Full wwPDB EM Validation Report ⓘ

Feb 11, 2025 – 06:44 PM EST

PDB ID	:	9CTL
EMDB ID	:	EMD-45910
Title	:	Full length EcPKS2 - malonylCoA inhibited dataset
Authors	:	Schubert, H.L.; Hill, C.P.
Deposited on	:	2024-07-25
Resolution	:	3.15 Å(reported)
Based on initial model	:	.

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

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

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

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

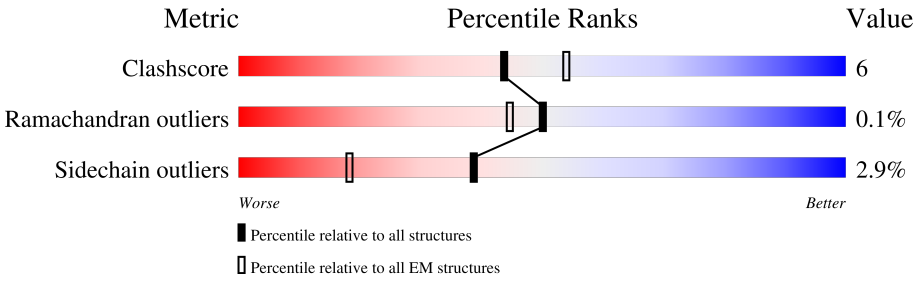
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.15 Å.

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



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

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	2287	14% 83% 14% • •
1	B	2287	19% 82% 15% • •

2 Entry composition

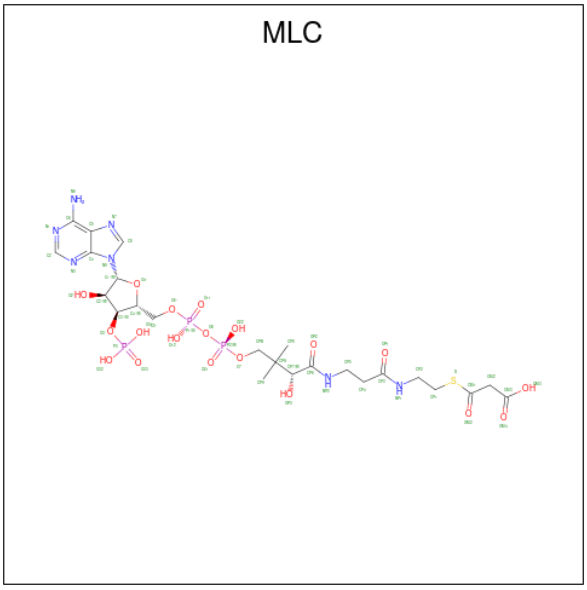
There are 3 unique types of molecules in this entry. The entry contains 69882 atoms, of which 34789 are hydrogens and 0 are deuteriums.

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 Polyketide synthase 2.

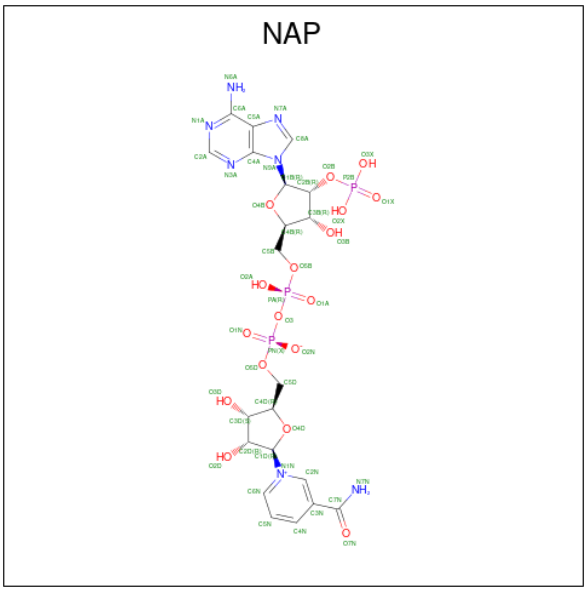
Mol	Chain	Residues	Atoms							AltConf	Trace
1	A	2240	Total	C	H	N	O	P	S	3	0
			34802	11075	17346	2969	3301	1	110		
1	B	2236	Total	C	H	N	O	P	S	3	0
			34760	11062	17327	2965	3295	1	110		

- Molecule 2 is MALONYL-COENZYME A (three-letter code: MLC) (formula: $C_{24}H_{38}N_7O_{19}P_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							AltConf
2	A	1	Total	C	H	N	O	P	S	0
			87	24	33	7	19	3	1	
2	B	1	Total	C	H	N	O	P	S	0
			87	24	33	7	19	3	1	

- Molecule 3 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$) (labeled as "Ligand of Interest" by depositor).



