Full wwPDB EM Validation Report (i)

Oct 19, 2026 – 10:25 PM JST

PDB ID	:	9XSB / pdb_00009xsb
EMDB ID	:	EMD-67169
Title	:	CCHFV-FL-RNA-bound state
Authors	:	Zhu, H.; Gao, X.P.
Deposited on	:	2025-11-20
Resolution	:	3.76 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

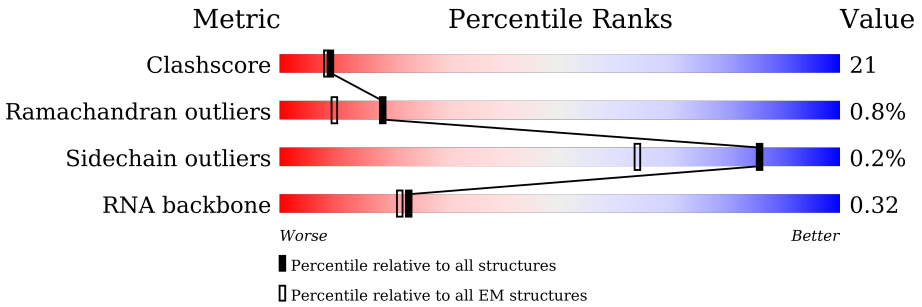
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

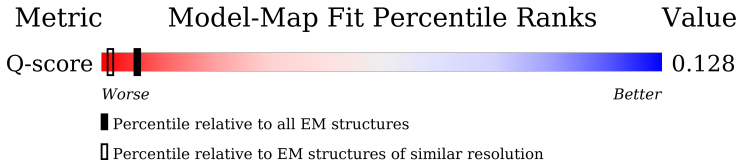
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.76 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10214 (3.26 - 4.26)

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	3982	14% 32% 21% 47%
2	C	18	17% 11% 28% 11% 6% 44%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 17243 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called RNA-directed RNA polymerase L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2128	17029	10795	2918	3205	111	0	0

There are 37 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-8	MET	-	initiating methionine	UNP A0A1S6XXC8
A	-7	HIS	-	expression tag	UNP A0A1S6XXC8
A	-6	HIS	-	expression tag	UNP A0A1S6XXC8
A	-5	HIS	-	expression tag	UNP A0A1S6XXC8
A	-4	HIS	-	expression tag	UNP A0A1S6XXC8
A	-3	HIS	-	expression tag	UNP A0A1S6XXC8
A	-2	HIS	-	expression tag	UNP A0A1S6XXC8
A	-1	GLY	-	expression tag	UNP A0A1S6XXC8
A	0	THR	-	expression tag	UNP A0A1S6XXC8
A	3946	TRP	-	expression tag	UNP A0A1S6XXC8
A	3947	SER	-	expression tag	UNP A0A1S6XXC8
A	3948	HIS	-	expression tag	UNP A0A1S6XXC8
A	3949	PRO	-	expression tag	UNP A0A1S6XXC8
A	3950	GLN	-	expression tag	UNP A0A1S6XXC8
A	3951	PHE	-	expression tag	UNP A0A1S6XXC8
A	3952	GLU	-	expression tag	UNP A0A1S6XXC8
A	3953	LYS	-	expression tag	UNP A0A1S6XXC8
A	3954	GLY	-	expression tag	UNP A0A1S6XXC8
A	3955	GLY	-	expression tag	UNP A0A1S6XXC8
A	3956	GLY	-	expression tag	UNP A0A1S6XXC8
A	3957	SER	-	expression tag	UNP A0A1S6XXC8
A	3958	GLY	-	expression tag	UNP A0A1S6XXC8
A	3959	GLY	-	expression tag	UNP A0A1S6XXC8
A	3960	GLY	-	expression tag	UNP A0A1S6XXC8
A	3961	SER	-	expression tag	UNP A0A1S6XXC8
A	3962	GLY	-	expression tag	UNP A0A1S6XXC8
A	3963	GLY	-	expression tag	UNP A0A1S6XXC8
A	3964	SER	-	expression tag	UNP A0A1S6XXC8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	3965	ALA	-	expression tag	UNP A0A1S6XXC8
A	3966	TRP	-	expression tag	UNP A0A1S6XXC8
A	3967	SER	-	expression tag	UNP A0A1S6XXC8
A	3968	HIS	-	expression tag	UNP A0A1S6XXC8
A	3969	PRO	-	expression tag	UNP A0A1S6XXC8
A	3970	GLN	-	expression tag	UNP A0A1S6XXC8
A	3971	PHE	-	expression tag	UNP A0A1S6XXC8
A	3972	GLU	-	expression tag	UNP A0A1S6XXC8
A	3973	LYS	-	expression tag	UNP A0A1S6XXC8

- Molecule 2 is a RNA chain called RNA (5'-R(P*UP*CP*UP*CP*AP*AP*AP*GP*AP*AP *AP*UP*CP*GP*UP*UP*CP*C)-3').

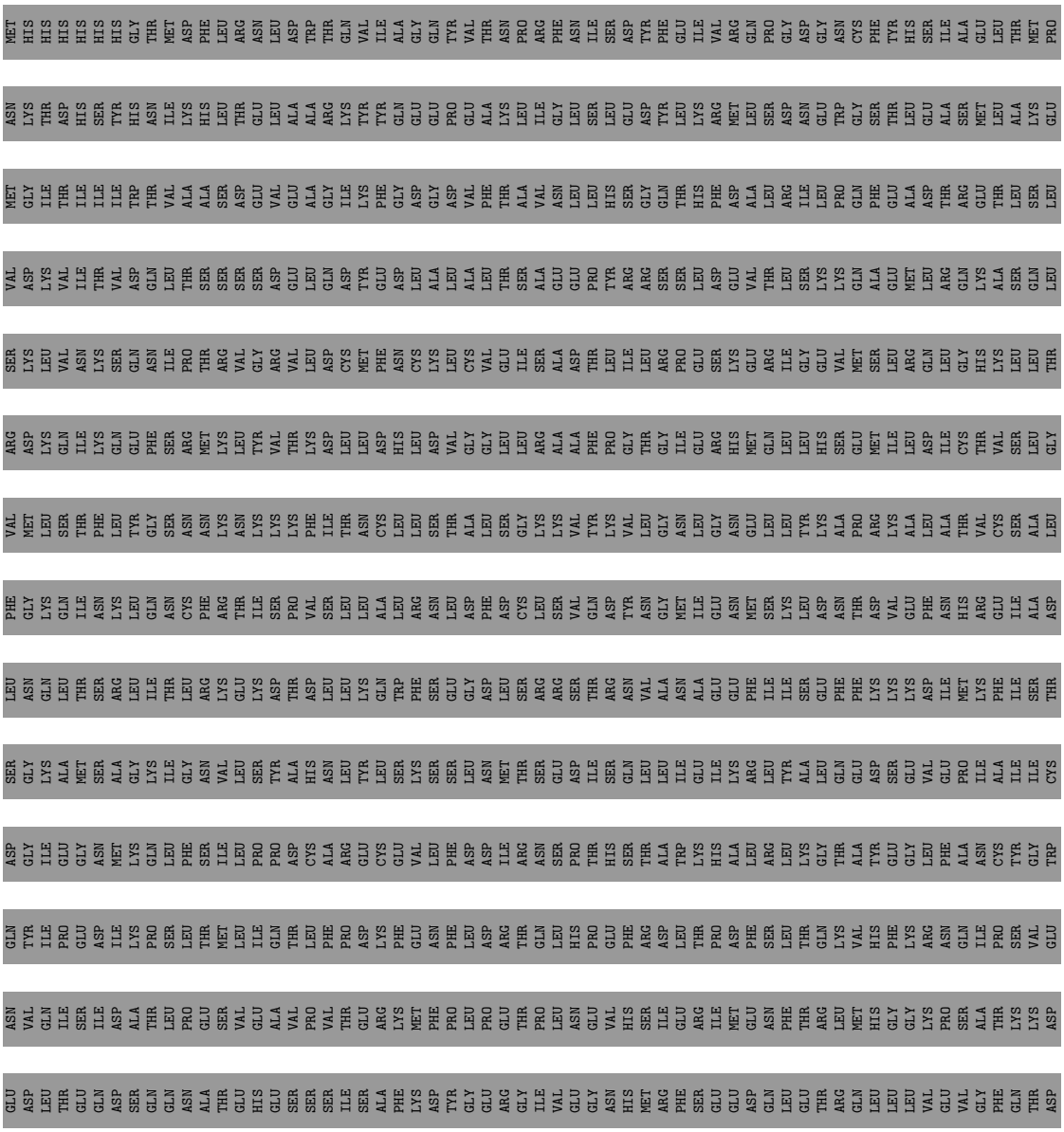
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	C	10	214	96	40	68	10	0	0

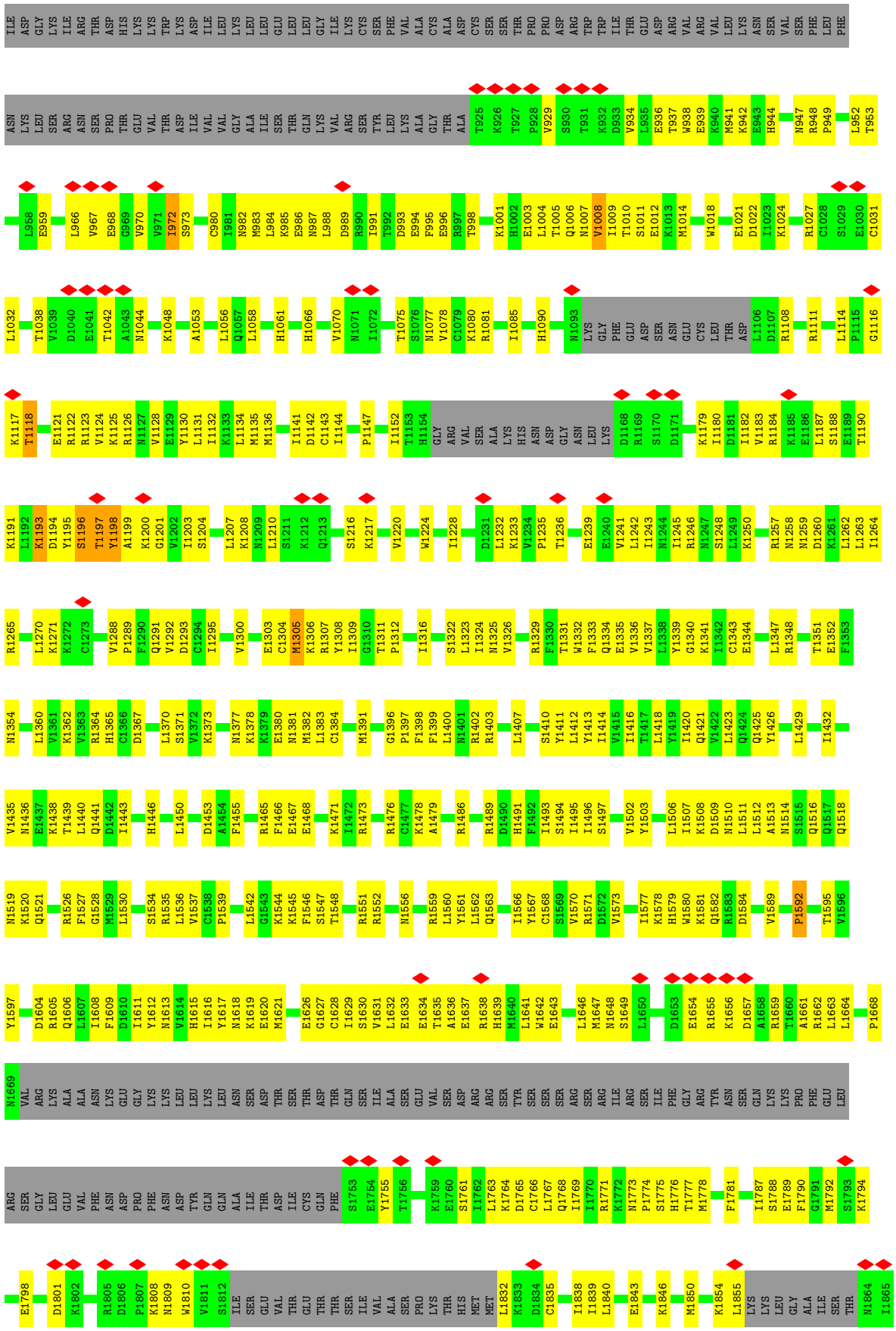
3 Residue-property plots (i)

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: RNA-directed RNA polymerase L

Chain A:




