU:HB3	2.54	0.41
1:A:26:DA:H4'	1:A:27:DA:OP1	2.20	0.41
3:H:43:LEU:O	3:H:47:LEU:HG	2.21	0.41
3:H:61:ILE:HG12	3:H:64:VAL:HG23	2.03	0.41
6:I:521:LEU:HD23	6:I:686:GLN:HB3	2.03	0.41
6:I:759:SER:OG	6:I:765:ILE:HG12	2.20	0.41
6:I:960:LEU:HD13	6:I:1029:LEU:HA	2.02	0.41
6:I:1185:PRO:HD2	6:I:1189:GLY:HA2	2.03	0.41
6:I:1267:GLY:O	7:J:346:ARG:NH1	2.54	0.41
6:I:1283:ALA:HB1	6:I:1286:THR:OG1	2.20	0.41
7:J:492:SER:HB3	7:J:499:ILE:HD13	2.02	0.41
7:J:516:ASP:OD1	7:J:516:ASP:N	2.54	0.41
7:J:644:MET:HE2	7:J:764:ARG:HB2	2.02	0.41
7:J:1037:PHE:CZ	7:J:1059:LEU:HD13	2.55	0.41
7:J:1048:ARG:CA	7:J:1059:LEU:HD23	2.51	0.41
7:J:1266:ILE:HA	7:J:1302:TYR:HA	2.02	0.41
7:J:1282:TYR:HA	7:J:1285:VAL:HG12	2.03	0.41
6:I:272:ARG:HH21	6:I:276:GLN:N	2.18	0.41
6:I:704:MET:O	6:I:708:VAL:HG23	2.21	0.41
6:I:718:ALA:N	6:I:781:ASP:O	2.53	0.41
6:I:870:ILE:HB	6:I:944:ARG:HG2	2.03	0.41
7:J:38:VAL:HG11	7:J:56:LEU:HA	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:480:ALA:HA	7:J:484:MET:HG2	2.02	0.41
7:J:499:ILE:HD12	7:J:499:ILE:HA	1.96	0.41
7:J:580:TRP:CE3	7:J:589:TYR:HD1	2.38	0.41
7:J:849:LEU:HD23	7:J:849:LEU:H	1.86	0.41
7:J:952:VAL:HG13	7:J:1014:GLY:H	1.86	0.41
3:G:88:LEU:HG	3:G:90:VAL:HG23	2.01	0.41
3:H:46:ILE:HG13	3:H:224:LEU:HD13	2.02	0.41
3:H:83:LEU:HB3	7:J:551:ARG:HH21	1.86	0.41
6:I:18:ARG:NE	6:I:620:ASN:HA	2.36	0.41
6:I:68:LEU:HD13	6:I:102:LEU:HB2	2.03	0.41
6:I:550:VAL:HG13	7:J:777:HIS:ND1	2.35	0.41
7:J:127:LEU:HD23	7:J:189:LEU:HD22	2.03	0.41
7:J:211:GLU:HA	7:J:214:ARG:HB2	2.03	0.41
7:J:544:LEU:HD11	7:J:631:TYR:CD1	2.52	0.41
7:J:1099:TYR:HB3	7:J:1199:PHE:CZ	2.55	0.41
6:I:324:LYS:O	6:I:327:GLN:NE2	2.54	0.41
6:I:538:LEU:HD22	6:I:547:VAL:HG11	2.01	0.41
6:I:699:LEU:HD12	6:I:699:LEU:HA	1.81	0.41
6:I:1329:GLU:OE2	7:J:330:MET:HB2	2.21	0.41
7:J:1306:LEU:HD12	7:J:1306:LEU:HA	1.89	0.41
6:I:191:LYS:HE2	6:I:191:LYS:HB2	1.96	0.40
6:I:241:LEU:HB3	6:I:285:ILE:HD12	2.03	0.40
6:I:667:LEU:HD23	6:I:667:LEU:HA	1.85	0.40
6:I:1339:LEU:HD23	7:J:17:PHE:CG	2.57	0.40
7:J:120:LEU:HB2	7:J:121:PRO:HD3	2.03	0.40
7:J:450:HIS:CE1	7:J:452:LEU:HB2	2.56	0.40
7:J:1311:LYS:HA	7:J:1311:LYS:HD3	1.91	0.40
3:H:83:LEU:HD12	3:H:83:LEU:HA	1.75	0.40
6:I:178:PRO:HA	6:I:397:LEU:HD23	2.02	0.40
6:I:551:HIS:H	6:I:554:HIS:CE1	2.40	0.40
6:I:560:PRO:HB2	7:J:776:THR:CG2	2.46	0.40
6:I:702:THR:HA	6:I:1184:THR:O	2.22	0.40
6:I:976:ARG:HH12	6:I:989:LEU:HB2	1.86	0.40
2:B:4:DT:H2"	2:B:5:DG:O4'	2.21	0.40
4:K:59:ILE:HD13	4:K:59:ILE:HA	1.74	0.40
6:I:473:ARG:O	6:I:476:LYS:HG2	2.22	0.40
6:I:1086:PRO:HB2	6:I:1212:LEU:HD21	2.04	0.40
7:J:103:GLY:C	7:J:244:VAL:HG12	2.41	0.40
7:J:153:ASN:OD1	7:J:154:LEU:N	2.55	0.40
7:J:355:ILE:HG22	7:J:461:PHE:HE1	1.87	0.40
7:J:563:LEU:HA	7:J:563:LEU:HD23	1.84	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:641:ILE:HD13	7:J:641:ILE:HA	1.89	0.40
7:J:1172:LYS:HZ1	7:J:1191:PRO:HG3	1.86	0.40
7:J:1195:GLN:NE2	7:J:1196:LEU:O	2.55	0.40
6:I:227:LYS:HD2	6:I:334:GLU:HB3	2.04	0.40
7:J:384:LYS:HG3	7:J:415:VAL:HG12	2.03	0.40
7:J:770:LEU:HA	7:J:770:LEU:HD23	1.88	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	G	217/235 (92%)	212 (98%)	5 (2%)	0	100	100
3	H	215/235 (92%)	204 (95%)	9 (4%)	2 (1%)	17	54
4	K	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
6	I	1312/1340 (98%)	1271 (97%)	40 (3%)	1 (0%)	51	83
7	J	1331/1358 (98%)	1293 (97%)	37 (3%)	1 (0%)	51	83
All	All	3152/3247 (97%)	3055 (97%)	93 (3%)	4 (0%)	54	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	H	30	PRO
3	H	90	VAL
6	I	58	PRO
7	J	427	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
3	G	189/202 (94%)	188 (100%)	1 (0%)	88 94
3	H	188/202 (93%)	102 (54%)	86 (46%)	0 0
4	K	67/67 (100%)	43 (64%)	24 (36%)	0 1
6	I	1135/1155 (98%)	1084 (96%)	51 (4%)	27 57
7	J	1122/1134 (99%)	1062 (95%)	60 (5%)	22 54
All	All	2701/2760 (98%)	2479 (92%)	222 (8%)	15 40