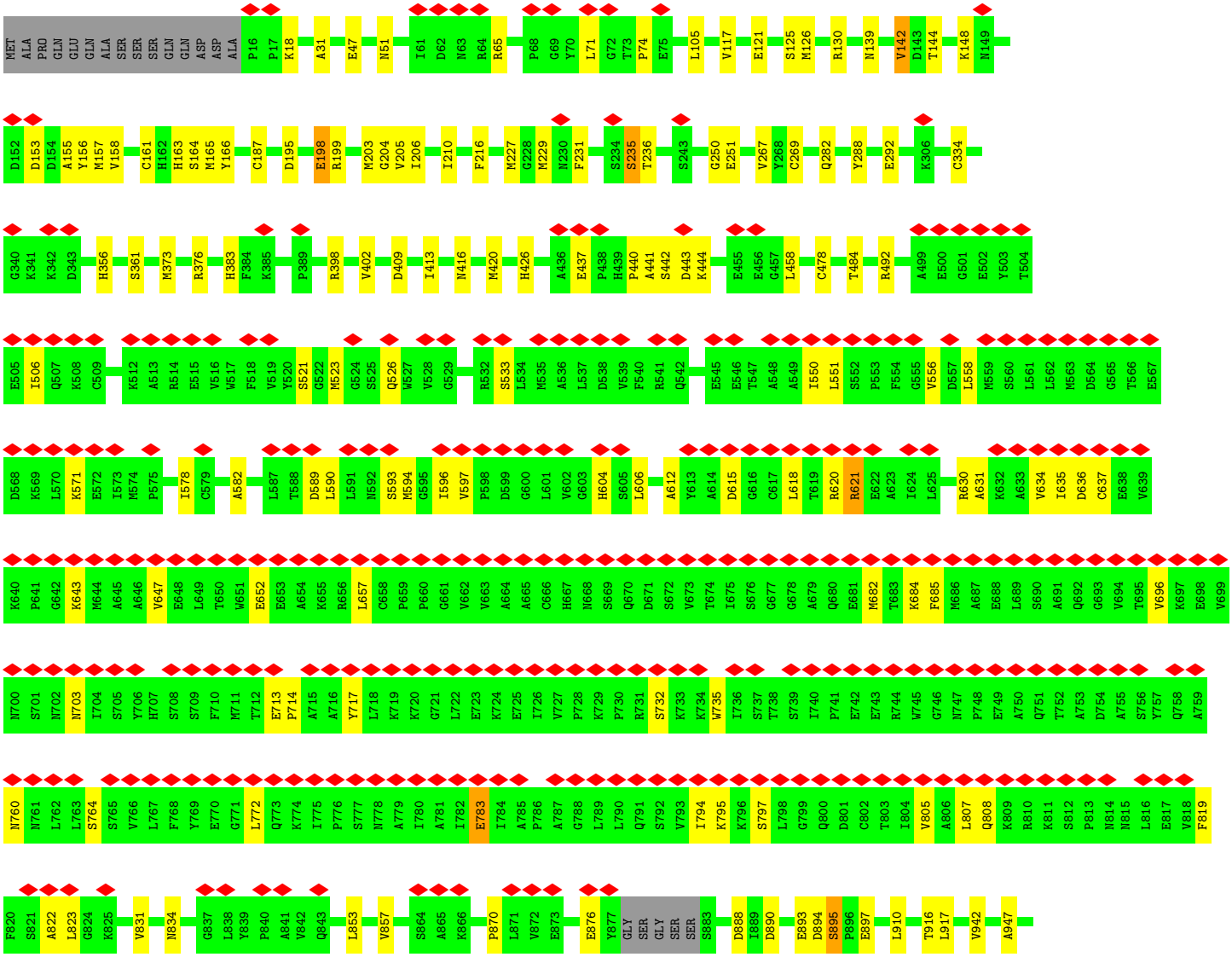
Mol	Chain	Residues	Atoms						AltConf
3	A	1	Total	C	H	N	O	P	0
			73	21	25	7	17	3	
3	B	1	Total	C	H	N	O	P	0
			73	21	25	7	17	3	