ILE ASP GLY LYS ILE ARG THR ASP HIS LYS LYS TRP LYS ASP ILE LEU LYS LEU GLU GLU LEU LEU GLY ILE LYS CYS SER PHE VAL ALA CYS ALA ASP CYS SER SER THR PRO PRO ASP ARG TRP TRP ILE THR GLU ASP ARG VAL ARG VAL LEU LYS ASN SER VAL SER PHE LEU PHE
ASN LYS LEU SER ARG ASN SER PRO THR GLU VAL THR ASP ILE VAL VAL GLY ALA ILE SER THR GLN LYS VAL ARG SER TYR LEU LYS ALA GLY THR ALA T925 K926 T927 P928 V929 S930 T931 K932 D933 V934 L935 E936 T937 W938 E939 K940 N941 K942 E943 H944 N947 R948 P949 L952 T953
L958 E959 L966 V967 E968 G969 V970 V971 I972 S973 C980 I981 N982 M983 L984 K985 E986 N987 L988 D989 R990 I991 T992 D993 E994 F995 E996 R997 T998 K1001 H1002 E1003 L1004 T1005 Q1006 N1007 V1008 I1009 T1010 S1011 E1012 K1013 M1014 W1018 E1021 D1022 I1023 K1024 R1027 C1028 S1029 E1030 C1031
L1032 T1038 V1039 D1040 E1041 T1042 A1043 N1044 K1048 A1053 L1056 Q1057 L1058 H1061 H1066 V1070 N1071 I1072 T1075 S1076 N1077 V1078 C1079 K1080 R1081 I1085 H1090 N1093 LYS GLY PHE GLU ASP SER ASN GLU CYS LEU THR ASP L1106 D1107 R1108 R1111 L1114 P1115 G1116
K1117 T1118 E1121 R1122 R1123 V1124 K1125 R1126 N1127 V1128 E1129 Y1130 L1131 I1132 K1133 L1134 M1135 M1136 I1141 D1142 C1143 I1144 P1147 I1152 T1153 H1154 GLY ARG VAL SER ALA LYS HIS ASN ASP GLY ASN LEU LYS D1168 R1169 S1170 D1171 K1179 I1180 D1181 I1182 V1183 R1184 K1185 E1186 L1187 S1188 E1189 T1190
K1191 L1192 K1193 D1194 Y1195 S1196 T1197 Y1198 A1199 K1200 G1201 V1202 I1203 S1204 L1207 K1208 N1209 L1210 S1211 K1212 Q1213 S1216 K1217 V1220 W1224 I1228 D1231 L1232 K1233 V1234 P1235 T1236 E1239 E1240 V1241 L1242 I1243 N1244 I1245 R1246 N1247 S1248 L1249 K1250 R1257 N1258 N1259 D1260 K1261 L1262 L1263 I1264
R1265 L1270 K1271 K1272 C1273 V1288 P1289 F1290 Q1291 V1292 D1293 C1294 I1295 V1300 E1303 C1304 M1305 K1306 R1307 Y1308 I1309 G1310 T1311 P1312 I1316 S1322 L1323 I1324 N1325 V1326 R1329 F1330 T1331 W1332 F1333 Q1334 E1335 V1336 V1337 L1338 Y1339 G1340 K1341 I1342 C1343 E1344 L1347 R1348 T1351 E1352 F1353
N1354 L1360 V1361 K1362 V1363 R1364 H1365 C1366 D1367 L1370 S1371 V1372 K1373 N1377 K1378 K1379 E1380 N1381 M1382 L1383 C1384 M1391 G1396 P1397 F1398 F1399 L1400 N1401 R1402 R1403 L1407 S1410 Y1411 L1412 Y1413 I1414 V1415 I1416 T1417 L1418 Y1419 I1420 Q1421 V1422 L1423 Q1424 Q1425 Y1426 L1429 I1432
V1435 N1436 E1437 K1438 T1439 L1440 Q1441 D1442 I1443 H1446 L1450 D1453 A1454 F1455 R1465 F1466 E1467 E1468 K1471 I1472 R1473 R1476 C1477 K1478 A1479 R1486 R1489 D1490 H1491 F1492 I1493 S1494 I1495 I1496 S1497 V1502 Y1503 L1506 I1507 K1508 D1509 N1510 L1511 L1512 A1513 N1514 S1515 Q1516 Q1517 Q1518
N1519 K1520 Q1521 R1526 F1527 G1528 M1529 L1530 S1534 R1535 L1536 V1537 C1538 P1539 L1542 G1543 K1544 K1545 F1546 E1547 T1548 R1551 R1552 N1556 R1559 L1560 Y1561 L1562 Q1563 I1566 Y1567 C1568 S1569 V1570 R1571 D1572 V1573 I1577 K1578 H1579 W1580 K1581 Q1582 R1583 D1584 V1589 P1592 T1595 V1596
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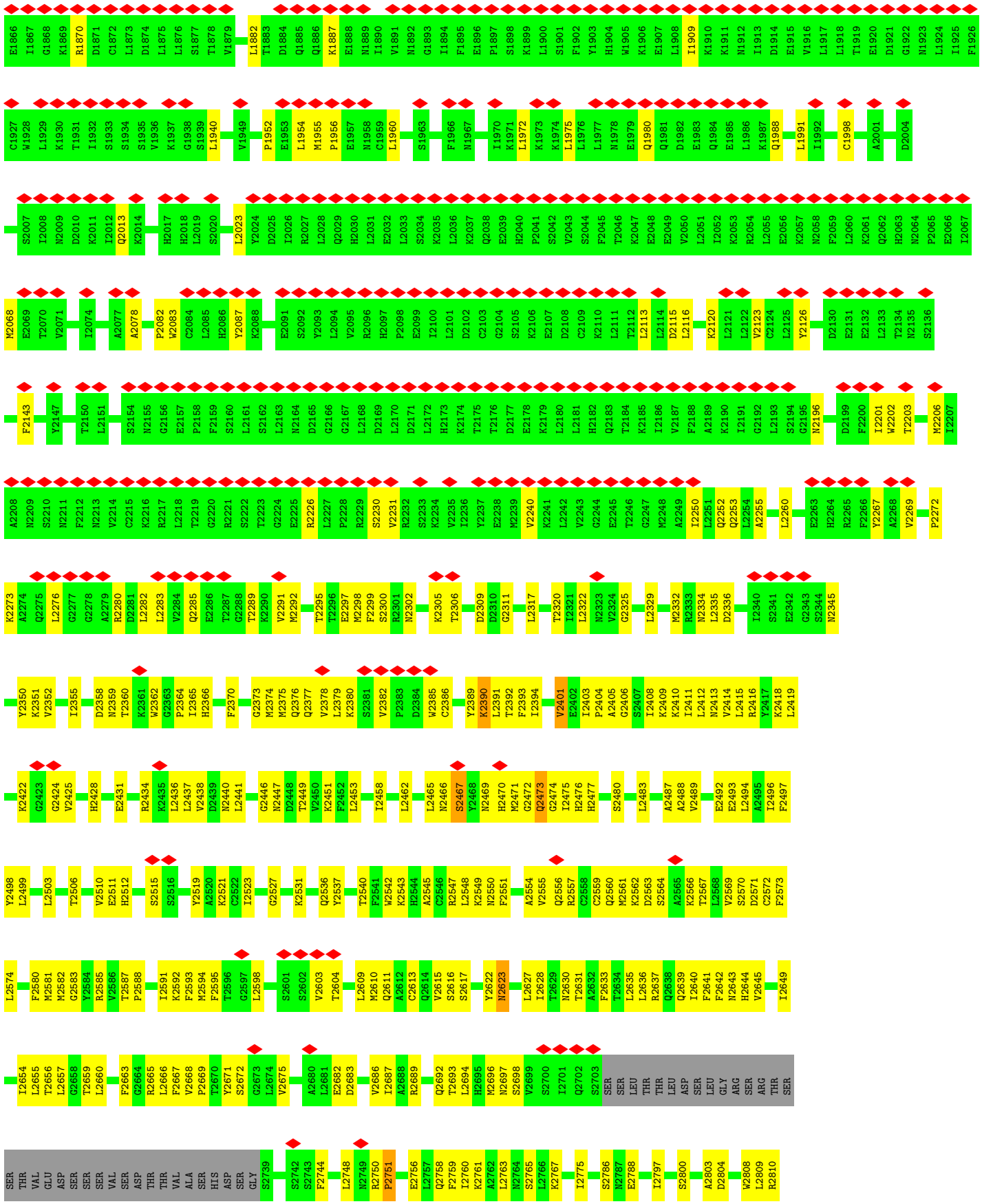
N1669 VAL ARG LYS ALA ALA ASN LYS GLU GLY LYS LYS LEU LEU LYS LEU ASN SER ASP THR SER THR ASP THR GLN SER ILE ALA SER GLU VAL SER ASP ARG ARG SER TYR SER SER SER ARG SER ARG ILE ARG SER ILE PHE GLY ARG TYR ASN SER GLN LYS LYS PRO PHE GLU LEU
ARG SER GLY LEU GLU VAL PHE ASN PRO PHE ASN ASP PRO ASN ASP TYR GLN GLN ALA ILE THR ASP ILE CYS GLN PHE S1753 E1754 Y1755 T1756 K1759 E1760 S1761 I1762 L1763 K1764 D1765 C1766 L1767 Q1768 I1769 I1770 R1771 K1772 N1773 P1774 S1775 H1776 T1777 M1778 F1781 I1787 S1788 E1789 F1790 G1791 M1792 S1793 K1794
E1798 D1801 K1802 R1805 D1806 P1807 K1808 N1809 W1810 V1811 S1812 ILE SER GLU VAL THR GLU THR THR SER ILE VAL ALA SER PRO LYS THR HIS MET MET L1832 K1833 D1834 C1835 I1838 I1839 L1840 E1843 K1846 M1850 K1854 L1855 LYS LYS LEU GLY ALA ILE SER THR N1864 I1865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SER THR VAL GLU ASP SER SER SER VAL SER ASP THR THR VAL ALA SER HIS ASP SER GLY S2739 S2742 S2743 F2744 L2748 W2749 R2750 P2751 E2756 L2757 Q2758 F2759 I2760 K2761 A2762 L2763 N2764 S2765 L2766 K2767 I2775 S2786 N2787 E2788 I2797 S2800 A2803 D2804 W2808 L2809 R2810

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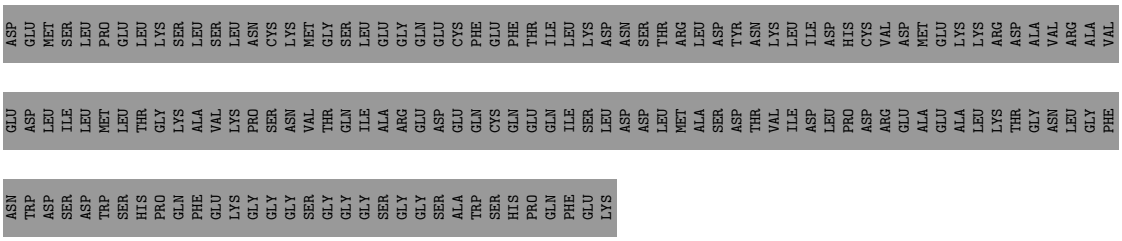
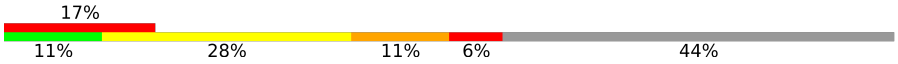
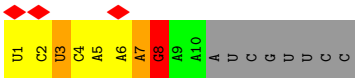
R3221 F3222 Y3223 R3224 L3225 S3226 D3227 T3228 GLY ILE ASP ALA SER THR TYR SER VAL LYS TYR TRP LYS ILE LEU HIS CYS ILE SER ALA ILE GLY CYS LEU PRO LEU SER GLN ALA ASP LYS SER SER LEU LEU MET SER PHE LEU ASN TRP ARG VAL ASN MET ASP ILE ARG ALA SER ASP CYS
PRO LEU SER ASN HIS GLU ALA SER ILE LEU SER GLU PHE ASP GLY GLN VAL ILE ALA ASN ILE LEU ALA SER GLU LYS ARG ASP SER GLU ARG GLU GLY LEU THR ASP LEU LEU ASP TYR LEU ASN SER PRO THR GLU LEU LEU LYS LYS LYS PRO TYR LEU GLY THR
THR CYS LYS PHE ASN THR TRP GLY ASP SER ASN ARG SER GLY LYS PHE THR TYR SER SER ARG SER GLU GLU SER ILE GLY ILE PHE ILE ALA GLY LYS LEU HIS ILE HIS LEU SER SER GLU SER ILE ALA LEU LEU CYS GLU THR GLU ARG GLN VAL LEU LYS SER TRP MET SER LYS ARG
ARG THR GLU VAL ILE THR LYS GLU GLN HIS GLN LEU PHE ASP ALA SER LEU LEU PRO GLN SER HIS GLU CYS LEU GLN LYS HIS LYS ASP GLY SER ALA LEU SER VAL ILE PRO ASP GLY SER ARG GLU GLY LEU THR ILE LEU LEU LYS PHE VAL PRO LEU LYS LYS GLY LEU ALA VAL VAL LYS LYS
LYS GLN ILE LEU THR VAL LYS LYS GLN VAL VAL PHE ASP ALA GLU SER GLU PRO ARG LEU GLN TRP GLY HIS GLY CYS LEU SER ILE VAL TYR ASP GLU THR ASP THR GLN THR THR TYR HIS GLU ASN LEU LEU LYS GLN LEU VAL ASP CYS SER THR ASP LYS LYS LYS LEU
LEU PRO GLN SER VAL PHE SER ASP SER LYS VAL VAL LEU SER ARG ILE LYS PHE LYS THR GLU LEU LEU LEU ASN SER LEU THR LEU LEU HIS CYS PHE LEU LYS HIS ALA PRO SER ASP ALA ILE MET GLU VAL GLU SER LYS SER LEU LEU HIS LYS PHE LEU LYS LYS GLY
VAL ARG GLN ARG ASN THR GLU VAL LEU LEU ARG GLU LYS MET ASN LYS VAL VAL ILE LYS ASP SER GLU GLN GLY MET GLU GLU GLU ILE GLU PHE CYS ASN ASN LEU THR LYS THR VAL SER GLU ASN PRO LEU LEU PRO LEU SER CYS TRP SER GLU VAL GLN ASN TYR LEU ILE ASP
ILE GLY PHE ASN ASN VAL LEU VAL ASN ILE ASP ARG ASN THR VAL LYS SER GLU LEU LEU ASP THR THR LEU ASN VAL SER THR THR SER THR ILE LYS ASP VAL ARG THR LEU VAL SER TYR VAL SER THR GLU THR ILE PRO LYS PHE LEU LEU ALA ALA LEU LEU LYS LYS
GLU GLU VAL LEU MET ASN LEU LEU ILE SER GLN CYS LYS ALA VAL LYS GLU LEU ILE ASN SER THR GLY LEU GLU LEU SER LEU ASP LEU GLU SER LEU LEU THR LEU CYS ALA PHE TYR PHE GLN SER GLU CYS SER LYS ARG ASP GLY PRO ARG CYS SER PHE ALA ALA LEU LEU SER LEU VAL
HIS GLU ASP TRP GLN LYS ILE GLY LYS ASN ILE LEU VAL ARG ALA ASN ASN GLU LEU GLY ASP VAL SER LEU LYS VAL ASN ILE VAL LEU VAL PRO LEU LYS ASP MET SER LYS PRO LYS HIS GLU ARG VAL VAL ILE ALA ARG ARG SER LEU ASN HIS ALA LEU SER LEU MET PHE LEU



• Molecule 2: RNA (5'-R(P*UP*CP*UP*CP*AP*AP*AP*GP*AP*AP*AP*UP*CP*GP*UP*UP*CP*C)-3')

Chain C:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	19012	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.180	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.025	Depositor
Recommended contour level	0.015	Depositor
Map size (Å)	298.8, 298.8, 298.8	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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	0.17	0/17317	0.47	8/23345 (0.0%)
2	C	0.37	0/239	0.99	1/368 (0.3%)
All	All	0.17	0/17556	0.49	9/23713 (0.0%)

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
1	A	0	4

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1668	PRO	CA-N-CD	-12.50	94.50	112.00
1	A	2751	PRO	CA-N-CD	-10.09	97.87	112.00
1	A	1592	PRO	N-CD-CG	-6.96	92.76	103.20
1	A	1592	PRO	CA-N-CD	-6.82	102.45	112.00
1	A	1668	PRO	N-CD-CG	-6.36	93.66	103.20
1	A	1838	ILE	N-CA-C	-5.84	106.62	112.17
2	C	8	G	N3-C4-C5	-5.81	125.69	128.60
1	A	1118	THR	CB-CA-C	-5.55	108.56	115.89
1	A	3118	ILE	N-CA-C	-5.07	107.61	111.62

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1196	SER	Peptide,Mainchain
1	A	1198	TYR	Peptide

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Mol	Chain	Res	Type	Group
1	A	2473	GLN	Peptide

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	17029	0	17299	707	0
2	C	214	0	109	16	0
All	All	17243	0	17408	712	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 21.