All (222) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	G	150	ARG
3	H	6	THR
3	H	9	LEU
3	H	10	LYS
3	H	13	LEU
3	H	14	VAL
3	H	16	ILE
3	H	18	GLN
3	H	19	VAL
3	H	20	SER
3	H	26	VAL
3	H	27	THR
3	H	28	LEU
3	H	31	LEU
3	H	33	ARG
3	H	37	HIS
3	H	43	LEU
3	H	45	ARG
3	H	47	LEU
3	H	48	LEU
3	H	50	SER
3	H	51	MET
3	H	54	CYS

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Mol	Chain	Res	Type
3	H	59	VAL
3	H	60	GLU
3	H	62	ASP
3	H	64	VAL
3	H	65	LEU
3	H	67	GLU
3	H	71	LYS
3	H	72	GLU
3	H	74	VAL
3	H	75	GLN
3	H	79	LEU
3	H	80	GLU
3	H	83	LEU
3	H	91	ARG
3	H	95	LYS
3	H	96	ASP
3	H	98	VAL
3	H	99	ILE
3	H	100	LEU
3	H	101	THR
3	H	103	ASN
3	H	104	LYS
3	H	110	VAL
3	H	114	ASP
3	H	116	THR
3	H	117	HIS
3	H	120	ASP
3	H	122	GLU
3	H	127	GLN
3	H	129	VAL
3	H	131	CYS
3	H	133	LEU
3	H	134	THR
3	H	136	GLU
3	H	137	ASN
3	H	142	MET
3	H	144	ILE
3	H	145	LYS
3	H	146	VAL
3	H	158	ARG
3	H	170	ARG
3	H	171	LEU

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Mol	Chain	Res	Type
3	H	172	LEU
3	H	174	ASP
3	H	180	VAL
3	H	183	ILE
3	H	187	VAL
3	H	188	GLU
3	H	191	ARG
3	H	192	VAL
3	H	194	GLN
3	H	195	ARG
3	H	196	THR
3	H	197	ASP
3	H	202	VAL
3	H	203	ILE
3	H	205	MET
3	H	207	THR
3	H	211	ILE
3	H	219	ARG
3	H	229	GLU
3	H	231	PHE
3	H	233	ASP
3	H	234	LEU
4	K	3	ARG
4	K	5	THR
4	K	10	VAL
4	K	19	LEU
4	K	28	ARG
4	K	30	MET
4	K	35	LYS
4	K	38	LEU
4	K	42	GLU
4	K	45	LYS
4	K	47	THR
4	K	48	VAL
4	K	52	ARG
4	K	56	GLU
4	K	59	ILE
4	K	60	ASN
4	K	61	ASN
4	K	67	ARG
4	K	68	GLU
4	K	69	ARG

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Mol	Chain	Res	Type
4	K	70	GLN
4	K	71	GLU
4	K	72	GLN
4	K	80	LEU
6	I	59	ILE
6	I	563	THR
6	I	568	ASN
6	I	572	ILE
6	I	734	ILE
6	I	739	ASP
6	I	740	GLU
6	I	748	ILE
6	I	843	THR
6	I	845	LEU
6	I	935	THR
6	I	941	LYS
6	I	950	GLU
6	I	953	LEU
6	I	960	LEU
6	I	964	LEU
6	I	967	LEU
6	I	974	ARG
6	I	975	ILE
6	I	978	VAL
6	I	979	LEU
6	I	980	VAL
6	I	987	GLU
6	I	988	LYS
6	I	992	LEU
6	I	994	ARG
6	I	995	ASP
6	I	996	ARG
6	I	997	TRP
6	I	998	LEU
6	I	1000	LEU
6	I	1005	GLU
6	I	1006	GLU
6	I	1007	LYS
6	I	1009	ASN
6	I	1013	GLN
6	I	1019	ASP
6	I	1021	LEU

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Mol	Chain	Res	Type
6	I	1022	LYS
6	I	1026	GLU
6	I	1027	LYS
6	I	1028	LYS
6	I	1029	LEU
6	I	1030	GLU
6	I	1032	LYS
6	I	1035	LYS
6	I	1046	VAL
6	I	1047	LEU
6	I	1299	ASN
6	I	1302	THR
6	I	1303	LYS
7	J	32	SER
7	J	39	LYS
7	J	40	LYS
7	J	42	GLU
7	J	45	ASN
7	J	47	ARG
7	J	48	THR
7	J	50	LYS
7	J	53	ARG
7	J	54	ASP
7	J	56	LEU
7	J	66	LYS
7	J	67	ASP
7	J	78	LEU
7	J	79	LYS
7	J	87	LYS
7	J	90	VAL
7	J	92	VAL
7	J	93	THR
7	J	94	GLN
7	J	96	LYS
7	J	97	VAL
7	J	250	ARG
7	J	309	ASN
7	J	311	ARG
7	J	314	ARG
7	J	320	ASN
7	J	321	LYS
7	J	322	ARG

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Mol	Chain	Res	Type
7	J	324	LEU
7	J	325	LYS
7	J	326	SER
7	J	327	LEU
7	J	329	ASP
7	J	330	MET
7	J	332	LYS
7	J	338	PHE
7	J	372	MET
7	J	374	LEU
7	J	394	ILE
7	J	398	LYS
7	J	399	LYS
7	J	401	VAL
7	J	403	ARG
7	J	405	GLU
7	J	407	VAL
7	J	414	GLU
7	J	416	ILE
7	J	425	ARG
7	J	428	THR
7	J	430	HIS
7	J	431	ARG
7	J	435	GLN
7	J	702	GLN
7	J	706	VAL
7	J	709	ARG
7	J	714	GLU
7	J	716	GLN
7	J	1045	THR
7	J	1046	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
3	H	23	HIS
3	H	41	ASN
3	H	84	ASN
4	K	61	ASN
6	I	120	GLN
6	I	618	GLN
6	I	620	ASN

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Mol	Chain	Res	Type
6	I	1268	GLN
7	J	229	GLN
7	J	424	ASN
7	J	465	GLN
7	J	1114	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
5	R	47/47 (100%)	27 (57%)	2 (4%)

All (27) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	R	2	C
5	R	3	A
5	R	8	U
5	R	9	U
5	R	10	C
5	R	13	G
5	R	14	C
5	R	15	U
5	R	16	A
5	R	17	C
5	R	18	A
5	R	25	A
5	R	26	U
5	R	27	A
5	R	28	A
5	R	30	A
5	R	31	A
5	R	32	A
5	R	33	C
5	R	34	U
5	R	35	A
5	R	36	A
5	R	37	G
5	R	38	G
5	R	39	A
5	R	42	A
5	R	47	A

All (2) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	R	1	G
5	R	15	U

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

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	$\#\|Z\| > 2$
8	PRF	R	101	-	13,14,14	0.87	1 (7%)	9,20,20	1.43	2 (22%)

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
8	PRF	R	101	-	-	0/0/2/2	0/2/2/2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	R	101	PRF	C5-C6	-2.18	1.42	1.47

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	R	101	PRF	C5-C6-N1	-2.66	113.10	115.36
8	R	101	PRF	C10-C7-C8	2.62	132.25	126.96

There are no chirality outliers.