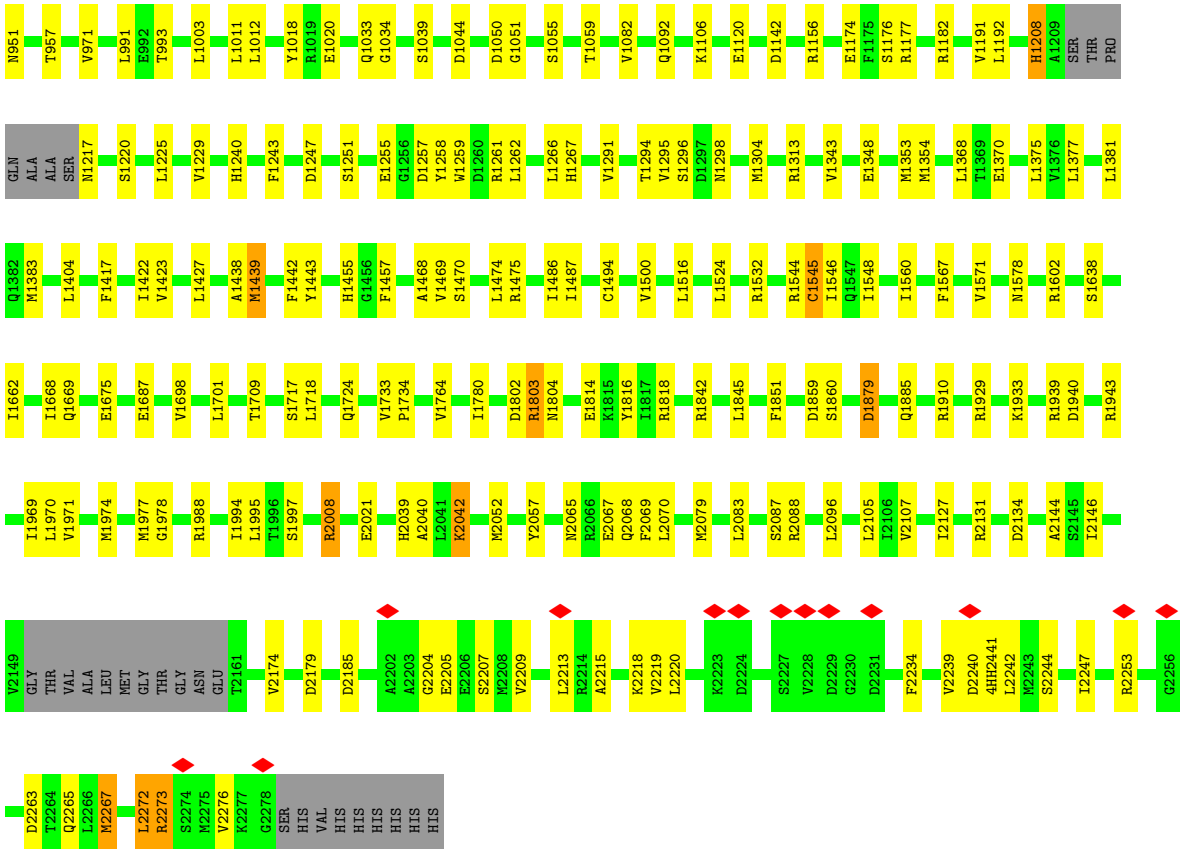
3 Residue-property plots (i)