All (712) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1196:SER:O	1:A:1198:TYR:N	1.73	1.20
1:A:1765:ASP:O	1:A:1768:GLN:HB3	1.71	0.90
1:A:1536:LEU:HB2	1:A:2569:VAL:HB	1.56	0.86
1:A:2282:LEU:HA	1:A:2473:GLN:HA	1.57	0.83
1:A:2549:LYS:NZ	1:A:2563:ASP:OD2	2.11	0.83
1:A:1403:ARG:HA	1:A:1618:ASN:HD22	1.41	0.82
1:A:2654:ILE:O	1:A:2825:GLN:NE2	2.11	0.82
1:A:3061:SER:O	1:A:3065:ARG:HB3	1.80	0.82
1:A:1239:GLU:HA	1:A:1243:ILE:HD11	1.61	0.81
1:A:944:HIS:O	1:A:947:ASN:ND2	2.13	0.81
1:A:3088:VAL:HG22	1:A:3089:LYS:HG2	1.64	0.80
1:A:2414:VAL:HB	2:C:8:G:N3	1.97	0.80
1:A:1056:LEU:HD13	1:A:1264:ILE:HG21	1.65	0.79
1:A:1001:LYS:HE2	1:A:1003:GLU:HG3	1.66	0.78
1:A:1426:TYR:HD2	1:A:1495:ILE:HG13	1.48	0.77
1:A:3055:ASN:HA	1:A:3058:LEU:HD23	1.66	0.76
1:A:1582:GLN:OE1	1:A:1582:GLN:N	2.17	0.76
1:A:2636:LEU:O	1:A:2640:ILE:HD12	1.85	0.76
1:A:2419:LEU:O	1:A:2422:LYS:NZ	2.19	0.76
1:A:3061:SER:O	1:A:3065:ARG:CB	2.34	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3080:LEU:H	1:A:3216:GLY:HA2	1.52	0.75
1:A:2329:LEU:HD12	1:A:2583:GLY:HA2	1.67	0.74
1:A:1190:THR:HA	1:A:1193:LYS:HB2	1.70	0.73
1:A:2282:LEU:HB2	1:A:2473:GLN:HG2	1.70	0.73
1:A:2374:MET:HG2	1:A:2483:LEU:HD21	1.69	0.73
1:A:1027:ARG:NH1	1:A:1031:CYS:SG	2.61	0.73
1:A:2675:VAL:HG11	1:A:3064:ASN:HB3	1.71	0.72
1:A:2285:GLN:HB3	1:A:2289:THR:HG23	1.71	0.72
1:A:2511:GLU:N	1:A:2511:GLU:OE2	2.23	0.72
1:A:2750:ARG:NH1	1:A:2751:PRO:O	2.22	0.72
1:A:1121:GLU:OE1	1:A:1122:ARG:NH2	2.23	0.72
1:A:1605:ARG:NH1	1:A:2587:THR:OG1	2.20	0.72
1:A:2907:LEU:HD22	1:A:2910:LEU:HD11	1.72	0.72
1:A:3089:LYS:HB3	1:A:3199:LYS:HE2	1.72	0.72
1:A:2410:LYS:HD2	2:C:7:A:H1'	1.72	0.71
1:A:2409:LYS:O	1:A:2413:ASN:ND2	2.24	0.71
1:A:2616:SER:HB3	1:A:2637:ARG:HH12	1.55	0.71
1:A:1241:VAL:HG13	1:A:1242:LEU:HD23	1.74	0.70
1:A:1809:ASN:OD1	1:A:2302:ASN:ND2	2.24	0.70
1:A:947:ASN:OD1	1:A:2466:ASN:ND2	2.26	0.69
1:A:2317:LEU:HA	1:A:2320:THR:HG22	1.74	0.69
1:A:1197:THR:C	1:A:1200:LYS:HB3	2.18	0.69
1:A:1316:ILE:HD11	1:A:2628:ILE:HA	1.74	0.69
1:A:2593:PHE:HE2	1:A:2623:ASN:HD22	1.40	0.68
1:A:2273:LYS:HA	1:A:2282:LEU:HD23	1.74	0.68
1:A:2748:LEU:HD22	1:A:3058:LEU:HD22	1.76	0.68
1:A:1197:THR:HA	1:A:1200:LYS:HB3	1.74	0.68
1:A:2813:LYS:HG3	1:A:2820:LEU:HD22	1.76	0.68
1:A:1081:ARG:HH21	1:A:1400:LEU:HB2	1.59	0.68
1:A:2952:PHE:O	1:A:2993:LYS:NZ	2.25	0.68
1:A:2410:LYS:HA	2:C:8:G:O2'	1.94	0.68
1:A:1354:ASN:O	1:A:1378:LYS:NZ	2.27	0.67
1:A:2671:TYR:HB3	1:A:3068:LEU:HD13	1.74	0.67
1:A:1124:VAL:O	1:A:1128:VAL:HG13	1.93	0.67
1:A:1300:VAL:HG13	1:A:2666:LEU:HD21	1.76	0.67
1:A:1810:TRP:HE1	1:A:3124:THR:HG21	1.59	0.67
1:A:2404:PRO:O	1:A:2406:GLY:N	2.27	0.67
1:A:1551:ARG:NH2	2:C:5:A:N7	2.42	0.67
1:A:1337:VAL:HA	1:A:1412:LEU:HD22	1.76	0.67
1:A:1647:MET:SD	1:A:1648:ASN:ND2	2.67	0.67
1:A:1196:SER:C	1:A:1198:TYR:N	2.53	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3019:LEU:HA	1:A:3024:ILE:HD11	1.77	0.67
1:A:1264:ILE:HD12	1:A:1559:ARG:HH21	1.58	0.67
1:A:2697:ASN:OD1	1:A:2808:TRP:NE1	2.28	0.66
1:A:1018:TRP:NE1	1:A:1563:GLN:HE21	1.93	0.66
1:A:2291:VAL:O	1:A:2295:THR:HG23	1.96	0.66
1:A:3125:LYS:HD3	1:A:3126:VAL:H	1.60	0.66
1:A:3064:ASN:O	1:A:3068:LEU:HG	1.95	0.66
1:A:1128:VAL:O	1:A:1132:ILE:HG12	1.96	0.65
1:A:2305:LYS:HD3	1:A:2306:THR:HG23	1.77	0.65
1:A:1777:THR:OG1	1:A:2365:ILE:O	2.12	0.65
1:A:3086:VAL:HA	1:A:3198:LEU:HD21	1.78	0.65
1:A:2660:LEU:HD11	1:A:2687:ILE:HD11	1.79	0.65
1:A:2503:LEU:HD11	1:A:2536:GLN:HE22	1.62	0.65
1:A:2804:ASP:HB2	1:A:2810:ARG:HH21	1.62	0.65
1:A:3169:GLN:O	1:A:3171:VAL:N	2.30	0.65
1:A:1473:ARG:HH12	1:A:1561:TYR:HE1	1.45	0.64
1:A:1108:ARG:HG2	1:A:1111:ARG:HH22	1.62	0.64
1:A:1257:ARG:NH1	1:A:1258:ASN:O	2.31	0.64
1:A:1344:GLU:OE1	1:A:2643:ASN:ND2	2.29	0.64
1:A:2283:LEU:HD12	1:A:2472:GLY:HA2	1.79	0.64
1:A:1381:ASN:OD1	1:A:1399:PHE:HB3	1.97	0.63
1:A:1468:GLU:HA	1:A:1471:LYS:HE2	1.80	0.63
1:A:1649:SER:HB3	1:A:1661:ALA:HB3	1.79	0.63
1:A:1643:GLU:OE2	1:A:1643:GLU:N	2.31	0.63
1:A:2592:LYS:HB3	1:A:2593:PHE:CD1	2.34	0.63
1:A:2687:ILE:HD13	1:A:2833:ALA:HB2	1.80	0.63
1:A:2837:ARG:HE	1:A:3019:LEU:HB3	1.63	0.63
1:A:1197:THR:CA	1:A:1200:LYS:HB3	2.29	0.63
1:A:1381:ASN:OD1	1:A:1382:MET:N	2.30	0.63
1:A:1775:SER:O	1:A:2562:LYS:NZ	2.31	0.63
1:A:2410:LYS:HB3	2:C:8:G:C8	2.34	0.63
1:A:1627:GLY:O	1:A:1630:SER:HB2	1.98	0.63
1:A:1332:TRP:O	1:A:1336:VAL:HG23	1.98	0.62
1:A:2512:HIS:HE1	1:A:2519:TYR:HB2	1.63	0.62
1:A:1130:TYR:O	1:A:1134:LEU:HD22	1.99	0.62
1:A:2828:LEU:O	1:A:2832:ILE:HD12	1.99	0.62
1:A:2250:ILE:HB	1:A:2253:GLN:HB2	1.80	0.62
1:A:2325:GLY:O	1:A:2329:LEU:HG	1.99	0.62
1:A:2488:ALA:HB2	1:A:2512:HIS:HD2	1.63	0.62
1:A:2901:GLN:HA	1:A:2905:LYS:HE3	1.81	0.62
1:A:1383:LEU:HD12	1:A:1399:PHE:HE1	1.65	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1200:LYS:HA	1:A:1203:ILE:HG22	1.82	0.62
1:A:3066:GLN:O	1:A:3070:ILE:HG12	1.99	0.62
1:A:3074:ARG:HH21	1:A:3227:ASP:HB2	1.64	0.62
1:A:2889:LEU:HD21	1:A:2922:SER:HB2	1.81	0.62
1:A:1794:LYS:NZ	1:A:2309:ASP:OD1	2.32	0.61
1:A:1136:MET:SD	1:A:1141:ILE:HB	2.40	0.61
1:A:1325:ASN:HB3	1:A:1329:ARG:HH21	1.64	0.61
1:A:2390:LYS:HG3	1:A:2392:THR:H	1.65	0.61
1:A:1005:THR:HG22	1:A:1573:VAL:HG11	1.81	0.61
1:A:1429:LEU:HD21	1:A:2628:ILE:HD13	1.83	0.61
1:A:1789:GLU:CD	1:A:1790:PHE:H	2.08	0.61
1:A:1649:SER:O	1:A:1656:LYS:NZ	2.32	0.61
1:A:3193:THR:HG22	1:A:3194:VAL:HG23	1.82	0.61
1:A:1580:TRP:CD1	1:A:2572:CYS:HG	2.19	0.61
1:A:1007:ASN:O	1:A:1009:ILE:N	2.24	0.61
1:A:1236:THR:HA	1:A:1246:ARG:HH22	1.65	0.61
1:A:2631:THR:HA	1:A:2669:PRO:HG2	1.82	0.61
1:A:3169:GLN:HG3	1:A:3170:GLN:H	1.66	0.61
1:A:1123:ARG:HA	1:A:1126:ARG:HH21	1.66	0.61
1:A:2911:ASN:HA	1:A:3183:ARG:HH22	1.65	0.61
1:A:1288:VAL:HB	1:A:1334:GLN:HE22	1.66	0.60
1:A:2907:LEU:HD11	1:A:3174:TYR:HB3	1.83	0.60
1:A:1341:LYS:HZ2	1:A:1364:ARG:HH21	1.49	0.60
1:A:1580:TRP:HE3	1:A:1589:VAL:HG11	1.66	0.60
1:A:1260:ASP:HA	1:A:1263:LEU:HD21	1.84	0.60
1:A:1790:PHE:HB3	1:A:2489:VAL:HG11	1.83	0.60
1:A:2857:ASN:ND2	1:A:3183:ARG:O	2.23	0.60
1:A:1808:LYS:O	1:A:1808:LYS:NZ	2.33	0.60
1:A:3214:SER:HA	1:A:3219:GLU:HG3	1.84	0.60
1:A:1542:LEU:O	1:A:1546:PHE:HB2	2.01	0.60
1:A:2376:GLN:HA	1:A:2379:LEU:HD12	1.84	0.60
1:A:1021:GLU:HB2	1:A:1544:LYS:HD3	1.83	0.60
1:A:1322:SER:O	1:A:1326:VAL:HG23	2.02	0.60
1:A:3151:MET:HE1	1:A:3155:GLU:HG3	1.84	0.60
1:A:2322:LEU:HD21	1:A:2574:LEU:HD22	1.83	0.60
1:A:3161:LYS:NZ	1:A:3162:ASN:OD1	2.35	0.59
1:A:1307:ARG:HD2	1:A:2668:VAL:HB	1.83	0.59
1:A:1615:HIS:ND1	1:A:2592:LYS:HA	2.17	0.59
1:A:2744:PHE:HE2	1:A:3148:LEU:HA	1.67	0.59
1:A:1292:VAL:HG22	1:A:1324:ILE:HG22	1.85	0.59
1:A:3114:ASP:OD2	1:A:3114:ASP:N	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1955:MET:HE3	1:A:1956:PRO:HD2	1.84	0.59
1:A:3184:MET:HE3	1:A:3184:MET:HA	1.85	0.59
1:A:972:ILE:HG22	1:A:973:SER:H	1.67	0.59
1:A:1352:GLU:O	1:A:1378:LYS:NZ	2.28	0.58
1:A:2751:PRO:O	1:A:2751:PRO:HD2	2.03	0.58
1:A:2839:PHE:HB3	1:A:3180:LEU:HD13	1.84	0.58
1:A:2406:GLY:HA2	1:A:2409:LYS:HE2	1.85	0.58
1:A:3029:LEU:HD11	1:A:3037:ARG:HB2	1.85	0.58
1:A:1403:ARG:NH1	1:A:1620:GLU:O	2.36	0.58
1:A:2476:HIS:O	1:A:2480:SER:N	2.36	0.58
1:A:1204:SER:O	1:A:1208:LYS:HG2	2.03	0.58
1:A:1646:LEU:HD13	1:A:1664:LEU:HD22	1.84	0.58
1:A:2332:MET:HE3	1:A:2352:VAL:HG12	1.84	0.58
1:A:2611:GLN:O	1:A:2615:VAL:HG13	2.04	0.58
1:A:1312:PRO:HG3	1:A:3074:ARG:HB2	1.85	0.58
1:A:2571:ASP:OD1	1:A:2571:ASP:N	2.34	0.58
1:A:1940:LEU:HD13	1:A:2082:PRO:HB3	1.86	0.58
1:A:1577:ILE:O	1:A:1581:LYS:HG2	2.03	0.58
1:A:985:LYS:NZ	1:A:2493:GLU:OE2	2.33	0.58
1:A:1636:ALA:O	1:A:1639:HIS:N	2.34	0.58
1:A:2411:ILE:O	1:A:2415:LEU:HB2	2.04	0.58
1:A:3042:ILE:HG22	1:A:3045:HIS:H	1.68	0.58
1:A:967:VAL:HG13	1:A:968:GLU:HG3	1.86	0.57
1:A:3173:ARG:HA	1:A:3176:ASN:ND2	2.20	0.57
1:A:1022:ASP:OD1	1:A:1547:SER:OG	2.23	0.57
1:A:1194:ASP:C	1:A:1199:ALA:HB3	2.30	0.57
1:A:1248:SER:HA	1:A:1250:LYS:HZ2	1.68	0.57
1:A:3066:GLN:HG3	1:A:3067:LYS:HD3	1.86	0.57
1:A:1184:ARG:HA	1:A:1187:LEU:HD12	1.86	0.57
1:A:1642:TRP:NE1	1:A:1777:THR:HB	2.20	0.57
1:A:2434:ARG:O	1:A:2438:VAL:HG23	2.05	0.57
1:A:1788:SER:OG	1:A:2377:GLN:HG2	2.04	0.57
1:A:2120:LYS:HA	1:A:2123:VAL:HB	1.86	0.57
1:A:1323:LEU:HG	1:A:1432:ILE:HG21	1.86	0.56
1:A:1308:TYR:O	1:A:1311:THR:OG1	2.21	0.56
1:A:2355:ILE:HG22	1:A:2569:VAL:HG13	1.86	0.56
1:A:1413:TYR:CD1	1:A:2636:LEU:HB3	2.40	0.56
1:A:3146:PHE:CG	1:A:3147:THR:N	2.72	0.56
1:A:1798:GLU:O	1:A:1801:ASP:HB3	2.05	0.56
1:A:2993:LYS:O	1:A:2997:TRP:N	2.35	0.56
1:A:1407:LEU:HD22	1:A:1617:TYR:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1440:LEU:O	1:A:1443:ILE:HG22	2.06	0.56
1:A:1773:ASN:OD1	1:A:1775:SER:OG	2.22	0.56
1:A:1808:LYS:O	1:A:2252:GLN:NE2	2.38	0.56
1:A:1491:HIS:O	1:A:1495:ILE:HG12	2.06	0.56
1:A:1556:ASN:O	1:A:1560:LEU:HG	2.06	0.56
1:A:1777:THR:HG23	1:A:2560:GLN:HE21	1.70	0.56
1:A:1850:MET:HE3	1:A:1850:MET:O	2.06	0.56
1:A:1258:ASN:OD1	1:A:1259:ASN:N	2.39	0.55
1:A:1467:GLU:OE2	1:A:1571:ARG:NH2	2.38	0.55
1:A:1633:GLU:O	1:A:1637:GLU:N	2.35	0.55
1:A:3016:GLU:OE1	1:A:3021:ASN:ND2	2.39	0.55
1:A:2993:LYS:HB3	1:A:2996:HIS:HB3	1.88	0.55
1:A:3098:GLN:HB2	1:A:3100:ARG:HG2	1.89	0.55
1:A:2403:ILE:HD11	1:A:2465:LEU:HD23	1.87	0.55
1:A:1380:GLU:HG3	1:A:1381:ASN:H	1.71	0.55
1:A:2659:THR:OG1	1:A:2663:PHE:O	2.24	0.55
1:A:1562:LEU:O	1:A:1566:ILE:HB	2.07	0.55
1:A:1378:LYS:O	1:A:1402:ARG:NH1	2.40	0.55
1:A:1774:PRO:HG2	1:A:2557:ARG:NH1	2.22	0.55
1:A:2862:ASP:N	1:A:2862:ASP:OD2	2.40	0.55
1:A:2642:PHE:HA	1:A:2645:VAL:HG22	1.89	0.54
1:A:3145:VAL:O	1:A:3146:PHE:HB3	2.07	0.54
1:A:1325:ASN:HB3	1:A:1329:ARG:NH2	2.22	0.54
1:A:1769:ILE:HG23	1:A:1778:MET:HB3	1.89	0.54
1:A:2358:ASP:H	1:A:2567:THR:HG22	1.70	0.54
1:A:1763:LEU:O	1:A:1766:CYS:HB2	2.06	0.54
1:A:2960:ASP:OD2	1:A:2992:THR:OG1	2.19	0.54
1:A:1111:ARG:HA	1:A:1147:PRO:HG3	1.88	0.54
1:A:1466:PHE:HB3	1:A:1567:TYR:CE2	2.43	0.54
1:A:1340:GLY:HA3	1:A:1412:LEU:HD23	1.90	0.54
1:A:2255:ALA:HB1	1:A:2295:THR:HG22	1.90	0.54
1:A:1568:CYS:HB2	1:A:1592:PRO:HG3	1.90	0.54
1:A:987:ASN:O	1:A:991:ILE:HG13	2.08	0.54
1:A:3212:LEU:HB3	1:A:3218:LYS:HB3	1.89	0.54
1:A:1292:VAL:HG13	1:A:1324:ILE:HG21	1.90	0.54
1:A:1510:ASN:ND2	1:A:1518:GLN:OE1	2.41	0.54
1:A:3125:LYS:HD3	1:A:3126:VAL:HG12	1.89	0.54
1:A:1187:LEU:HB3	1:A:1191:LYS:HD2	1.90	0.53
1:A:3080:LEU:HD13	1:A:3219:GLU:HB3	1.90	0.53
1:A:1085:ILE:HG23	1:A:1289:PRO:HG3	1.89	0.53
1:A:1141:ILE:HG22	1:A:1142:ASP:H	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2447:ASN:ND2	2:C:7:A:OP2	2.40	0.53
1:A:2820:LEU:O	1:A:2824:ILE:HG22	2.09	0.53
1:A:1081:ARG:NH2	1:A:1400:LEU:HB2	2.22	0.53
1:A:2655:LEU:O	1:A:2659:THR:HG23	2.08	0.53
1:A:2689:ARG:NH2	1:A:2826:SER:OG	2.38	0.53
1:A:980:CYS:HA	1:A:983:MET:HG3	1.90	0.53
1:A:1311:THR:HG22	1:A:3072:GLU:HB3	1.89	0.53
1:A:1421:GLN:O	1:A:1425:GLN:HG3	2.09	0.53
1:A:1808:LYS:HE3	1:A:2298:MET:HE1	1.90	0.53
1:A:1066:HIS:HB3	1:A:1070:VAL:HG23	1.90	0.53
1:A:2506:THR:HG22	1:A:2527:GLY:HA3	1.89	0.53