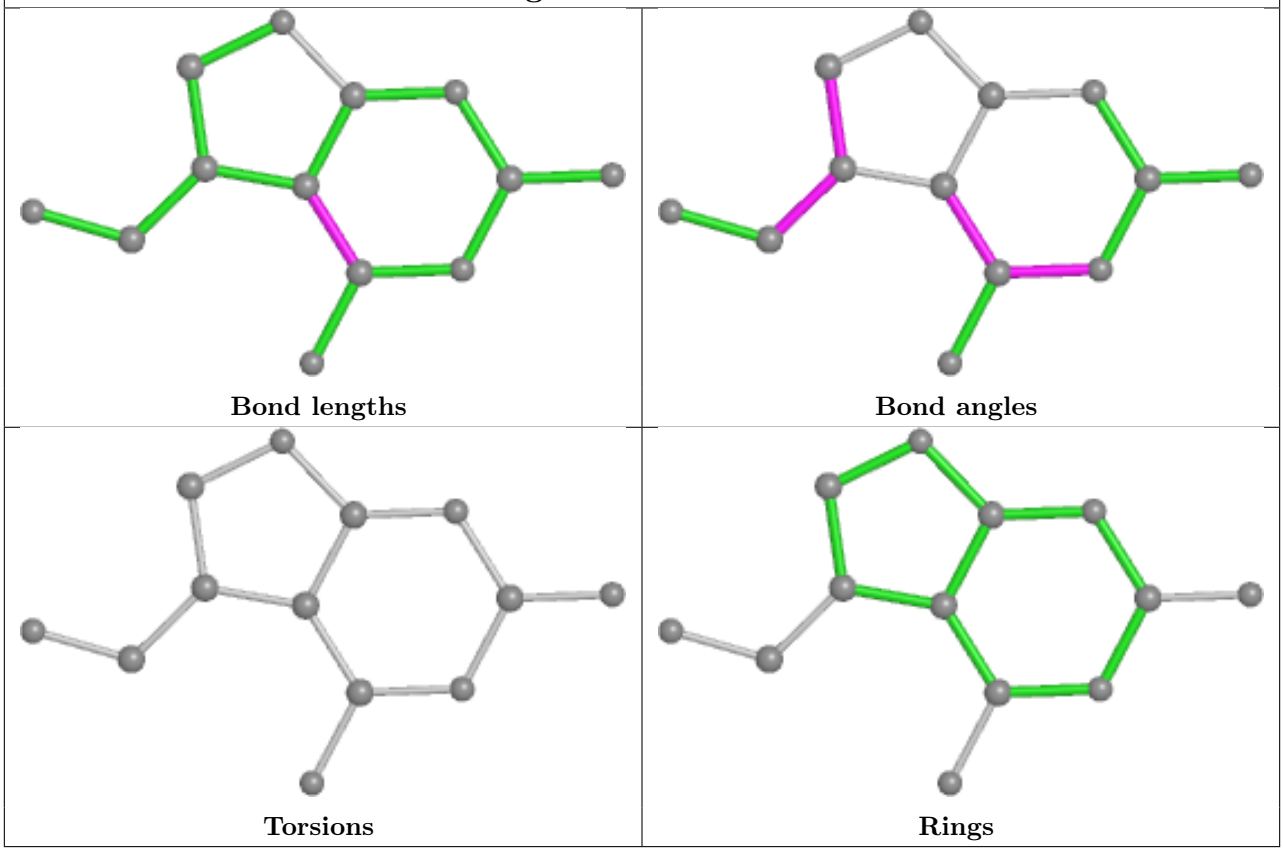
There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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 PRF R 101



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

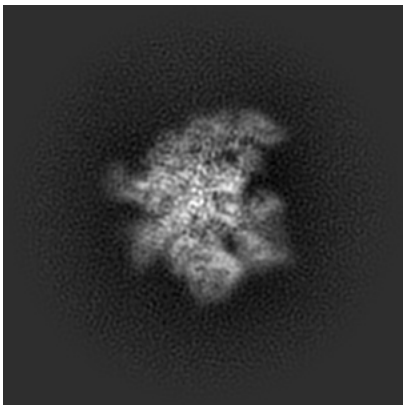
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-29732. These allow visual inspection of the internal detail of the map and identification of artifacts.

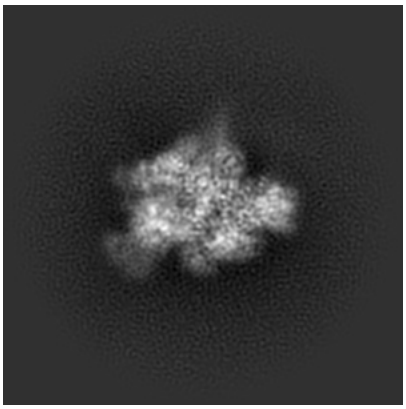
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