1:A:1418:LEU:HD11	1:A:1503:TYR:CE1	2.44	0.53
1:A:1638:ARG:NH2	1:A:2364:PRO:O	2.42	0.53
1:A:2406:GLY:HA2	1:A:2409:LYS:HG2	1.90	0.53
1:A:1075:THR:HG21	1:A:1080:LYS:HZ1	1.74	0.53
1:A:1200:LYS:O	1:A:1203:ILE:HG22	2.09	0.53
1:A:1436:ASN:O	1:A:1439:THR:OG1	2.27	0.53
1:A:1854:LYS:HG3	1:A:1855:LEU:HG	1.91	0.53
1:A:1291:GLN:HG2	1:A:2786:SER:HA	1.90	0.53
1:A:3142:PHE:HA	1:A:3146:PHE:HE2	1.74	0.53
1:A:3179:THR:O	1:A:3183:ARG:HG2	2.09	0.53
1:A:1003:GLU:OE1	1:A:1539:PRO:HD2	2.09	0.53
1:A:1114:LEU:HD13	1:A:1125:LYS:HG2	1.90	0.53
1:A:1143:CYS:O	1:A:1220:VAL:N	2.41	0.53
1:A:1840:LEU:HD22	1:A:2416:ARG:HG3	1.91	0.53
1:A:2115:ASP:OD1	1:A:2196:ASN:ND2	2.42	0.53
1:A:2375:MET:HE3	1:A:2379:LEU:HG	1.91	0.52
1:A:2849:LYS:HA	1:A:2852:LEU:HG	1.91	0.52
1:A:1190:THR:O	1:A:1194:ASP:HB2	2.09	0.52
1:A:1195:TYR:O	1:A:1196:SER:O	2.27	0.52
1:A:1584:ASP:OD2	1:A:1584:ASP:N	2.39	0.52
1:A:2300:SER:N	1:A:2389:TYR:OH	2.43	0.52
1:A:2547:ARG:HH21	1:A:2550:ASN:HD22	1.56	0.52
1:A:3137:LYS:O	1:A:3141:PHE:N	2.42	0.52
1:A:985:LYS:O	1:A:988:LEU:HD22	2.08	0.52
1:A:2617:SER:HA	1:A:2633:PHE:HZ	1.74	0.52
1:A:2817:ASN:O	1:A:2820:LEU:HG	2.09	0.52
1:A:1195:TYR:O	1:A:1196:SER:OG	2.21	0.52
1:A:1264:ILE:HD12	1:A:1559:ARG:NH2	2.25	0.52
1:A:1078:VAL:HA	1:A:1081:ARG:HG2	1.91	0.52
1:A:3081:GLU:CD	1:A:3082:ALA:H	2.16	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1332:TRP:O	1:A:1335:GLU:HG2	2.09	0.52
1:A:1792:MET:SD	1:A:1792:MET:N	2.79	0.52
1:A:3108:VAL:O	1:A:3110:GLY:N	2.42	0.52
1:A:1787:ILE:HD11	1:A:2487:ALA:HA	1.92	0.52
1:A:2329:LEU:HD22	1:A:2352:VAL:HG11	1.91	0.52
1:A:2360:THR:HG22	1:A:2564:SER:HB2	1.91	0.52
1:A:2431:GLU:HA	1:A:2434:ARG:HG2	1.92	0.51
1:A:1370:LEU:HD11	1:A:1384:CYS:HB3	1.92	0.51
1:A:1843:GLU:OE2	1:A:2413:ASN:ND2	2.43	0.51
1:A:2336:ASP:OD1	1:A:2336:ASP:N	2.43	0.51
1:A:2683:ASP:O	1:A:2687:ILE:HG13	2.10	0.51
1:A:995:PHE:CD2	1:A:2554:ALA:HB2	2.45	0.51
1:A:1044:ASN:O	1:A:1048:LYS:HG3	2.09	0.51
1:A:938:TRP:O	1:A:942:LYS:HB3	2.11	0.51
1:A:1654:GLU:HG2	1:A:1655:ARG:HG2	1.91	0.51
1:A:2416:ARG:HG2	1:A:2425:VAL:HG21	1.91	0.51
1:A:1018:TRP:NE1	1:A:1563:GLN:NE2	2.59	0.51
1:A:1130:TYR:CZ	1:A:1134:LEU:HD21	2.46	0.51
1:A:2756:GLU:O	1:A:2760:ILE:HG12	2.10	0.51
1:A:1413:TYR:HA	1:A:1416:ILE:HG22	1.93	0.51
1:A:1633:GLU:HG3	2:C:7:A:C8	2.46	0.51
1:A:3067:LYS:HD3	1:A:3067:LYS:N	2.26	0.51
1:A:1194:ASP:HB3	1:A:1200:LYS:N	2.26	0.51
1:A:1416:ILE:O	1:A:1420:ILE:HD12	2.10	0.51
1:A:1556:ASN:C	1:A:1556:ASN:HD22	2.17	0.51
1:A:2453:LEU:O	1:A:2458:ILE:HG22	2.11	0.51
1:A:1429:LEU:HB3	1:A:3215:TYR:CZ	2.46	0.50
1:A:2467:SER:OG	1:A:2469:ASN:OD1	2.29	0.50
1:A:3024:ILE:HA	1:A:3045:HIS:CE1	2.45	0.50
1:A:2410:LYS:HE3	2:C:7:A:N3	2.26	0.50
1:A:2585:ARG:HD2	1:A:2585:ARG:C	2.36	0.50
1:A:1006:GLN:OE1	1:A:1010:THR:OG1	2.29	0.50
1:A:1228:ILE:HG23	1:A:1232:LEU:HD13	1.92	0.50
1:A:1629:ILE:O	1:A:1633:GLU:N	2.42	0.50
1:A:2993:LYS:HG3	1:A:2996:HIS:H	1.77	0.50
1:A:1117:LYS:HD2	1:A:1118:THR:HG23	1.93	0.50
1:A:2588:PRO:HD3	1:A:3196:TYR:CZ	2.47	0.50
1:A:970:VAL:HG11	1:A:1781:PHE:HE2	1.76	0.50
1:A:1003:GLU:OE1	1:A:1003:GLU:N	2.45	0.50
1:A:1411:TYR:HD1	1:A:1414:ILE:HD11	1.76	0.50
1:A:2389:TYR:O	1:A:2390:LYS:HG2	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2449:THR:O	1:A:2453:LEU:HG	2.12	0.50
1:A:2592:LYS:C	1:A:2593:PHE:HD1	2.18	0.50
1:A:1038:THR:O	1:A:1042:THR:OG1	2.29	0.50
1:A:1659:ARG:HA	1:A:1662:ARG:HB3	1.93	0.50
1:A:2408:ILE:HD12	1:A:2411:ILE:HD12	1.94	0.50
1:A:2623:ASN:OD1	1:A:2623:ASN:N	2.45	0.50
1:A:972:ILE:HD13	1:A:1755:TYR:HE1	1.76	0.50
1:A:1194:ASP:O	1:A:1199:ALA:HB3	2.12	0.50
1:A:1262:LEU:HD11	1:A:1264:ILE:HD11	1.94	0.50
1:A:1542:LEU:HA	1:A:2566:LYS:HZ3	1.77	0.50
1:A:1626:GLU:O	1:A:1628:CYS:N	2.44	0.50
1:A:1183:VAL:O	1:A:1187:LEU:HG	2.12	0.50
1:A:1661:ALA:HA	1:A:1664:LEU:HD13	1.94	0.50
1:A:2499:LEU:HD21	1:A:2548:LEU:HD22	1.94	0.50
1:A:988:LEU:HD13	1:A:2497:PHE:HE2	1.77	0.50
1:A:1077:ASN:OD1	1:A:1078:VAL:N	2.45	0.50
1:A:1534:SER:HA	1:A:2570:SER:HB2	1.94	0.50
1:A:2203:THR:HA	1:A:2206:MET:HE3	1.93	0.50
1:A:2744:PHE:HB3	1:A:3020:PHE:CE2	2.46	0.50
1:A:1383:LEU:HD12	1:A:1399:PHE:CE1	2.45	0.49
1:A:1659:ARG:NH1	1:A:1765:ASP:OD2	2.45	0.49
1:A:1018:TRP:CD1	1:A:1563:GLN:HE21	2.30	0.49
1:A:1605:ARG:HD3	1:A:3087:ILE:HG21	1.94	0.49
1:A:2023:LEU:HD11	1:A:2143:PHE:HE2	1.76	0.49
1:A:2355:ILE:HG13	1:A:2355:ILE:O	2.11	0.49
1:A:2382:VAL:HG11	1:A:2385:TRP:HD1	1.77	0.49
1:A:2434:ARG:HH22	1:A:2437:LEU:HD13	1.76	0.49
1:A:2759:PHE:CE1	1:A:3069:ARG:HG2	2.47	0.49
1:A:2912:VAL:HG13	1:A:3183:ARG:NH1	2.27	0.49
1:A:1383:LEU:HD11	1:A:1397:PRO:HB2	1.94	0.49
1:A:3068:LEU:O	1:A:3072:GLU:HG2	2.12	0.49
1:A:3121:VAL:HG22	1:A:3122:LYS:H	1.76	0.49
1:A:934:VAL:HG22	1:A:2390:LYS:HD2	1.94	0.49
1:A:1024:LYS:HA	1:A:1032:LEU:HD21	1.94	0.49
1:A:1343:CYS:O	1:A:1347:LEU:HG	2.12	0.49
1:A:1352:GLU:HB2	1:A:2944:LEU:HD21	1.95	0.49
1:A:1305:MET:O	1:A:1309:ILE:HG12	2.13	0.49
1:A:1630:SER:O	1:A:1634:GLU:N	2.37	0.49
1:A:2592:LYS:HB3	1:A:2593:PHE:CE1	2.47	0.49
1:A:1306:LYS:HG2	1:A:2775:ILE:HD13	1.93	0.49
1:A:1832:LEU:HD23	1:A:2462:LEU:HA	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2903:VAL:HG11	1:A:3155:GLU:HB3	1.95	0.49
1:A:3024:ILE:HG13	1:A:3024:ILE:O	2.12	0.49
1:A:3065:ARG:HD2	1:A:3065:ARG:O	2.12	0.49
1:A:1008:VAL:O	1:A:1012:GLU:HG2	2.12	0.49
1:A:1090:HIS:ND1	1:A:1365:HIS:O	2.36	0.49
1:A:1288:VAL:HB	1:A:1334:GLN:NE2	2.28	0.49
1:A:2240:VAL:HA	1:A:2924:LEU:HD13	1.95	0.49
1:A:1414:ILE:HG22	1:A:2595:PHE:CD1	2.48	0.49
1:A:3061:SER:O	1:A:3065:ARG:HB2	2.12	0.49
1:A:988:LEU:HD23	1:A:989:ASP:H	1.77	0.48
1:A:2954:LYS:N	1:A:2993:LYS:HZ1	2.11	0.48
1:A:1352:GLU:HB2	1:A:2944:LEU:HD11	1.96	0.48
1:A:1632:LEU:HA	1:A:1635:THR:HB	1.96	0.48
1:A:2078:ALA:HB1	1:A:2201:ILE:HG12	1.94	0.48
1:A:2083:TRP:HD1	1:A:2083:TRP:O	1.97	0.48
1:A:2355:ILE:HD11	1:A:2521:LYS:HG3	1.95	0.48
1:A:1005:THR:HB	1:A:1535:ARG:HA	1.95	0.48
1:A:1545:LYS:HB2	1:A:2566:LYS:HZ1	1.78	0.48
1:A:2414:VAL:HB	2:C:8:G:C2	2.48	0.48
1:A:2613:CYS:HA	1:A:2637:ARG:NH1	2.27	0.48
1:A:2800:SER:HB3	1:A:3002:LEU:HB2	1.95	0.48
1:A:2925:LYS:O	1:A:2929:THR:HG23	2.14	0.48
1:A:3215:TYR:CE2	1:A:3217:ILE:HG12	2.48	0.48
1:A:2087:TYR:HB2	1:A:2202:TRP:HE1	1.79	0.48
1:A:2389:TYR:O	1:A:2392:THR:OG1	2.32	0.48
1:A:2627:LEU:HD22	1:A:2671:TYR:CZ	2.49	0.48
1:A:983:MET:HA	1:A:986:GLU:HG3	1.94	0.48
1:A:1004:LEU:HA	1:A:1536:LEU:HD23	1.94	0.48
1:A:2543:LYS:HA	1:A:2543:LYS:HE2	1.95	0.48
1:A:959:GLU:OE2	1:A:959:GLU:N	2.41	0.48
1:A:1778:MET:O	1:A:2560:GLN:HG2	2.14	0.48
1:A:2471:MET:HG2	1:A:2472:GLY:N	2.28	0.48
1:A:2826:SER:O	1:A:2830:VAL:HG12	2.13	0.48
1:A:1423:LEU:HD11	1:A:1496:ILE:HD11	1.96	0.48
1:A:2926:GLN:O	1:A:2929:THR:OG1	2.23	0.48
1:A:3215:TYR:CG	1:A:3216:GLY:N	2.82	0.48
1:A:1191:LYS:HG2	1:A:1200:LYS:HG3	1.95	0.48
1:A:1326:VAL:HA	1:A:1329:ARG:NH1	2.28	0.48
1:A:2373:GLY:O	1:A:2376:GLN:HG3	2.13	0.48
1:A:2692:GLN:HB2	1:A:3050:GLU:OE1	2.14	0.48
1:A:1263:LEU:O	1:A:1265:ARG:NH1	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2865:ILE:HG12	1:A:2952:PHE:HE2	1.79	0.48
1:A:993:ASP:HA	1:A:996:GLU:OE1	2.13	0.47
1:A:1198:TYR:N	1:A:1200:LYS:H	2.11	0.47
1:A:1351:THR:OG1	1:A:1354:ASN:OD1	2.29	0.47
1:A:2374:MET:O	1:A:2378:VAL:HG23	2.14	0.47
1:A:2418:LYS:HD2	1:A:2440:ASN:CG	2.39	0.47
1:A:1200:LYS:O	1:A:1203:ILE:N	2.47	0.47
1:A:2115:ASP:HA	1:A:2196:ASN:HD22	1.79	0.47
1:A:2418:LYS:HD2	1:A:2440:ASN:ND2	2.29	0.47
1:A:2655:LEU:HD13	1:A:2797:ILE:HG12	1.95	0.47
1:A:987:ASN:HD21	1:A:1767:LEU:HD11	1.78	0.47
1:A:1329:ARG:HH11	1:A:1440:LEU:HD21	1.79	0.47
1:A:1410:SER:O	1:A:1414:ILE:HG12	2.14	0.47
1:A:2345:ASN:HA	1:A:2531:LYS:HE2	1.95	0.47
1:A:2955:SER:O	1:A:2993:LYS:NZ	2.34	0.47
2:C:3:U:H2'	2:C:4:C:C6	2.49	0.47
1:A:1991:LEU:HD23	1:A:2116:LEU:HD22	1.97	0.47
1:A:1203:ILE:O	1:A:1207:LEU:HG	2.14	0.47
1:A:1621:MET:HE1	1:A:2272:PRO:HG2	1.94	0.47
1:A:1341:LYS:HA	1:A:1341:LYS:HD3	1.68	0.47
1:A:2609:LEU:HD22	1:A:2641:PHE:CD2	2.50	0.47
1:A:1070:VAL:HG13	1:A:1263:LEU:HD22	1.97	0.47
1:A:1188:SER:HA	1:A:1191:LYS:HD3	1.96	0.47
1:A:1199:ALA:HB2	1:A:2970:TRP:CZ2	2.50	0.47
1:A:1654:GLU:HG2	1:A:1655:ARG:HE	1.80	0.47
1:A:1657:ASP:O	1:A:1659:ARG:N	2.43	0.47
1:A:2474:GLY:O	1:A:2477:HIS:ND1	2.48	0.47
1:A:2622:TYR:O	1:A:3195:PHE:HA	2.14	0.47
1:A:2682:GLU:OE1	1:A:2682:GLU:N	2.46	0.47
1:A:2857:ASN:HB2	1:A:3184:MET:SD	2.55	0.47
1:A:3150:LYS:HB3	1:A:3153:ALA:HA	1.97	0.47
1:A:3177:HIS:O	1:A:3181:LEU:HG	2.14	0.47
1:A:1053:ALA:HA	1:A:1056:LEU:HG	1.97	0.47
1:A:2610:MET:SD	1:A:2667:PHE:HB2	2.55	0.47
1:A:1078:VAL:HG21	1:A:1509:ASP:HA	1.97	0.47
1:A:2915:GLU:O	1:A:2919:ALA:HB3	2.14	0.47
1:A:3160:GLU:HA	1:A:3164:LEU:HD12	1.97	0.47
1:A:1411:TYR:HA	1:A:1414:ILE:CG1	2.45	0.47
1:A:1530:LEU:HD22	1:A:2573:PHE:CD1	2.50	0.47
1:A:1612:TYR:OH	1:A:2592:LYS:HE3	2.15	0.47
1:A:3167:ASP:O	1:A:3168:LEU:HG	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:929:VAL:HG22	1:A:2260:LEU:HD11	1.97	0.46
1:A:1513:ALA:HB1	1:A:1552:ARG:HH12	1.80	0.46
1:A:1595:THR:HG21	1:A:1609:PHE:HD1	1.80	0.46
1:A:2999:ASP:O	1:A:3002:LEU:HG	2.16	0.46
1:A:2698:SER:OG	1:A:3010:ARG:NH2	2.48	0.46
1:A:3067:LYS:O	1:A:3071:VAL:HG22	2.15	0.46
1:A:1348:ARG:HH21	1:A:2644:HIS:HA	1.81	0.46
1:A:1777:THR:HG23	1:A:2560:GLN:NE2	2.31	0.46
1:A:2408:ILE:O	1:A:2412:LEU:HG	2.16	0.46
1:A:2656:THR:O	1:A:2659:THR:OG1	2.34	0.46
1:A:3209:VAL:HG12	1:A:3211:GLU:H	1.80	0.46
1:A:1511:LEU:HD13	1:A:1616:ILE:HD12	1.98	0.46
1:A:1638:ARG:HA	1:A:1641:LEU:HD12	1.97	0.46
1:A:1566:ILE:O	1:A:1570:VAL:HG22	2.15	0.46
1:A:2419:LEU:HG	1:A:2422:LYS:HZ2	1.81	0.46
1:A:996:GLU:OE2	1:A:2547:ARG:NE	2.49	0.46
1:A:1121:GLU:O	1:A:1125:LYS:HG3	2.16	0.46
1:A:2231:VAL:N	1:A:2267:TYR:OH	2.48	0.46
1:A:2494:LEU:HD22	1:A:2551:PHE:HE2	1.81	0.46
1:A:1136:MET:HE3	1:A:1142:ASP:C	2.40	0.46
1:A:1537:VAL:HG23	1:A:1539:PRO:HD3	1.97	0.46
1:A:1516:GLN:O	1:A:1520:LYS:HG2	2.16	0.46
1:A:2280:ARG:HH21	1:A:2362:TRP:HB3	1.81	0.46
1:A:2446:GLY:H	1:A:2451:LYS:HE3	1.81	0.46
1:A:1403:ARG:O	1:A:1514:ASN:ND2	2.49	0.46
1:A:1662:ARG:HD3	1:A:1663:LEU:HG	1.98	0.46
1:A:2665:ARG:HH12	1:A:2686:VAL:HG21	1.80	0.46
1:A:2665:ARG:NH1	1:A:2686:VAL:HG21	2.31	0.46
1:A:2672:SER:O	1:A:3065:ARG:HD3	2.15	0.46
1:A:1116:GLY:HA2	1:A:1121:GLU:OE2	2.15	0.46
1:A:2494:LEU:HD11	1:A:2555:VAL:HG11	1.98	0.46
1:A:1295:ILE:O	1:A:2639:GLN:HG2	2.15	0.45
1:A:1608:ILE:HA	1:A:1611:ILE:HG12	1.97	0.45
1:A:2370:PHE:HD2	1:A:2560:GLN:HG3	1.81	0.45
1:A:2492:GLU:O	1:A:2496:ILE:HG22	2.15	0.45
1:A:1184:ARG:O	1:A:1187:LEU:HB2	2.17	0.45
1:A:1265:ARG:HH12	1:A:1551:ARG:C	2.23	0.45
1:A:1909:ILE:HG23	1:A:2068:MET:HE1	1.97	0.45
1:A:1131:LEU:HA	1:A:1134:LEU:HD23	1.98	0.45
1:A:1420:ILE:HG21	1:A:2628:ILE:HG12	1.98	0.45
1:A:2767:LYS:HD2	1:A:2767:LYS:HA	1.63	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3221:ARG:HB2	1:A:3225:LEU:HA	1.99	0.45
1:A:1224:TRP:HB3	1:A:1391:MET:HG2	1.98	0.45
1:A:1360:LEU:HD12	1:A:1371:SER:HB2	1.98	0.45
1:A:1768:GLN:HA	1:A:1771:ARG:HB2	1.99	0.45
1:A:2604:THR:OG1	1:A:2932:ASN:OD1	2.29	0.45
1:A:1303:GLU:HG2	1:A:2657:LEU:HB3	1.99	0.45
1:A:1411:TYR:CE2	1:A:1508:LYS:HG3	2.51	0.45
1:A:2595:PHE:HA	1:A:2598:LEU:HB3	1.98	0.45
1:A:3165:SER:O	1:A:3167:ASP:N	2.49	0.45
1:A:1426:TYR:OH	1:A:1606:GLN:HG2	2.16	0.45
1:A:1535:ARG:HD3	1:A:2542:TRP:CE2	2.51	0.45
1:A:1882:LEU:HD21	1:A:2424:GLY:HA3	1.98	0.45
1:A:2815:ARG:HB2	1:A:2819:GLU:HG2	1.98	0.45
2:C:1:U:H3'	2:C:2:C:C6	2.52	0.45
1:A:988:LEU:HA	1:A:2551:PHE:CE1	2.52	0.45
1:A:1018:TRP:CD1	1:A:1563:GLN:NE2	2.85	0.45
1:A:2869:PRO:HD2	1:A:2872:LEU:HD23	1.97	0.45
1:A:984:LEU:HD11	1:A:2555:VAL:HG22	1.99	0.45
1:A:1011:SER:O	1:A:1014:MET:HB2	2.16	0.45
1:A:1021:GLU:HG3	1:A:1544:LYS:O	2.16	0.45
1:A:1233:LYS:C	1:A:1235:PRO:HD2	2.42	0.45
1:A:2311:GLY:HA3	1:A:2515:SER:HB2	1.97	0.45
1:A:2355:ILE:HG22	1:A:2569:VAL:HG22	1.98	0.45
1:A:1216:SER:OG	1:A:1217:LYS:N	2.50	0.45
1:A:1642:TRP:CD1	1:A:1777:THR:HB	2.52	0.45
1:A:1257:ARG:HD3	1:A:1257:ARG:C	2.42	0.45
1:A:1605:ARG:CD	1:A:3087:ILE:HG21	2.46	0.45
1:A:1952:PRO:HG2	1:A:1954:LEU:HD12	1.99	0.45
2:C:2:C:H2'	2:C:3:U:C5	2.52	0.45
1:A:1179:LYS:O	1:A:1182:ILE:HG13	2.16	0.44
1:A:1235:PRO:HG3	1:A:1242:LEU:HD12	1.98	0.44
1:A:2410:LYS:H	1:A:2410:LYS:HG3	1.57	0.44
1:A:2615:VAL:HG11	1:A:2854:ARG:HG2	1.97	0.44
1:A:2640:ILE:O	1:A:2643:ASN:HB2	2.17	0.44
1:A:1341:LYS:HD2	1:A:1364:ARG:HB2	2.00	0.44
1:A:1412:LEU:HD11	1:A:1413:TYR:CZ	2.52	0.44
1:A:1835:CYS:O	1:A:1839:ILE:HG23	2.16	0.44
1:A:1005:THR:N	1:A:1535:ARG:O	2.42	0.44
1:A:2630:ASN:HA	1:A:2633:PHE:CE2	2.52	0.44
1:A:2636:LEU:O	1:A:2639:GLN:HB3	2.17	0.44
1:A:1187:LEU:O	1:A:1188:SER:C	2.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1604:ASP:OD1	1:A:2582:MET:HB2	2.17	0.44
1:A:2545:ALA:O	1:A:2548:LEU:HG	2.18	0.44
1:A:1440:LEU:HA	1:A:1443:ILE:HG22	2.00	0.44
1:A:2503:LEU:HB2	1:A:2537:TYR:CZ	2.53	0.44
1:A:2592:LYS:HD3	1:A:2593:PHE:HE1	1.83	0.44
1:A:2593:PHE:CE2	1:A:2623:ASN:ND2	2.86	0.44
1:A:2750:ARG:HH22	1:A:2756:GLU:HG2	1.81	0.44
1:A:3014:VAL:HG22	1:A:3016:GLU:H	1.83	0.44
1:A:3078:SER:HB3	1:A:3221:ARG:HH21	1.82	0.44
1:A:1130:TYR:CE2	1:A:1134:LEU:HD21	2.53	0.44
1:A:1333:PHE:O	1:A:1337:VAL:HG23	2.17	0.44
1:A:2603:VAL:HG22	1:A:2609:LEU:HA	1.98	0.44
1:A:2911:ASN:ND2	1:A:2913:SER:HB2	2.32	0.44
1:A:934:VAL:HG12	1:A:966:LEU:HD13	2.00	0.44
1:A:1293:ASP:HB3	1:A:2788:GLU:HG3	1.99	0.44
1:A:1373:LYS:CG	1:A:1383:LEU:HB3	2.48	0.44
1:A:1200:LYS:O	1:A:1201:GLY:C	2.61	0.44
1:A:1360:LEU:HD11	1:A:1391:MET:HE1	1.99	0.44
1:A:1420:ILE:HD12	1:A:1420:ILE:H	1.82	0.44
1:A:1595:THR:HG22	1:A:1613:ASN:HD21	1.83	0.44
1:A:2113:LEU:HA	1:A:2116:LEU:HB2	2.00	0.44
1:A:3084:ARG:HD3	1:A:3084:ARG:N	2.33	0.44
2:C:2:C:H2'	2:C:3:U:C6	2.53	0.44
1:A:982:ASN:HA	1:A:985:LYS:HG3	2.00	0.43
1:A:1329:ARG:NH1	1:A:1440:LEU:HD21	2.32	0.43
1:A:1608:ILE:HD11	1:A:2582:MET:CE	2.48	0.43
1:A:2488:ALA:O	1:A:2492:GLU:HG3	2.18	0.43
1:A:2540:THR:O	1:A:2540:THR:OG1	2.35	0.43
1:A:2582:MET:SD	1:A:2582:MET:N	2.91	0.43
1:A:2660:LEU:HD22	1:A:2683:ASP:CG	2.43	0.43
1:A:1077:ASN:O	1:A:1081:ARG:HG2	2.17	0.43
1:A:1271:LYS:HD3	1:A:1455:PHE:CZ	2.53	0.43
1:A:1502:VAL:HA	1:A:1506:LEU:HB2	2.00	0.43
1:A:2335:LEU:HD22	1:A:2350:TYR:CD2	2.53	0.43
1:A:1243:ILE:HG23	1:A:1246:ARG:HD3	2.00	0.43
1:A:1381:ASN:CG	1:A:1399:PHE:HB3	2.43	0.43
1:A:1503:TYR:OH	1:A:1595:THR:HG22	2.18	0.43
1:A:1663:LEU:HD23	1:A:1663:LEU:HA	1.81	0.43
1:A:2873:ARG:NH1	1:A:2877:GLU:OE2	2.51	0.43
1:A:3004:CYS:SG	1:A:3037:ARG:HG3	2.58	0.43
1:A:972:ILE:HG22	1:A:973:SER:N	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1493:ILE:HG13	1:A:1494:SER:N	2.34	0.43
1:A:2422:LYS:HG3	1:A:2428:HIS:CE1	2.53	0.43
1:A:2994:TYR:O	1:A:2998:LEU:HD22	2.18	0.43
1:A:1407:LEU:HD21	1:A:1616:ILE:HG22	2.00	0.43
1:A:2510:VAL:CG2	1:A:2523:ILE:HG23	2.48	0.43
1:A:2682:GLU:O	1:A:2686:VAL:HG23	2.18	0.43
2:C:5:A:O2'	2:C:7:A:H5"	2.18	0.43
1:A:1018:TRP:CD1	1:A:1018:TRP:C	2.96	0.43
1:A:1245:ILE:HD12	1:A:1245:ILE:HA	1.90	0.43
1:A:2013:GLN:HE21	1:A:2126:TYR:HD1	1.66	0.43
1:A:2645:VAL:HG23	1:A:2649:ILE:HG12	2.00	0.43
1:A:2839:PHE:N	1:A:2839:PHE:CD2	2.86	0.43
1:A:2379:LEU:HD13	1:A:2386:CYS:HA	2.00	0.43
1:A:1306:LYS:NZ	1:A:2818:LEU:HG	2.34	0.43
1:A:2418:LYS:NZ	1:A:2440:ASN:HA	2.34	0.43
1:A:3111:TYR:N	1:A:3148:LEU:HD12	2.33	0.43
1:A:1479:ALA:HA	1:A:1486:ARG:HH21	1.84	0.43
1:A:1528:GLY:C	1:A:1566:ILE:HD11	2.44	0.43
1:A:1579:HIS:HA	1:A:1582:GLN:HE22	1.83	0.43
1:A:2419:LEU:HG	1:A:2422:LYS:HD3	2.00	0.43
1:A:2694:LEU:HD22	1:A:2827:VAL:HG12	2.01	0.43
1:A:1450:LEU:HD22	1:A:1597:TYR:CE2	2.54	0.43
1:A:1520:LYS:HG2	1:A:1520:LYS:H	1.53	0.43
1:A:1542:LEU:HD13	1:A:2566:LYS:HD3	2.01	0.43
1:A:2761:LYS:HE2	1:A:2761:LYS:HB2	1.90	0.43
1:A:2366:HIS:HA	1:A:2560:GLN:NE2	2.33	0.42
1:A:948:ARG:HH12	1:A:953:THR:HG22	1.84	0.42
1:A:1042:THR:HB	1:A:1048:LYS:HG2	2.01	0.42
1:A:1432:ILE:HA	1:A:1435:VAL:HG23	2.01	0.42
1:A:1628:CYS:O	1:A:1631:VAL:HB	2.20	0.42
1:A:2230:SER:HB3	1:A:2267:TYR:CZ	2.55	0.42
1:A:2449:THR:HB	2:C:7:A:H62	1.84	0.42
1:A:952:LEU:HD11	1:A:1646:LEU:HG	2.02	0.42
1:A:1336:VAL:HG22	1:A:1508:LYS:HD2	2.01	0.42
1:A:1438:LYS:HA	1:A:1441:GLN:OE1	2.19	0.42
1:A:1870:ARG:HA	1:A:1870:ARG:HD3	1.79	0.42
1:A:2696:MET:C	1:A:2696:MET:HE2	2.45	0.42
1:A:936:GLU:O	1:A:939:GLU:HG2	2.19	0.42
1:A:1184:ARG:HH21	1:A:1188:SER:HB3	1.85	0.42
1:A:1323:LEU:HA	1:A:1323:LEU:HD23	1.81	0.42
1:A:1446:HIS:HB3	1:A:1497:SER:OG	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1579:HIS:HB2	1:A:1589:VAL:HG12	2.02	0.42
1:A:1991:LEU:HD23	1:A:2116:LEU:HD13	2.01	0.42
1:A:2564:SER:O	1:A:2567:THR:HG23	2.20	0.42
1:A:2689:ARG:NH1	1:A:2693:THR:OG1	2.52	0.42
1:A:2758:GLN:HG2	1:A:3070:ILE:HG23	2.01	0.42
1:A:1339:TYR:HE2	1:A:1512:LEU:HD22	1.85	0.42
1:A:1507:ILE:O	1:A:1511:LEU:HG	2.20	0.42
1:A:2512:HIS:ND1	1:A:2521:LYS:HG2	2.34	0.42
1:A:2593:PHE:CD1	1:A:2593:PHE:N	2.87	0.42
1:A:2750:ARG:HB2	1:A:2751:PRO:HD3	2.02	0.42
1:A:2759:PHE:HE1	1:A:2763:LEU:HD21	1.85	0.42
1:A:3120:GLU:O	1:A:3121:VAL:HG12	2.20	0.42
1:A:1027:ARG:HB3	1:A:1031:CYS:HB3	2.01	0.42
1:A:1402:ARG:HB3	1:A:1403:ARG:HH21	1.84	0.42
1:A:1530:LEU:HB3	1:A:2573:PHE:CE1	2.54	0.42
1:A:1972:LEU:HG	1:A:2083:TRP:HH2	1.84	0.42
1:A:2591:ILE:HA	1:A:2594:MET:SD	2.59	0.42
1:A:1207:LEU:O	1:A:1210:LEU:HB3	2.19	0.42
1:A:1478:LYS:HD3	1:A:1478:LYS:HA	1.75	0.42
1:A:1578:LYS:HD2	1:A:1578:LYS:HA	1.72	0.42
1:A:1636:ALA:O	1:A:1638:ARG:N	2.53	0.42
1:A:1761:SER:HA	1:A:1764:LYS:HE3	2.02	0.42
1:A:2322:LEU:HD22	1:A:2581:MET:HB3	2.02	0.42
1:A:1303:GLU:OE2	1:A:1307:ARG:NE	2.53	0.41
1:A:1465:ARG:HA	1:A:1465:ARG:NH1	2.35	0.41
1:A:1656:LYS:HD3	1:A:1656:LYS:HA	1.86	0.41
1:A:2744:PHE:CE2	1:A:3148:LEU:HA	2.51	0.41
1:A:949:PRO:HG2	1:A:952:LEU:HD22	2.02	0.41
1:A:1191:LYS:HE3	1:A:1200:LYS:HE3	2.02	0.41
1:A:1377:ASN:OD1	1:A:1377:ASN:N	2.54	0.41
1:A:1429:LEU:HB3	1:A:3215:TYR:OH	2.20	0.41
1:A:1642:TRP:HD1	1:A:1776:HIS:HB2	1.86	0.41
1:A:2836:TYR:CE2	1:A:2863:PRO:HB3	2.55	0.41
1:A:3150:LYS:HA	1:A:3150:LYS:HD2	1.85	0.41
1:A:1521:GLN:HB2	1:A:1548:THR:OG1	2.19	0.41
1:A:1545:LYS:HB2	1:A:2566:LYS:NZ	2.34	0.41
1:A:1619:LYS:HD2	1:A:2276:LEU:HD21	2.02	0.41
1:A:2362:TRP:O	1:A:2362:TRP:HD1	2.03	0.41
1:A:1846:LYS:NZ	1:A:2226:ARG:HG2	2.35	0.41
1:A:1988:GLN:HA	1:A:2116:LEU:HD11	2.03	0.41
1:A:2379:LEU:HB3	1:A:2386:CYS:SG	2.61	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2573:PHE:HA	1:A:2581:MET:O	2.21	0.41
1:A:2592:LYS:HB3	1:A:2593:PHE:HD1	1.85	0.41
1:A:2865:ILE:HG12	1:A:2952:PHE:CE2	2.55	0.41
1:A:3067:LYS:HA	1:A:3070:ILE:HG12	2.02	0.41
1:A:1265:ARG:NH1	1:A:1551:ARG:O	2.41	0.41
1:A:1304:CYS:SG	1:A:2635:LEU:HD11	2.59	0.41
1:A:1332:TRP:CG	1:A:1333:PHE:N	2.89	0.41
1:A:1808:LYS:HD2	1:A:1808:LYS:HA	1.74	0.41
1:A:2380:LYS:HD3	1:A:2380:LYS:HA	1.93	0.41
1:A:3142:PHE:HA	1:A:3146:PHE:CE2	2.53	0.41
1:A:1467:GLU:CD	1:A:1571:ARG:HH21	2.28	0.41
1:A:2627:LEU:O	1:A:2631:THR:OG1	2.32	0.41
1:A:1058:LEU:HA	1:A:1061:HIS:ND1	2.35	0.41
1:A:2230:SER:HB2	1:A:2269:VAL:HG22	2.02	0.41
1:A:2803:ALA:HA	1:A:2809:LEU:CD2	2.51	0.41
1:A:3146:PHE:CD1	1:A:3148:LEU:HG	2.56	0.41
1:A:1085:ILE:HG12	1:A:1331:THR:HG23	2.02	0.41
1:A:1194:ASP:HB3	1:A:1200:LYS:CA	2.50	0.41
1:A:1204:SER:HA	1:A:1207:LEU:HG	2.03	0.41
1:A:1332:TRP:HA	1:A:1335:GLU:OE2	2.21	0.41
1:A:1466:PHE:HB3	1:A:1567:TYR:CD2	2.55	0.41
1:A:1960:LEU:HD21	1:A:1998:CYS:HA	2.03	0.41
1:A:1018:TRP:CD1	1:A:1547:SER:HB2	2.54	0.41
1:A:1135:MET:HG2	1:A:1210:LEU:HB2	2.03	0.41
1:A:1187:LEU:O	1:A:1190:THR:N	2.54	0.41
1:A:1270:LEU:HD12	1:A:1270:LEU:HA	1.81	0.41
1:A:1362:LYS:NZ	1:A:1367:ASP:HA	2.34	0.41
1:A:1373:LYS:HD3	1:A:1383:LEU:HD22	2.02	0.41
1:A:1443:ILE:HA	1:A:1443:ILE:HD12	1.79	0.41
1:A:1526:ARG:HD2	1:A:2580:PHE:HZ	1.84	0.41
1:A:1975:LEU:HD13	1:A:1980:GLN:HB3	2.03	0.41
1:A:2391:LEU:HD13	1:A:2394:ILE:HD12	2.02	0.41
1:A:2556:GLN:HB3	1:A:2561:MET:SD	2.61	0.41
1:A:3091:LYS:HG3	1:A:3206:GLU:HG2	2.03	0.41
1:A:3134:ASP:HB3	1:A:3137:LYS:HB3	2.01	0.41
1:A:1199:ALA:HB2	1:A:2970:TRP:HZ2	1.86	0.41
1:A:1633:GLU:HG3	2:C:7:A:N7	2.36	0.41
1:A:2374:MET:SD	1:A:2375:MET:N	2.94	0.41
1:A:2436:LEU:O	1:A:2440:ASN:HB2	2.21	0.41
1:A:2936:GLY:HA2	1:A:2942:LYS:HE3	2.03	0.41
1:A:3079:GLU:HA	1:A:3216:GLY:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:937:THR:HG22	1:A:941:MET:HE1	2.03	0.40
1:A:1263:LEU:HD12	1:A:1551:ARG:HG3	2.03	0.40
1:A:1453:ASP:OD2	1:A:1476:ARG:NE	2.48	0.40
1:A:1887:LYS:HA	1:A:1887:LYS:HD3	1.87	0.40
1:A:2961:ASN:HA	1:A:2964:LEU:HD21	2.02	0.40
1:A:3173:ARG:HG3	1:A:3177:HIS:CE1	2.56	0.40
1:A:1224:TRP:N	1:A:1224:TRP:CD1	2.87	0.40
1:A:2297:GLU:OE1	1:A:2475:ILE:HD11	2.21	0.40
1:A:2334:ASN:OD1	1:A:2334:ASN:N	2.53	0.40
1:A:2335:LEU:HD22	1:A:2350:TYR:HD2	1.86	0.40
1:A:2359:ASN:OD1	1:A:2563:ASP:HA	2.20	0.40
1:A:2498:TYR:HD2	1:A:2499:LEU:HD22	1.86	0.40
1:A:1136:MET:HE2	1:A:1144:ILE:HG23	2.03	0.40
1:A:1203:ILE:HD13	1:A:1203:ILE:HG21	1.79	0.40
1:A:1396:GLY:HA2	1:A:1398:PHE:HD1	1.86	0.40
1:A:1787:ILE:HG21	1:A:2559:CYS:SG	2.61	0.40
1:A:2332:MET:HE2	1:A:2351:LYS:HA	2.02	0.40
1:A:3058:LEU:HD12	1:A:3058:LEU:O	2.21	0.40
1:A:1152:ILE:HD13	1:A:1152:ILE:HA	1.86	0.40
1:A:1468:GLU:HA	1:A:1471:LYS:CE	2.50	0.40
1:A:1489:ARG:O	1:A:1493:ILE:HG12	2.21	0.40
1:A:2292:MET:HE2	1:A:2393:PHE:HB2	2.04	0.40
1:A:2298:MET:HE2	1:A:2298:MET:HB3	1.90	0.40
1:A:2299:PHE:HB3	1:A:2389:TYR:CE2	2.57	0.40
1:A:2401:VAL:HG22	1:A:2470:HIS:ND1	2.36	0.40
1:A:2761:LYS:O	1:A:2765:SER:HB2	2.22	0.40
1:A:2993:LYS:HB2	1:A:2993:LYS:HE2	1.80	0.40
1:A:3015:LYS:H	1:A:3015:LYS:HG2	1.71	0.40
1:A:3074:ARG:NH2	1:A:3227:ASP:HB2	2.34	0.40
1:A:934:VAL:HG22	1:A:2390:LYS:CD	2.51	0.40
1:A:994:GLU:O	1:A:998:THR:HG23	2.21	0.40
1:A:1121:GLU:HA	1:A:1124:VAL:HG22	2.03	0.40
1:A:1180:ILE:HA	1:A:1183:VAL:HG12	2.03	0.40
1:A:1526:ARG:HG3	1:A:1527:PHE:N	2.36	0.40
1:A:2441:LEU:HD12	1:A:2441:LEU:HA	1.86	0.40
1:A:3026:CYS:SG	1:A:3045:HIS:HB3	2.61	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	2112/3982 (53%)	1935 (92%)	160 (8%)	17 (1%)	16 47