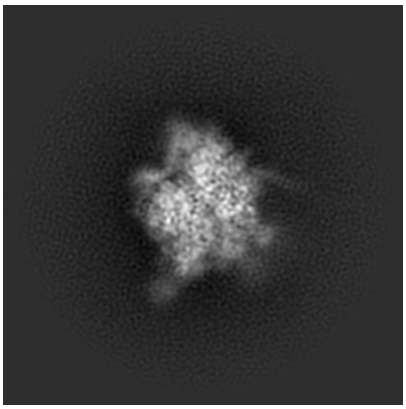
6.1.1 Primary map



X

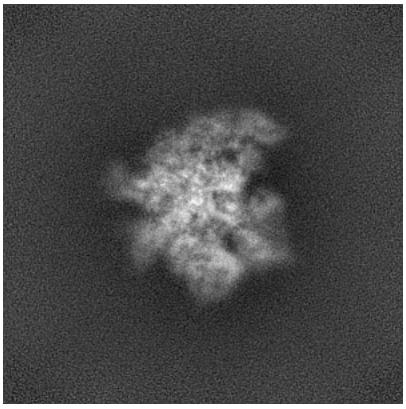


Y

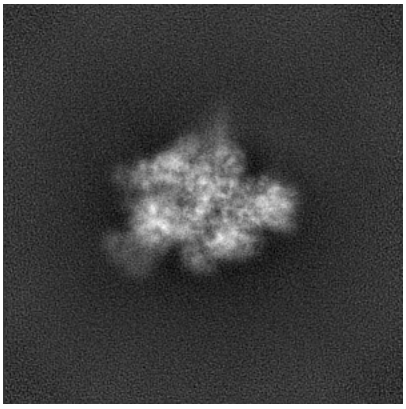


Z

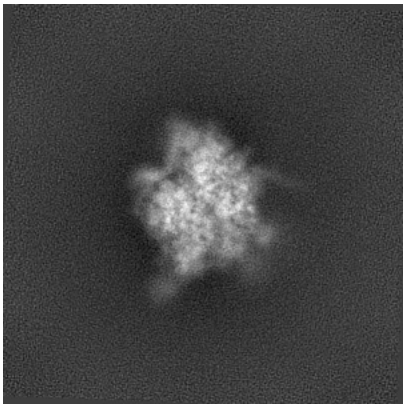
6.1.2 Raw map



X



Y

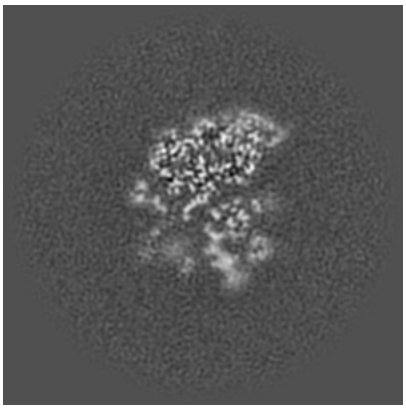


Z

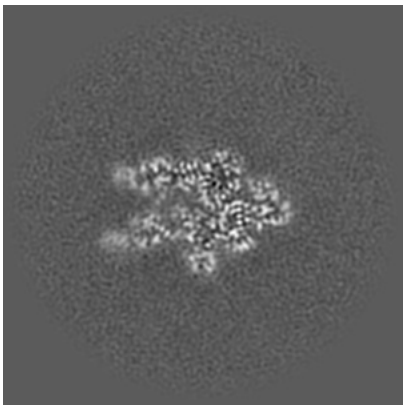
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

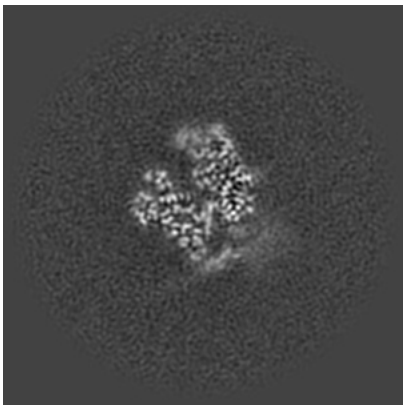
6.2.1 Primary map



X Index: 150

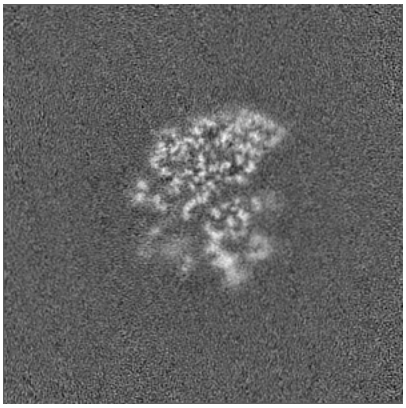


Y Index: 150

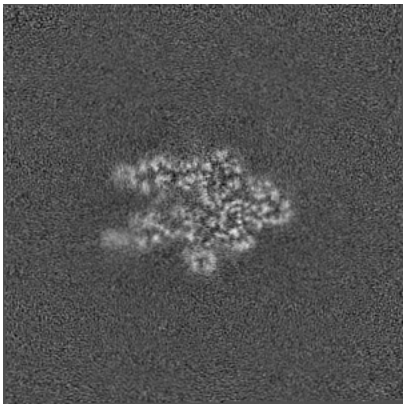


Z Index: 150

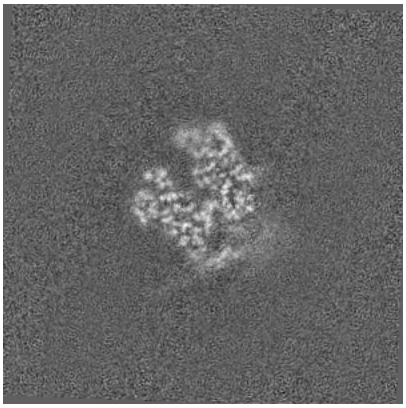
6.2.2 Raw map



X Index: 150



Y Index: 150

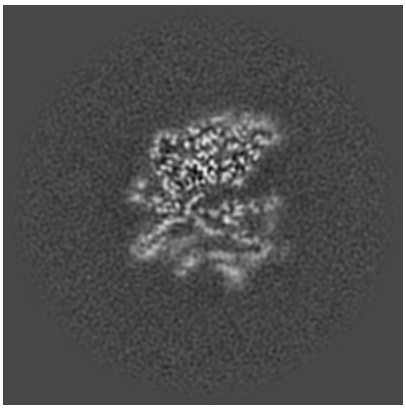


Z Index: 150

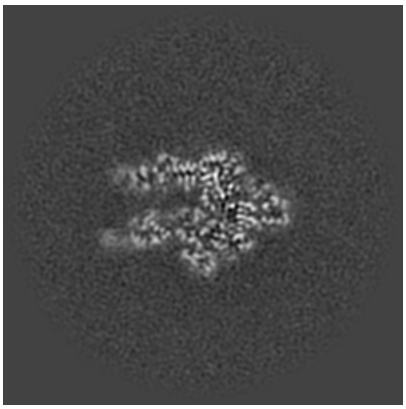
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

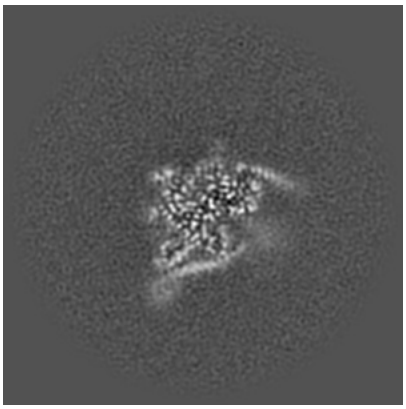
6.3.1 Primary map



X Index: 146

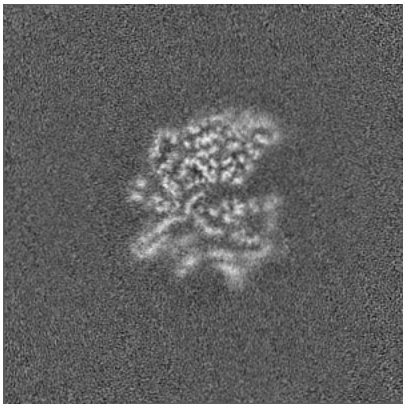


Y Index: 148

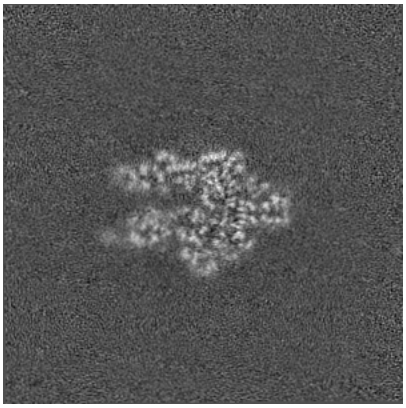


Z Index: 165

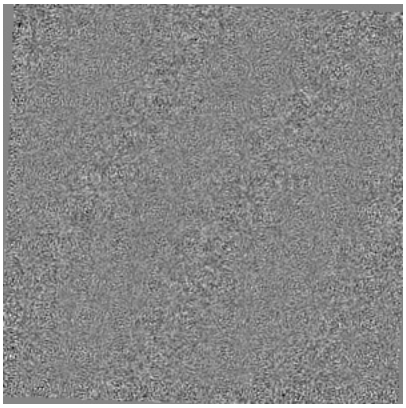
6.3.2 Raw map



X Index: 146



Y Index: 147

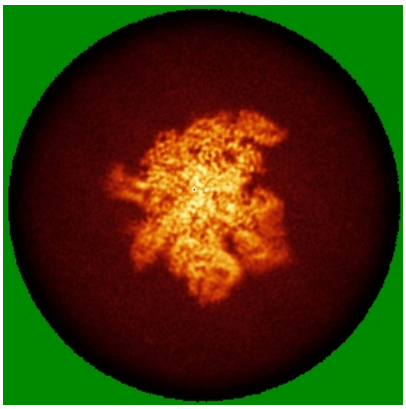


Z Index: 297

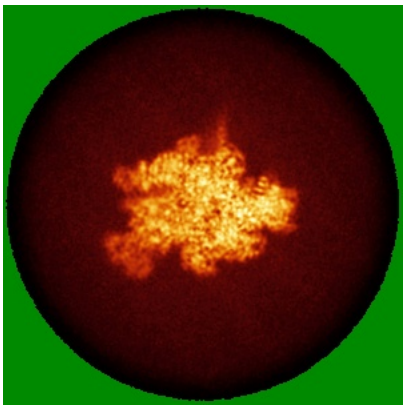
The images above show the largest variance slices of the map in three orthogonal directions.

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

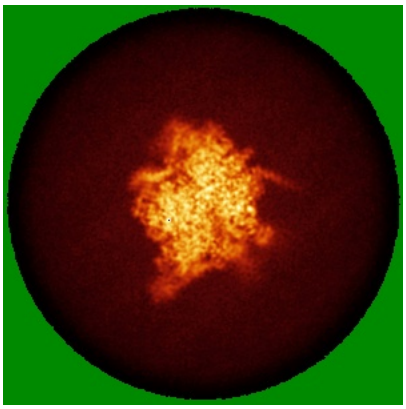
6.4.1 Primary map



X

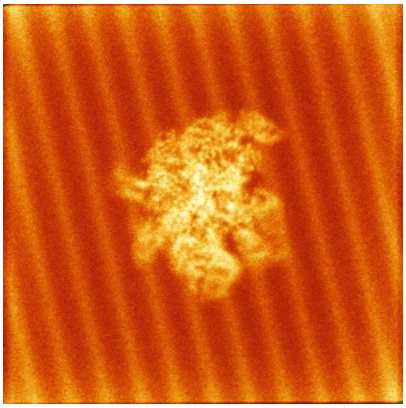


Y

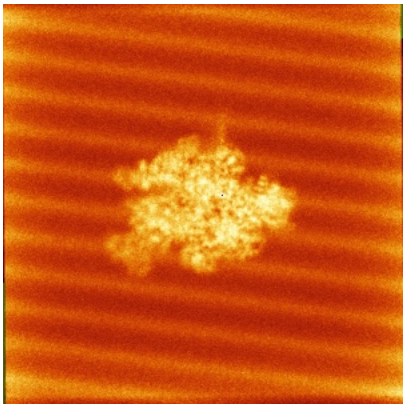


Z

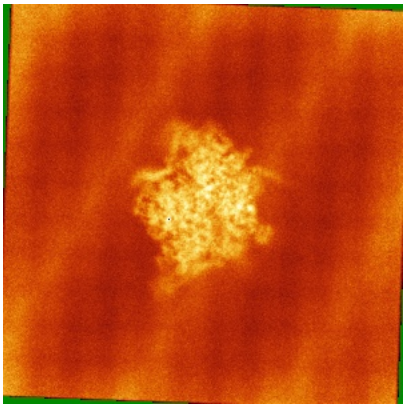
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

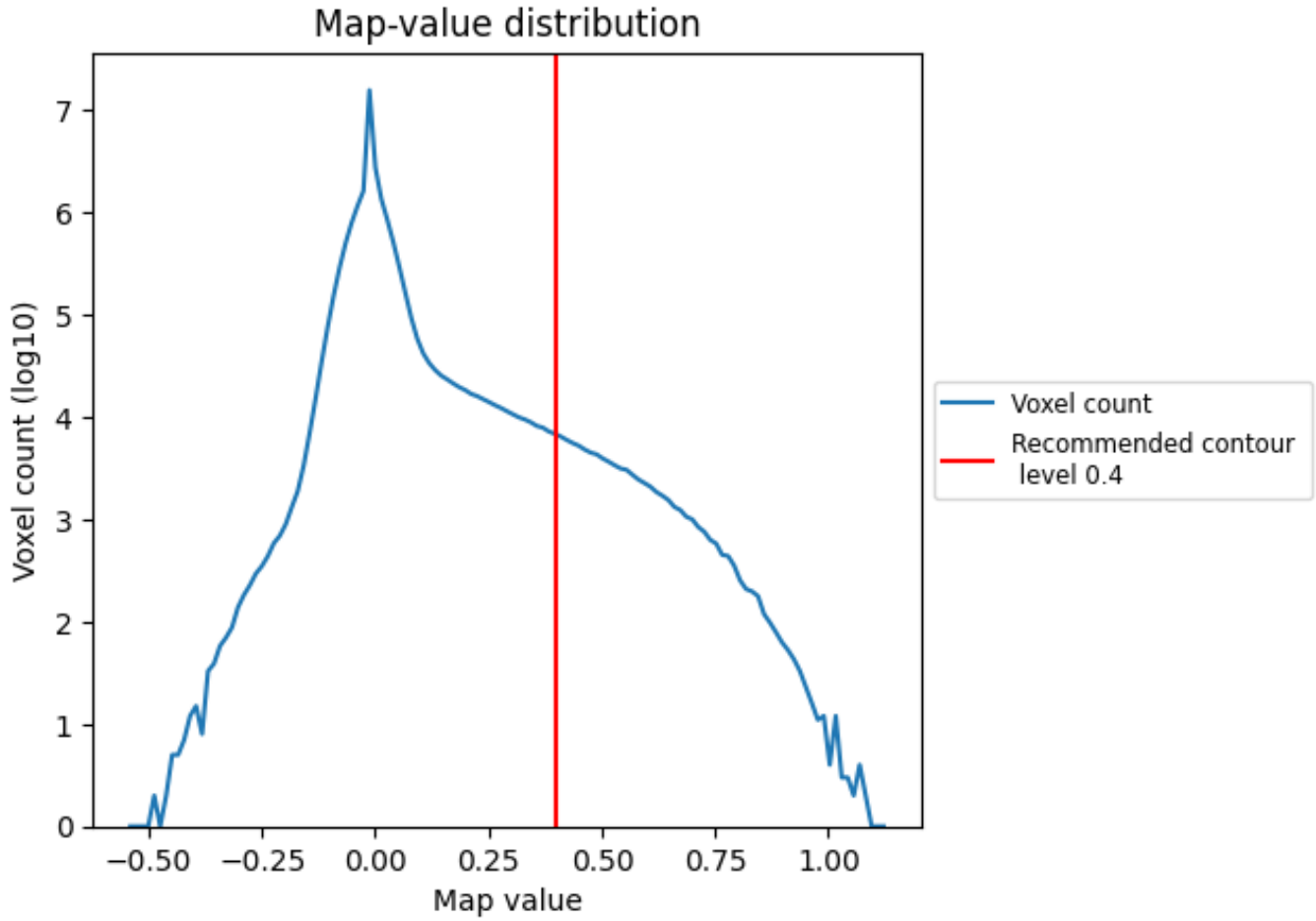
6.6 Mask visualisation (i)