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	972	ILE
1	A	1197	THR
1	A	2405	ALA
1	A	2467	SER
1	A	3109	MET
1	A	3121	VAL
1	A	3146	PHE
1	A	3166	PRO
1	A	1008	VAL
1	A	2401	VAL
1	A	3112	LEU
1	A	3170	GLN
1	A	3085	ALA
1	A	1193	LYS
1	A	3157	THR
1	A	2390	LYS
1	A	3194	VAL

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	1953/3629 (54%)	1949 (100%)	4 (0%)	87 87

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1305	MET
1	A	1519	ASN
1	A	2623	ASN
1	A	2902	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1007	ASN
1	A	1174	GLN
1	A	1277	GLN
1	A	1602	ASN
1	A	1669	ASN
1	A	2013	GLN
1	A	2196	ASN
1	A	2209	ASN
1	A	2252	GLN
1	A	2253	GLN
1	A	2302	ASN
1	A	2316	HIS
1	A	2466	ASN
1	A	2473	GLN
1	A	2512	HIS
1	A	2607	GLN
1	A	2764	ASN
1	A	2822	ASN
1	A	2996	HIS
1	A	3083	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	C	9/18 (50%)	4 (44%)	0

All (4) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	C	3	U
2	C	6	A
2	C	7	A
2	C	8	G

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

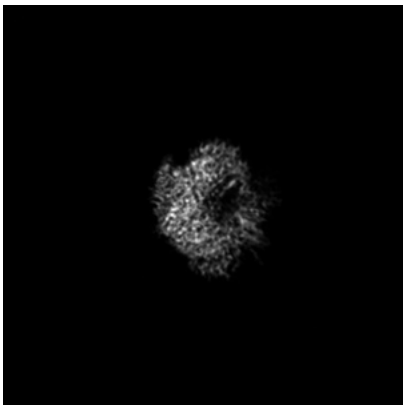
6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-67169. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

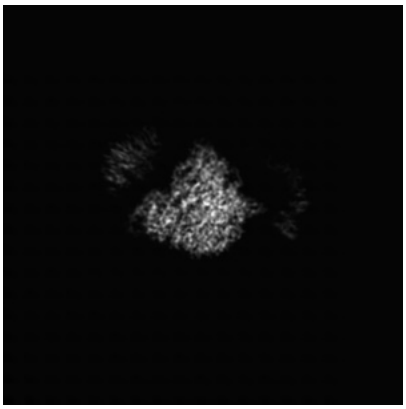
6.1 Orthogonal projections (i)

6.1.1 Primary map



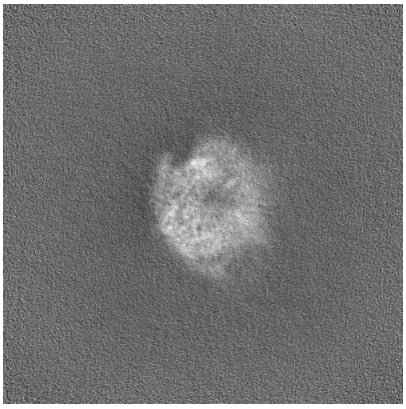
X

Y

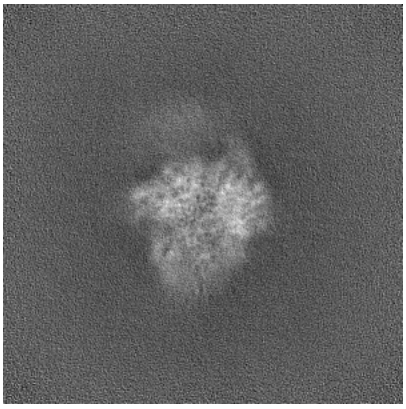


Z

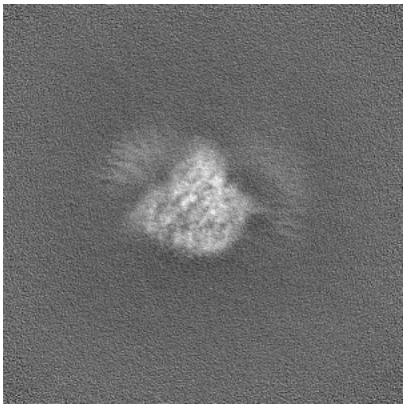
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