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

7 Map analysis

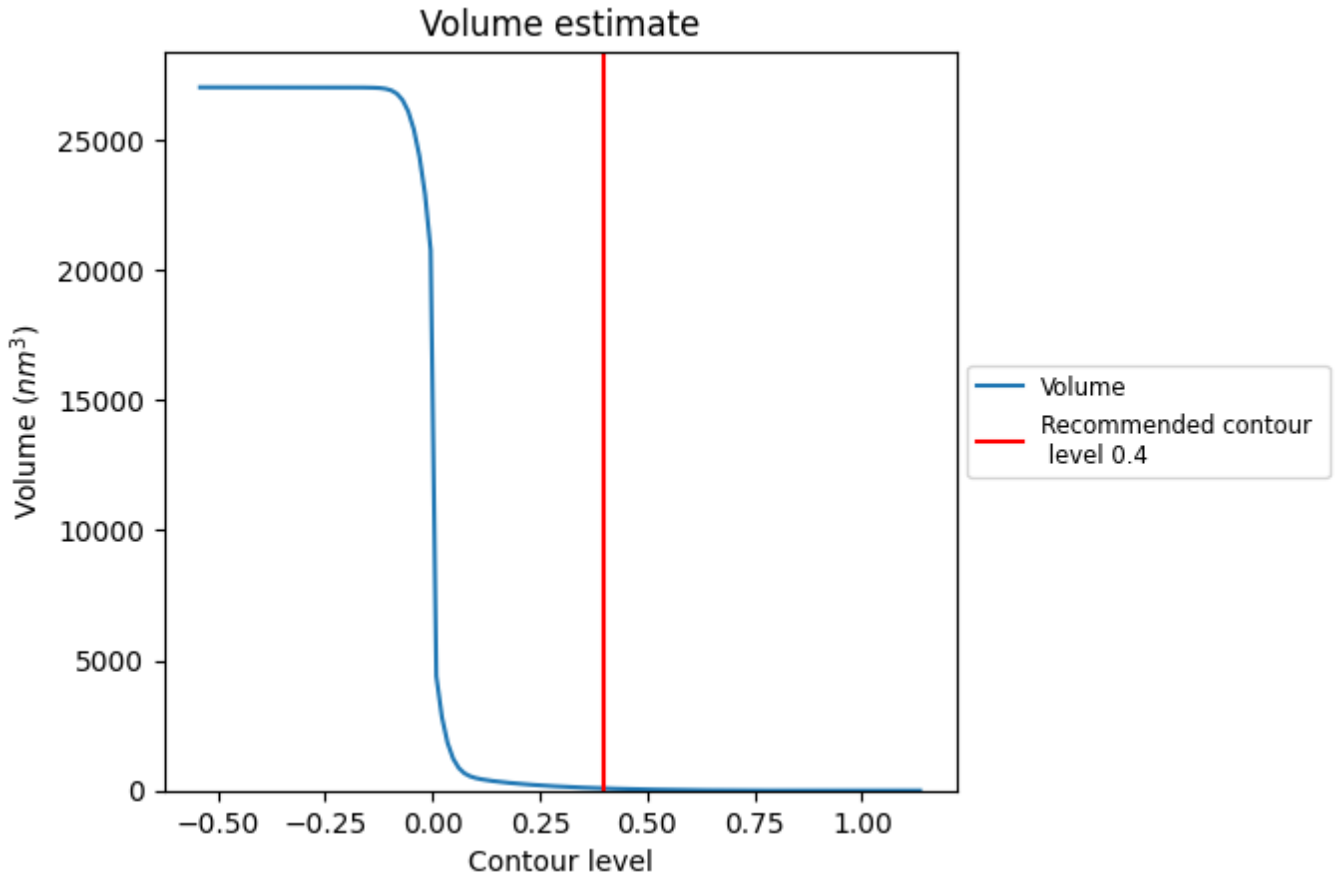
This section contains the results of statistical analysis of the map.

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.

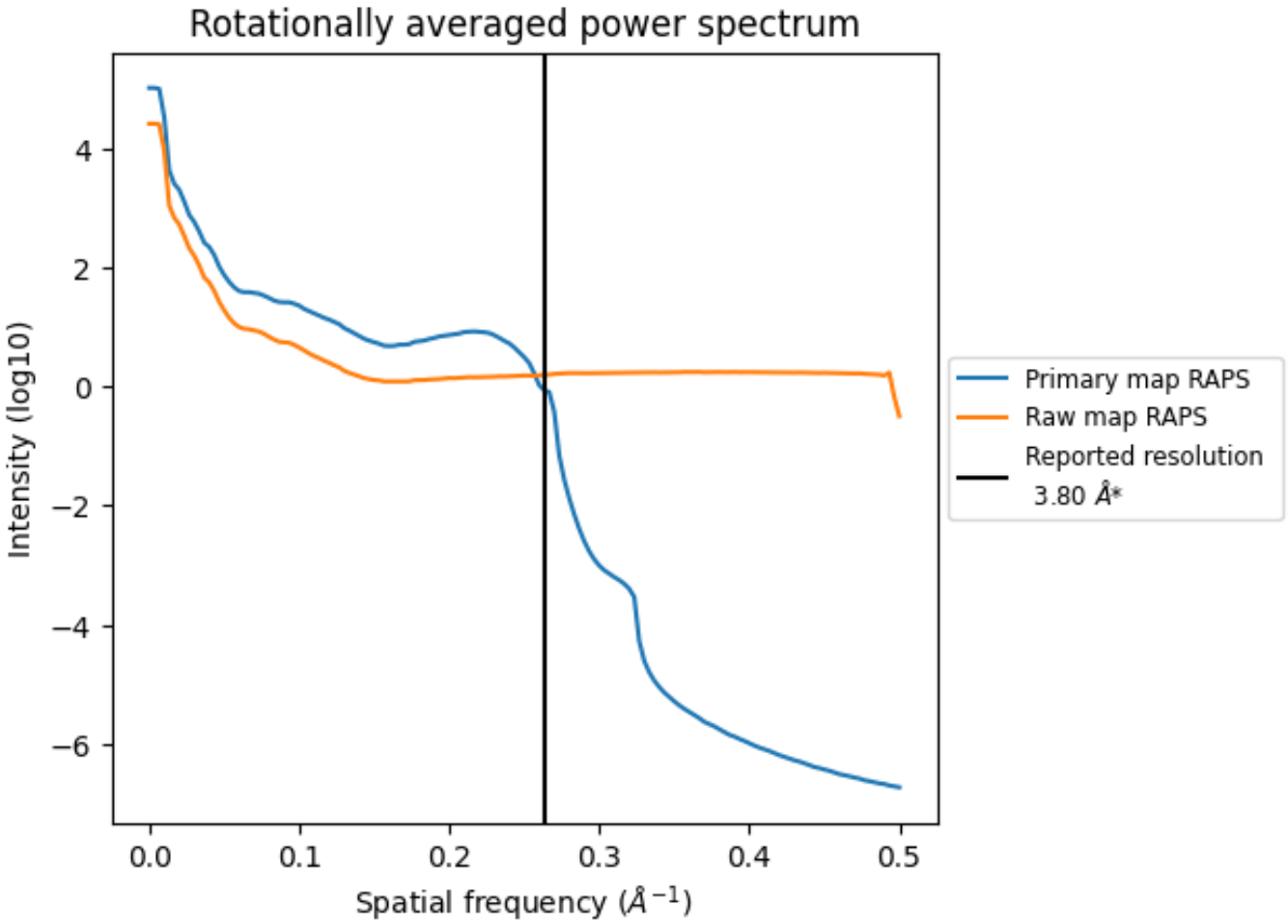
7.2 Volume estimate



The volume at the recommended contour level is 84 nm^3; this corresponds to an approximate mass of 76 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