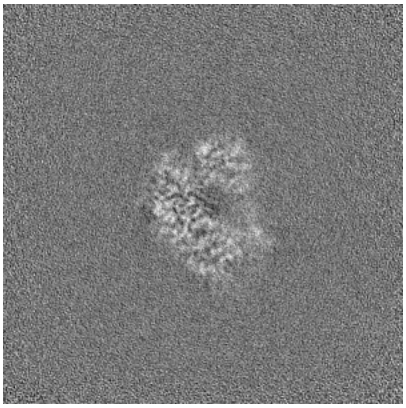
6.2.1 Primary map

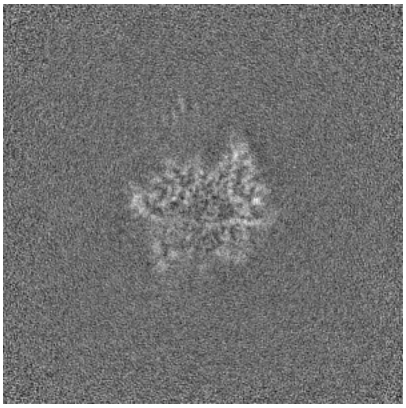
X Index: 180

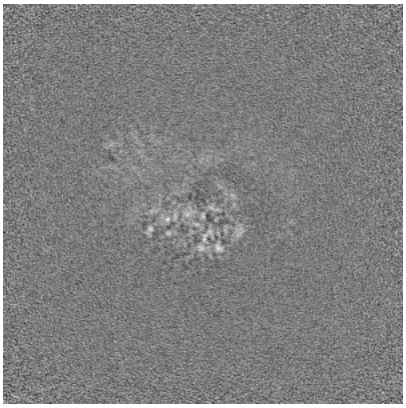
Y Index: 180

Z Index: 180

6.2.2 Raw map


X Index: 180


Y Index: 180


Z Index: 180

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

6.3 Largest variance slices (i)

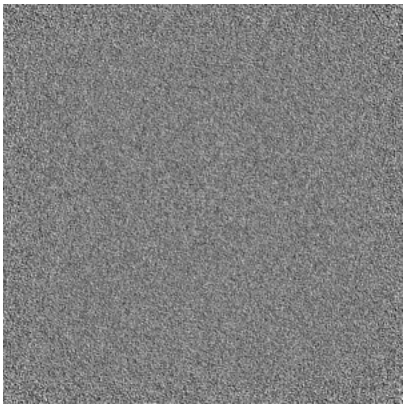
6.3.1 Primary map

X Index: 182

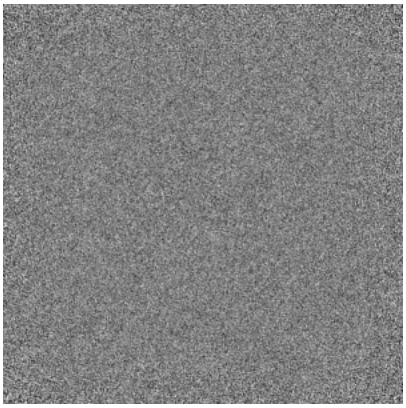
Y Index: 165

Z Index: 164

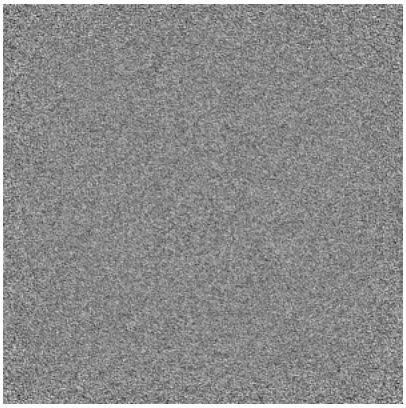
6.3.2 Raw map



X Index: 0



Y Index: 0

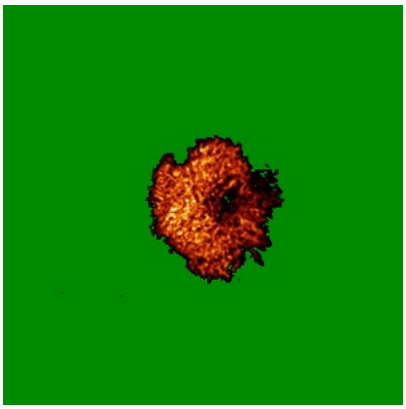


Z Index: 0

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

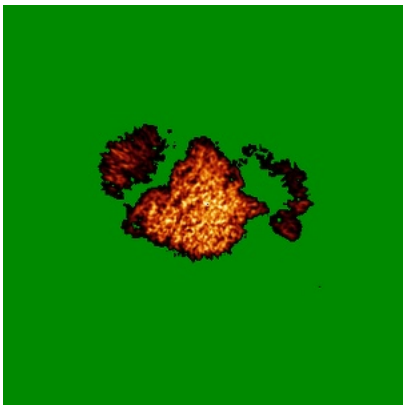
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



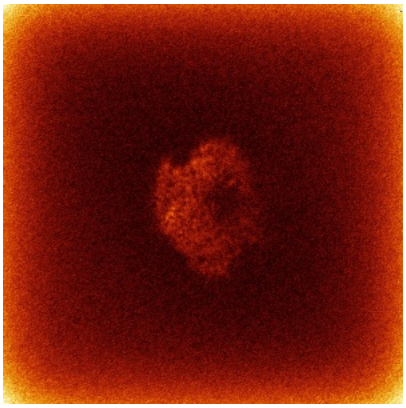
X

Y

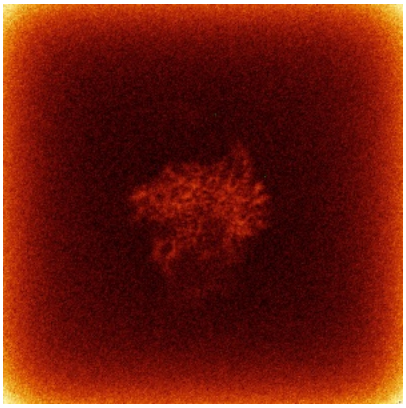


Z

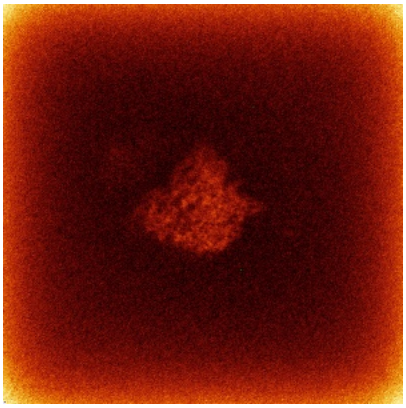
6.4.2 Raw map



X



Y

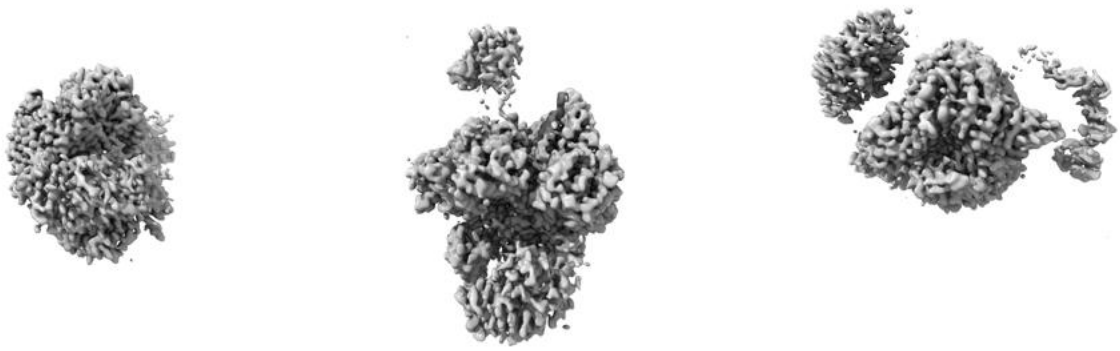


Z

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)

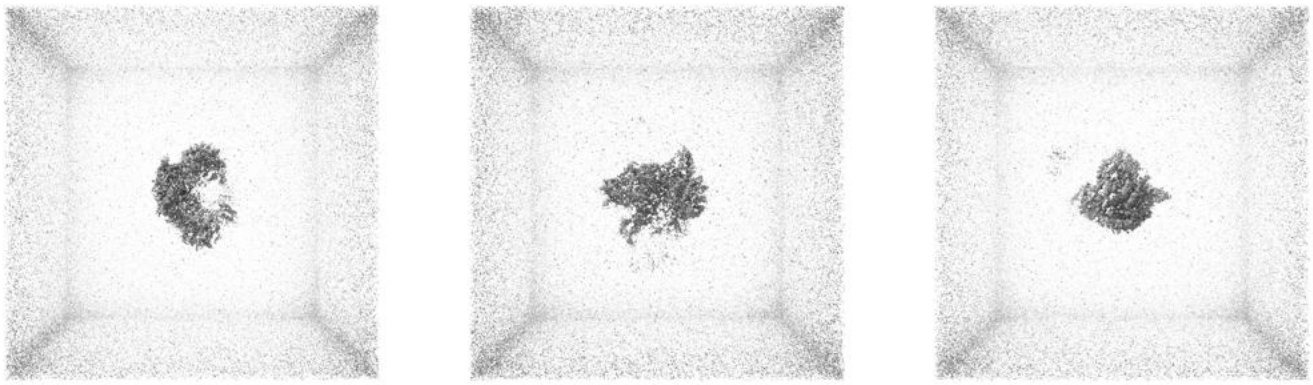
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.015. 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.

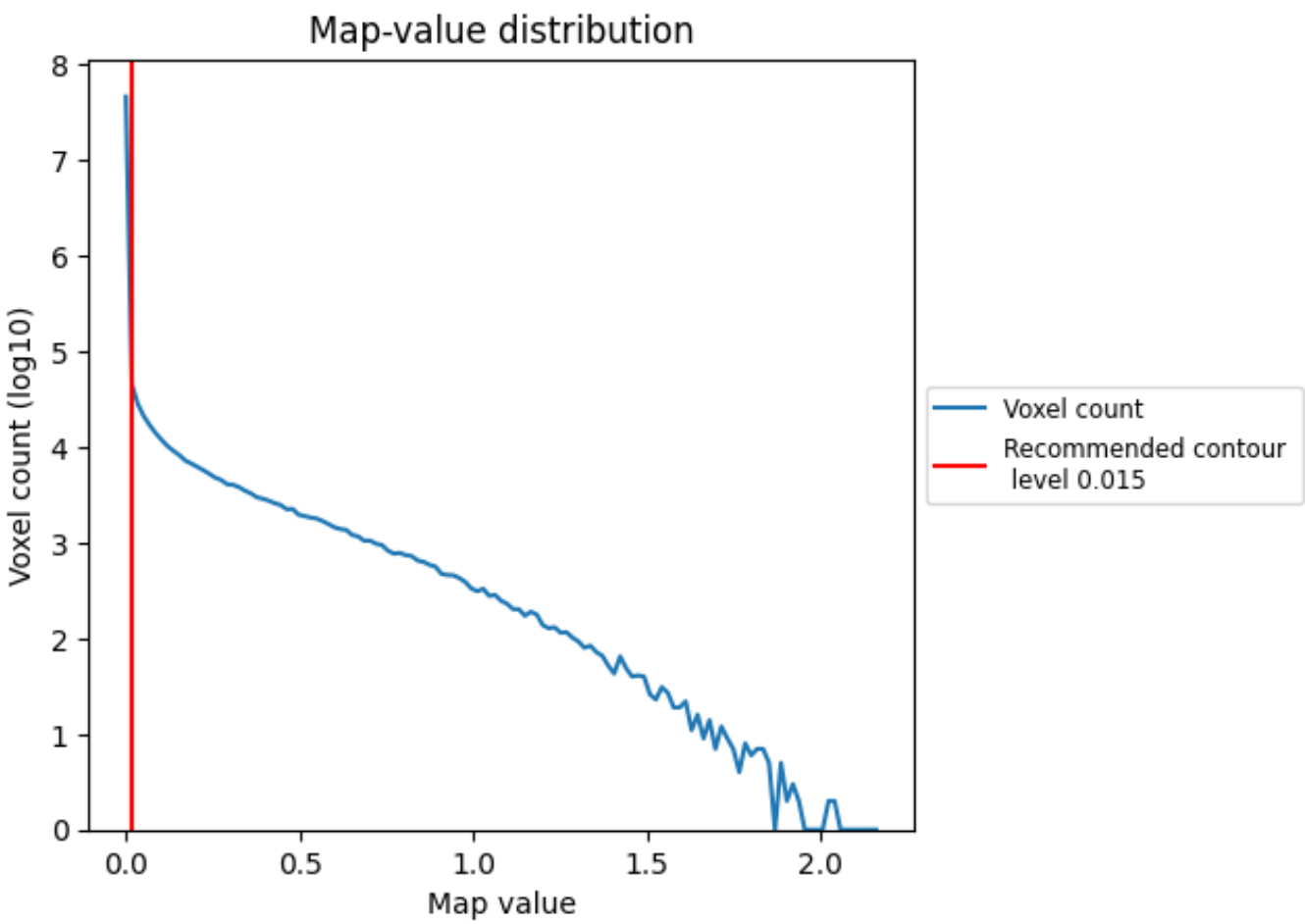
6.6 Mask visualisation (i)

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

7 Map analysis (i)

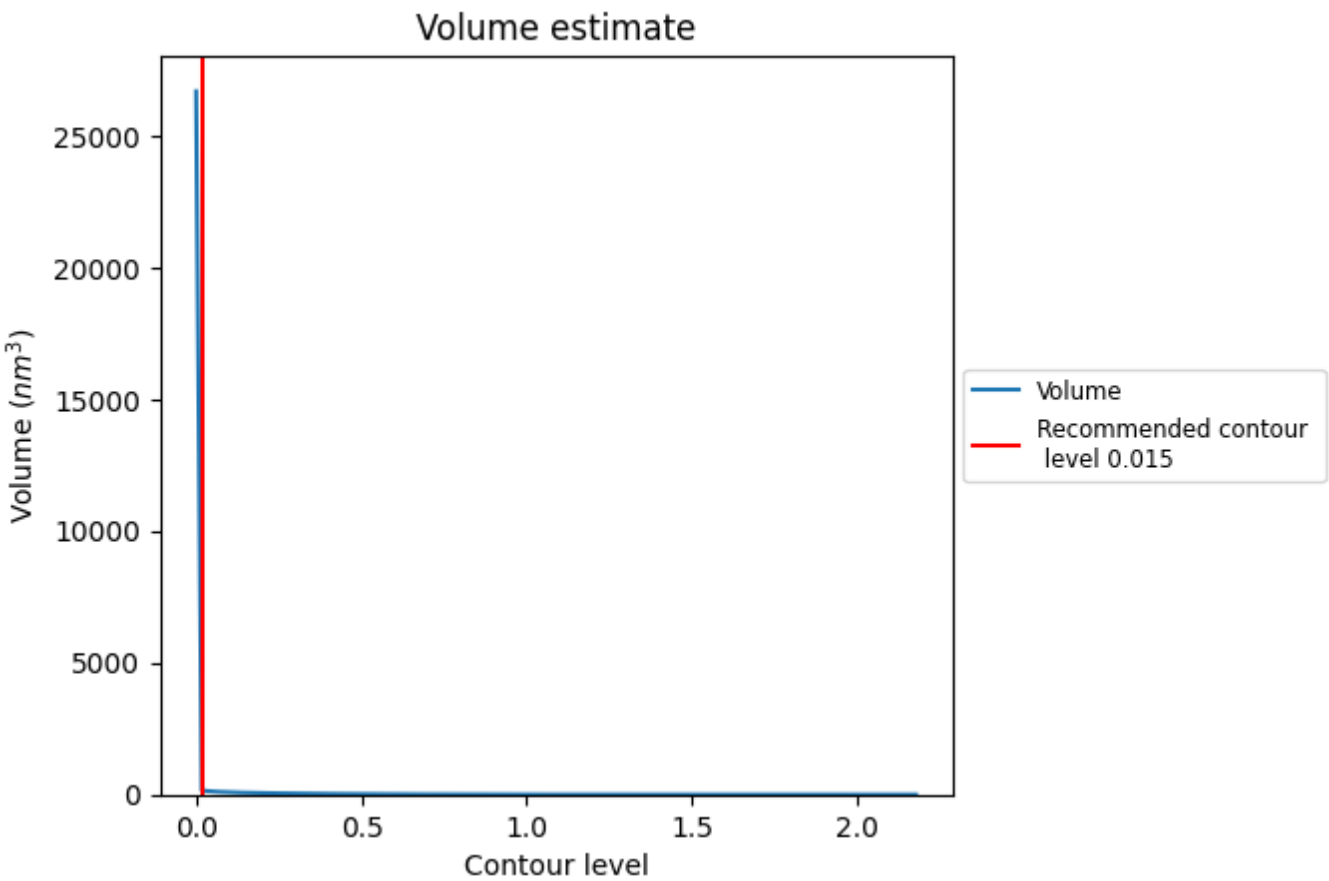
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution (i)