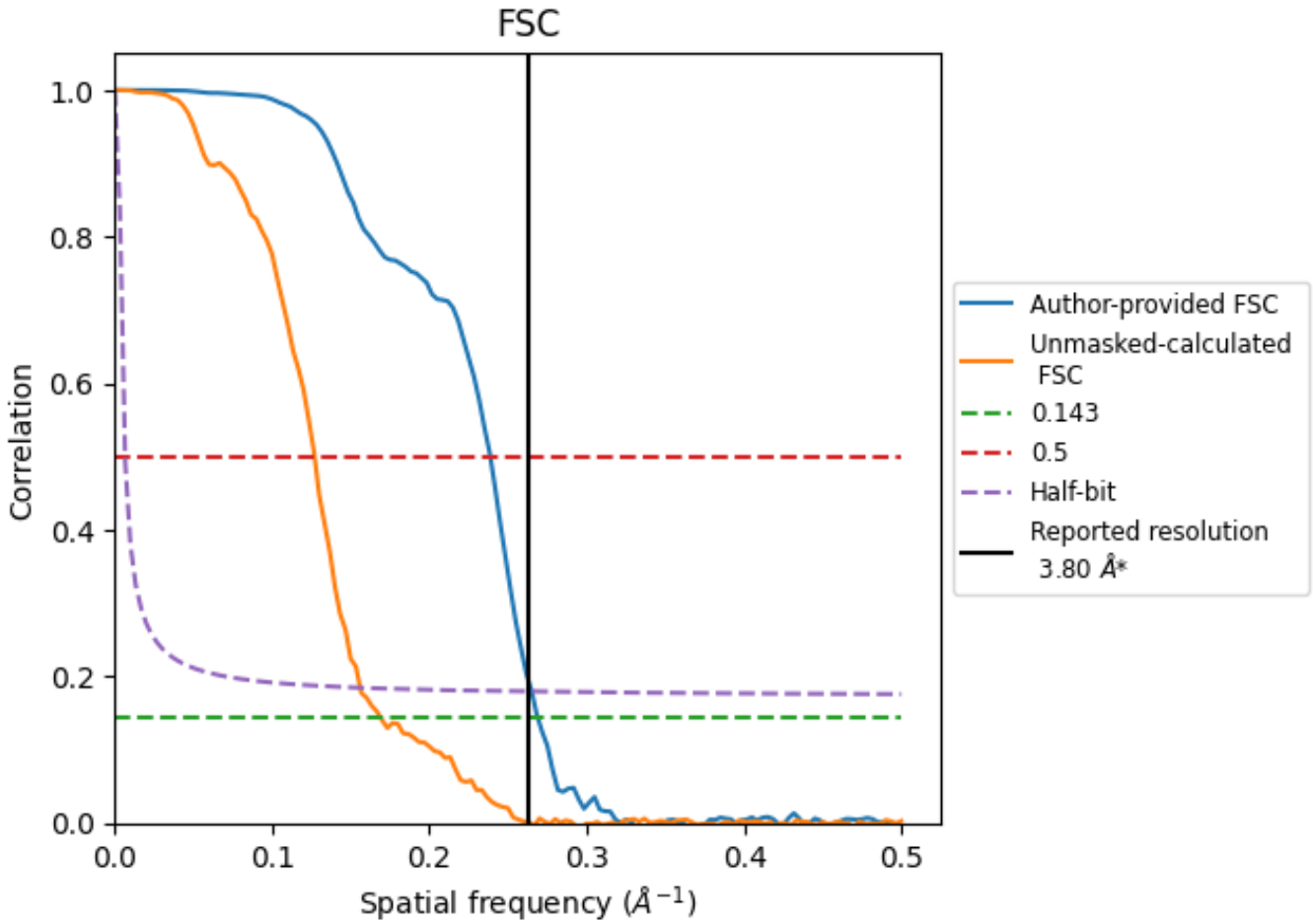


*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

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 0.263 Å^{-1}

8.2 Resolution estimates (i)

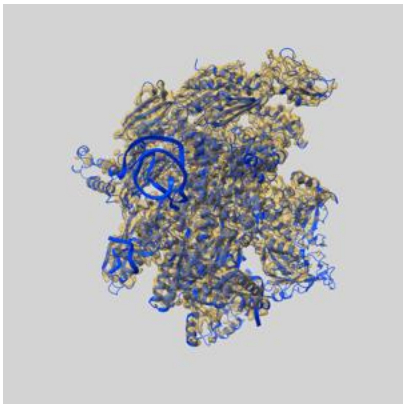
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.72	4.19	3.77
Unmasked-calculated*	5.91	7.87	6.41

*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 5.91 differs from the reported value 3.8 by more than 10 %

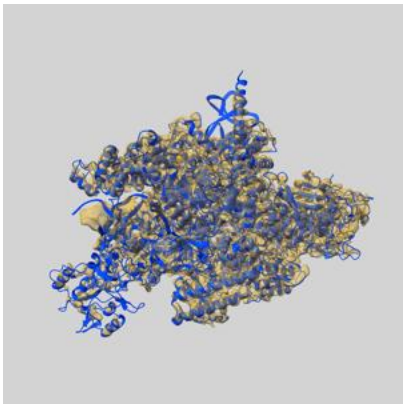
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-29732 and PDB model 8G4W. Per-residue inclusion information can be found in section 3 on page 7.

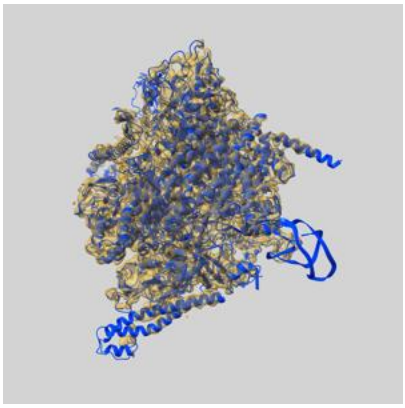
9.1 Map-model overlay



X



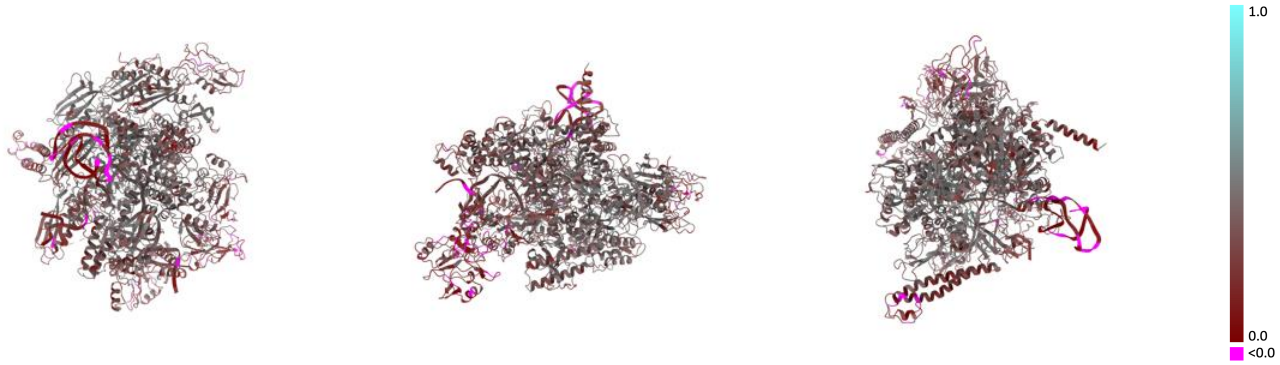
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

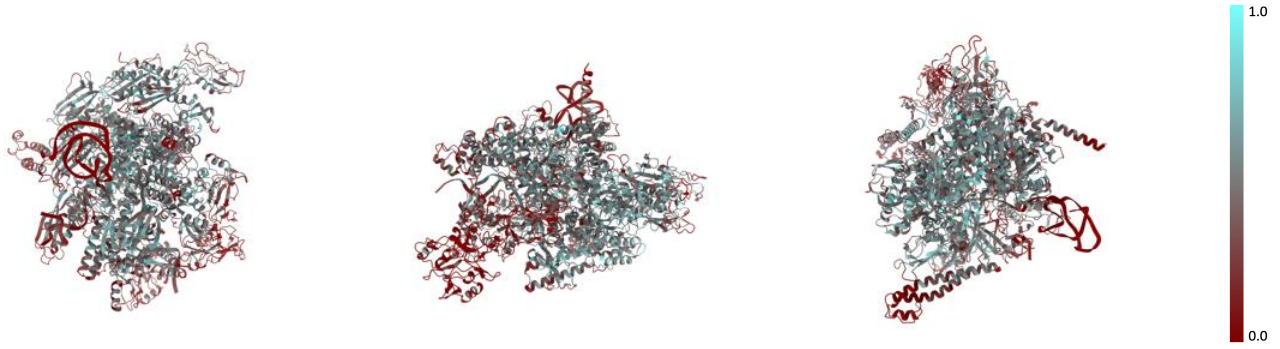
9.2 Q-score mapped to coordinate model (i)



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.

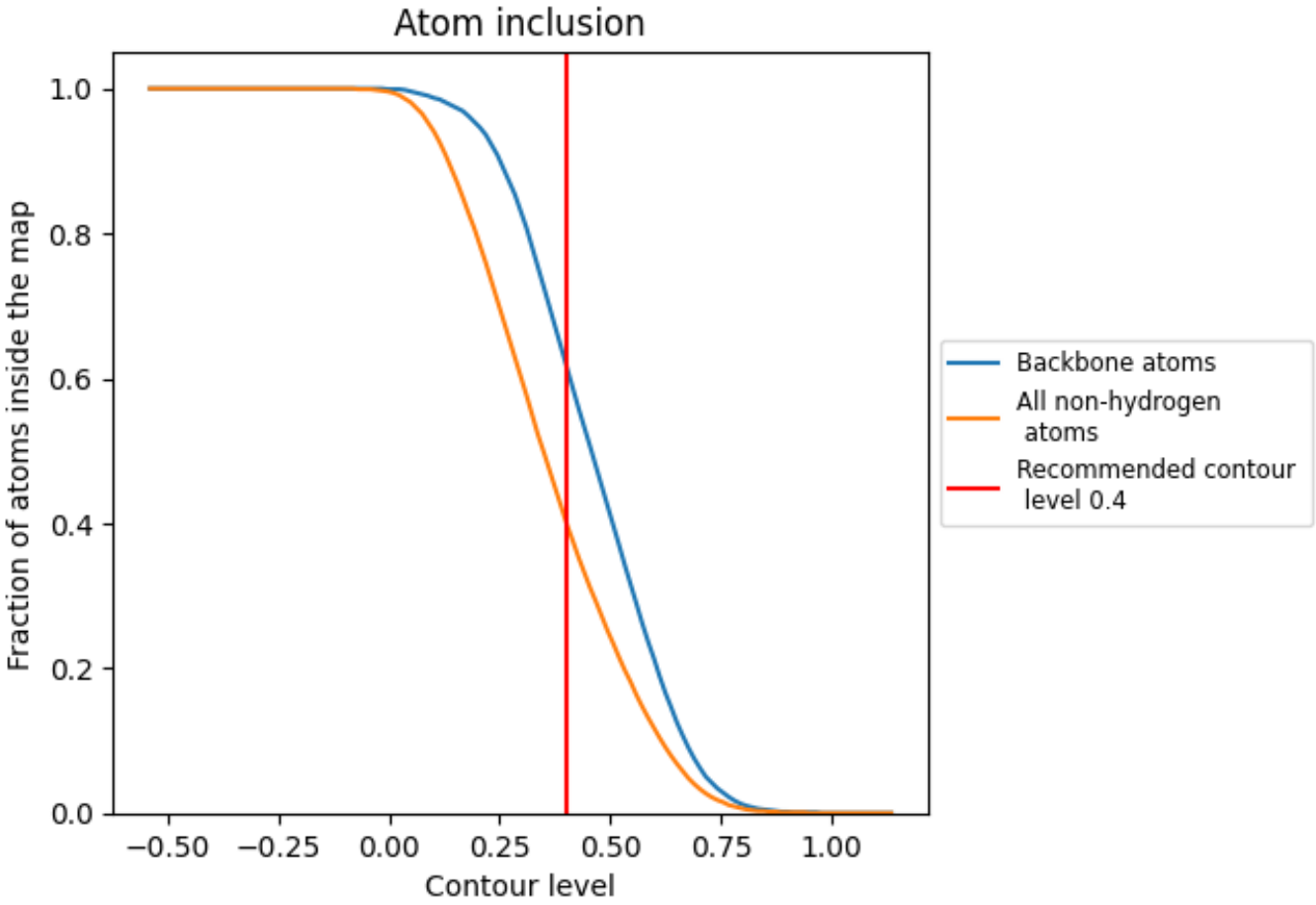
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.4).

9.4 Atom inclusion (i)



At the recommended contour level, 62% of all backbone atoms, 40% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4020	0.3380
A	0.4200	0.2700
B	0.4470	0.2870
G	0.5080	0.4040
H	0.3990	0.3080
I	0.4160	0.3580
J	0.3970	0.3410
K	0.3630	0.3290
R	0.1210	0.1030