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

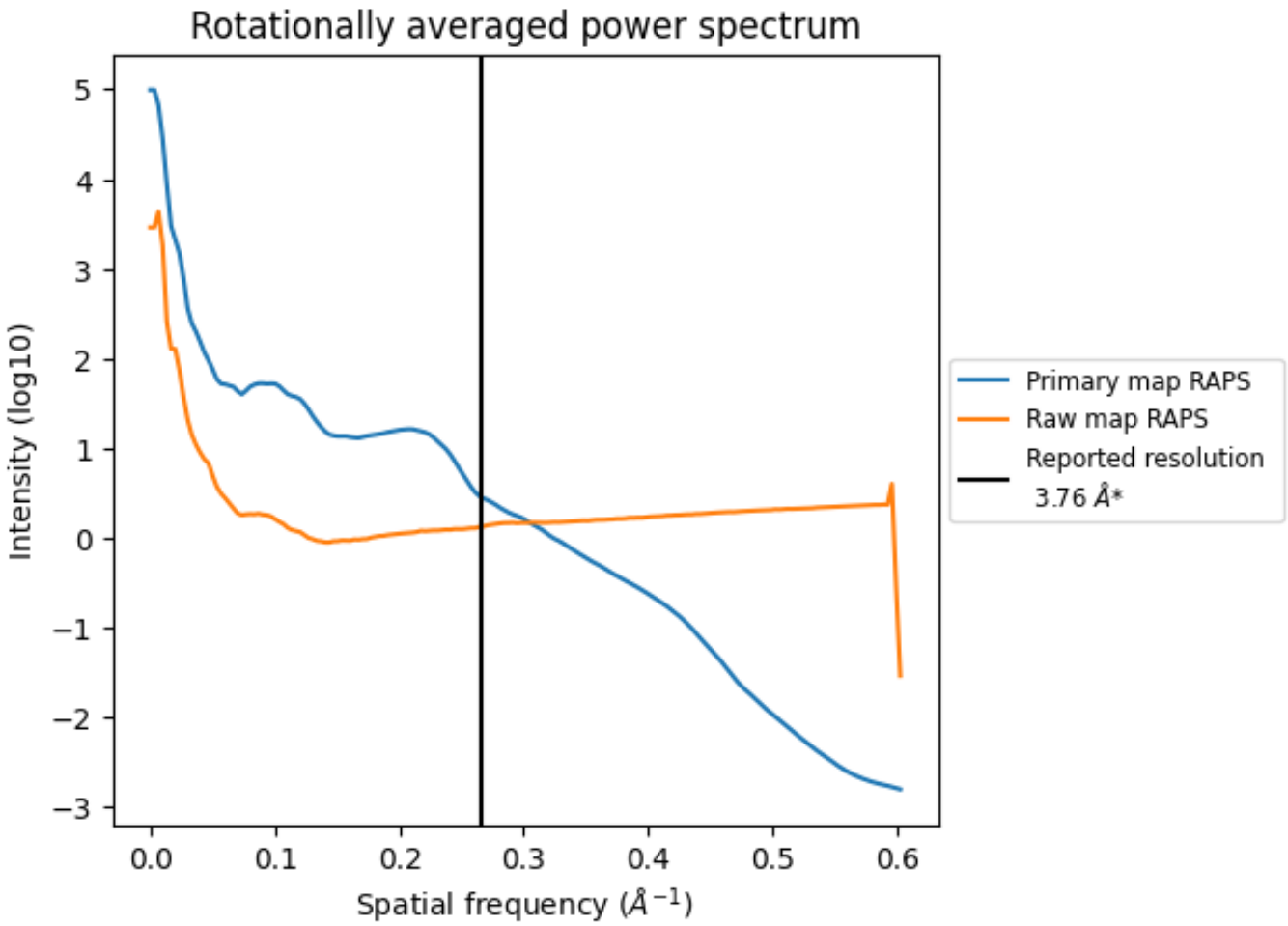
7.2 Volume estimate (i)



The volume at the recommended contour level is 603 nm^3; this corresponds to an approximate mass of 545 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)

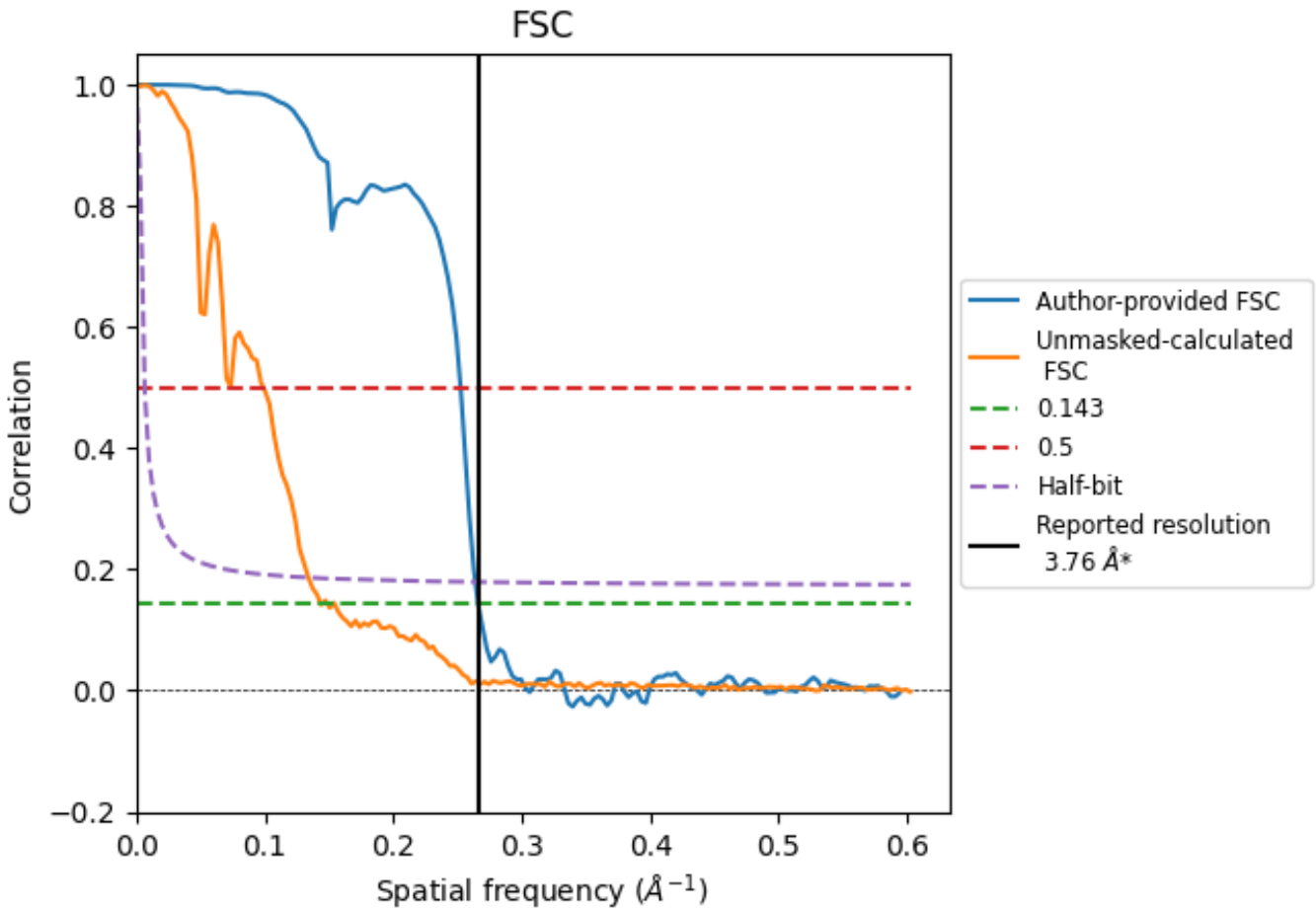


*Reported resolution corresponds to spatial frequency of 0.266 Å^{-1}

8 Fourier-Shell correlation (i)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC (i)



*Reported resolution corresponds to spatial frequency of 0.266 Å^{-1}

8.2 Resolution estimates (i)

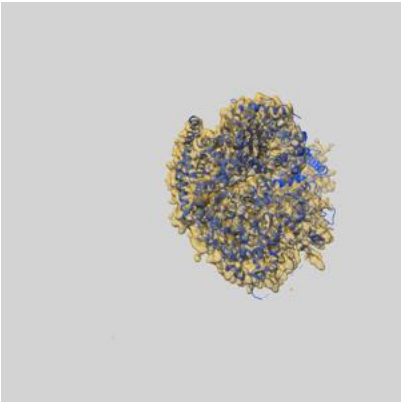
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.76	-	-
Author-provided FSC curve	3.76	3.96	3.79
Unmasked-calculated*	6.96	10.11	7.46

*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 6.96 differs from the reported value 3.76 by more than 10 %

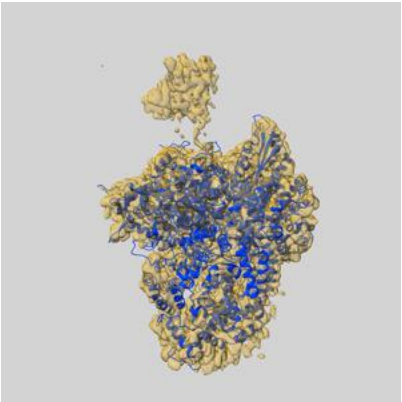
9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-67169 and PDB model 9XSB. Per-residue inclusion information can be found in section 3 on page 5.

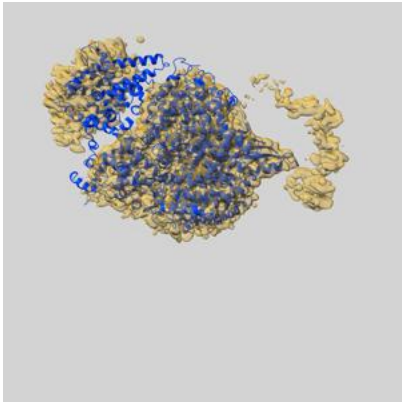
9.1 Map-model overlay (i)



X



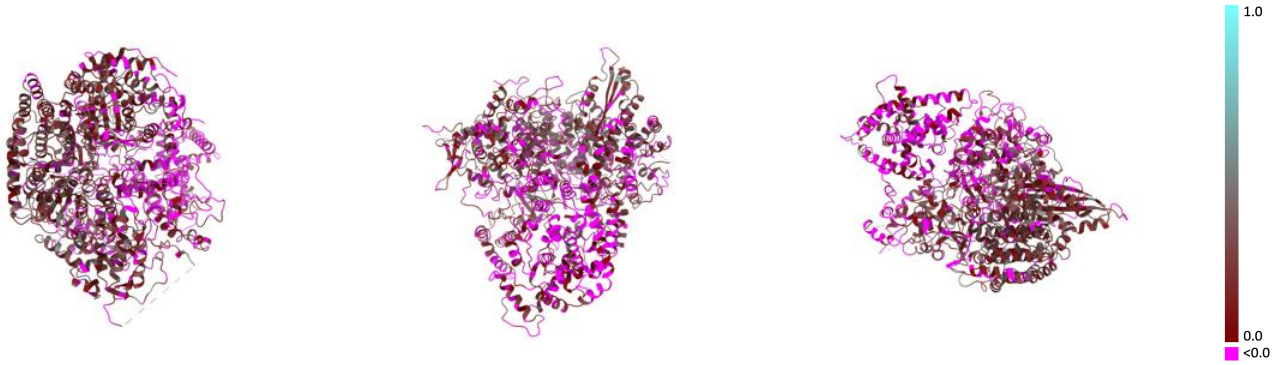
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.015 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.

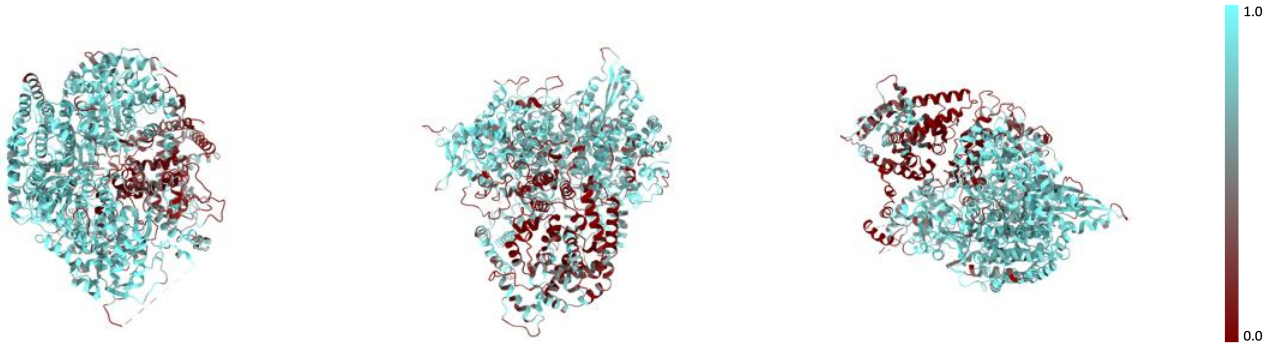
9.2 Q-score mapped to coordinate model (i)



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.

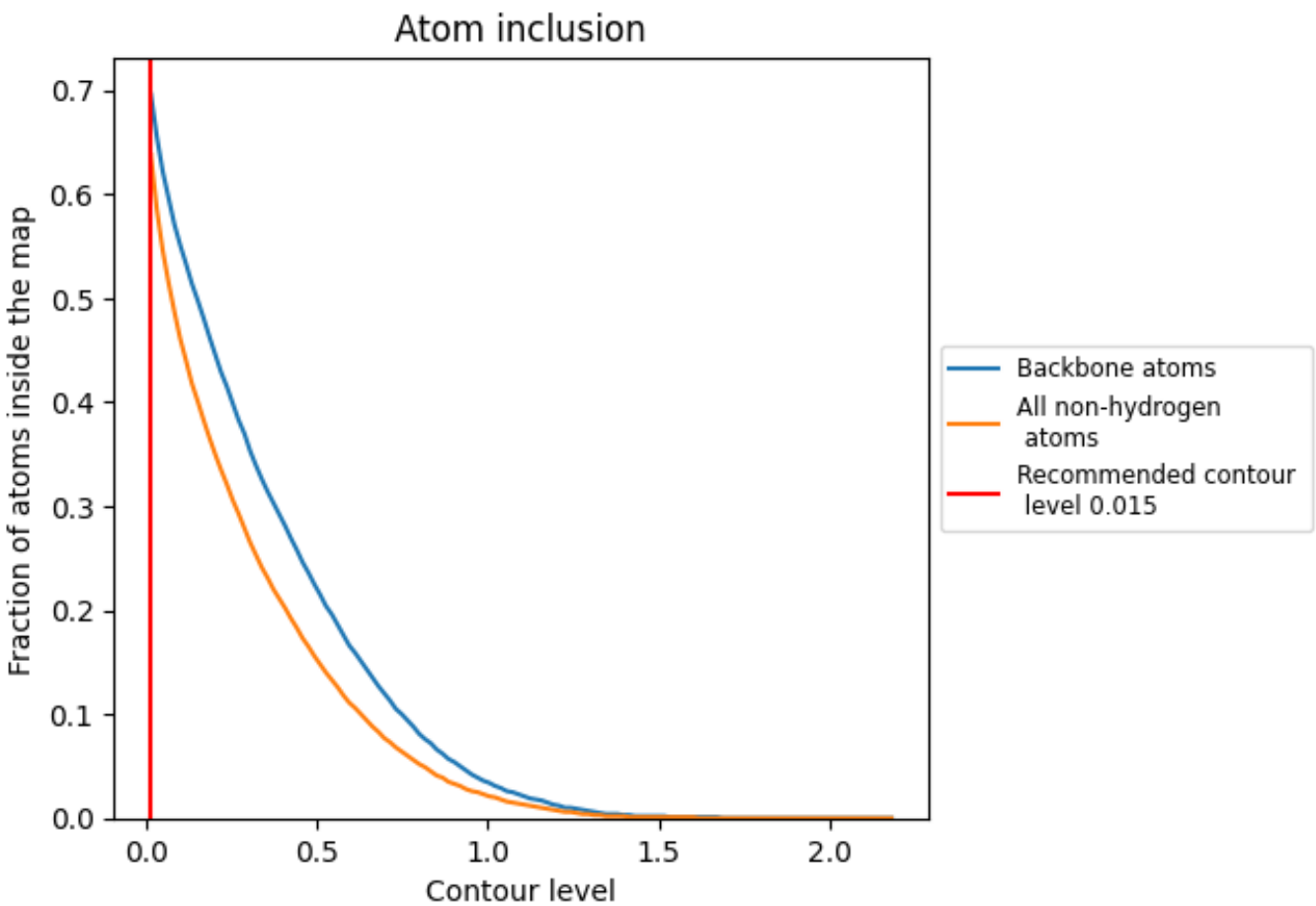
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.015).

9.4 Atom inclusion (i)



At the recommended contour level, 70% of all backbone atoms, 64% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6380	0.1280
A	0.6380	0.1290
C	0.6350	0.0020