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: Polyketide synthase 2

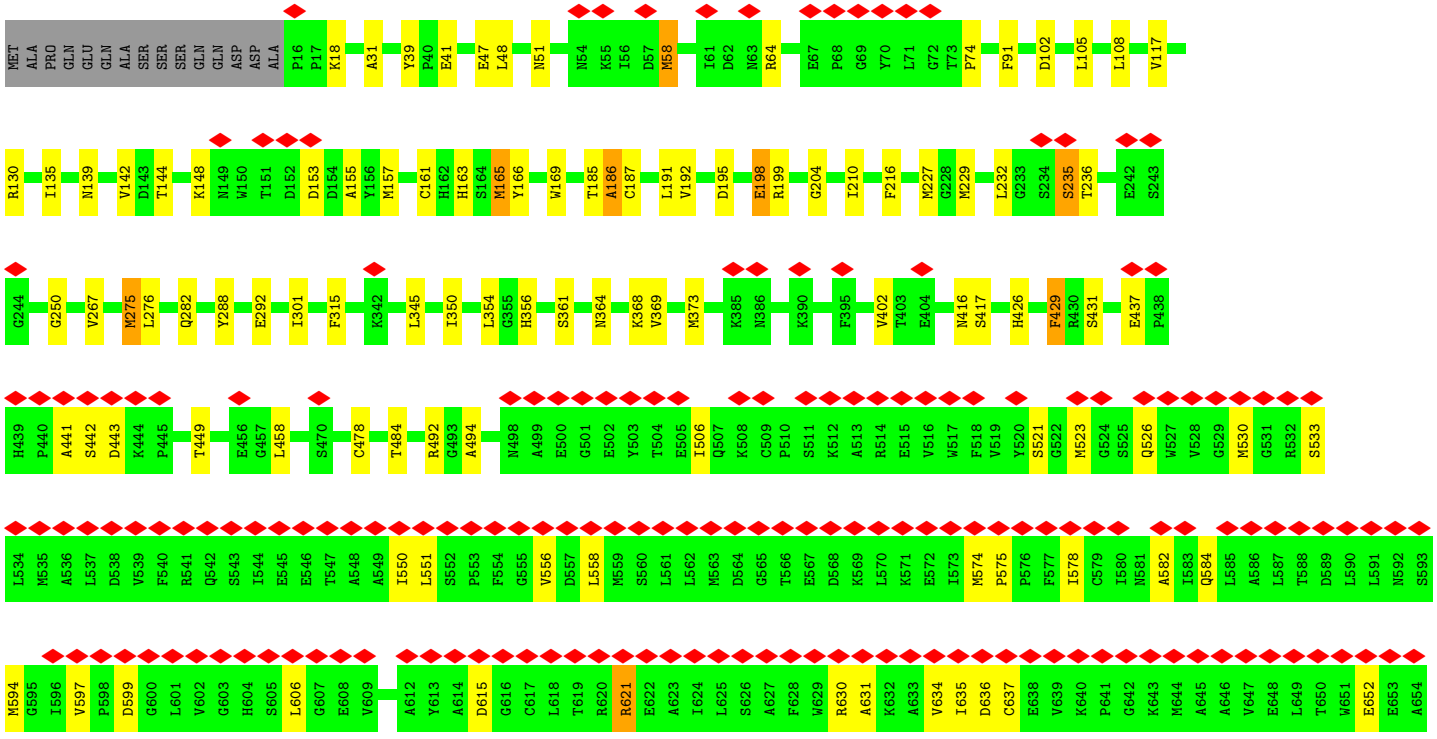
Chain A:

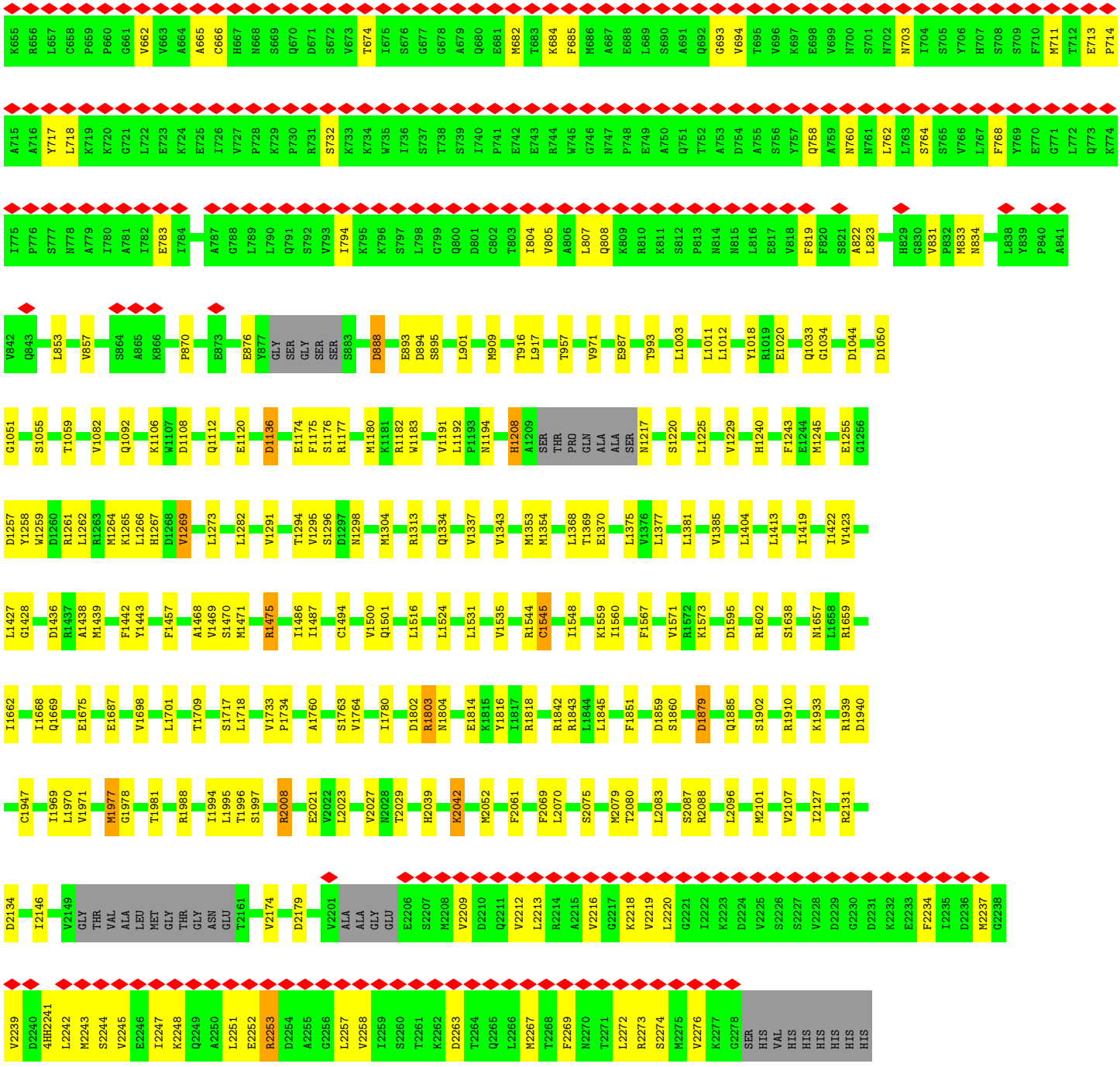




• Molecule 1: Polyketide synthase 2

Chain B:




K655 R656 L657 C658 P659 P660 G661 V662 V663 A664 A665 C666 H667 N668 S669 Q670 D671 S672 V673 T674 I675 S676 G677 G678 A679 Q680 E681 M682 T683 K684 F685 M686 A687 E688 L689 S690 A691 Q692 G693 V694 T695 V696 K697 E698 V699 N700 S701 N702 N703 I704 S705 Y706 H707 S708 S709 F710 M711 T712 E713 P714
A715 A716 Y717 L718 K719 K720 G721 L722 E723 K724 E725 I726 V727 P728 K729 P730 R731 S732 K733 K734 W735 I736 S737 T738 S739 I740 P741 E742 E743 R744 W745 G746 N747 P748 E749 A750 Q751 T752 A753 D754 A755 S756 Y757 Q758 A759 N760 N761 L762 L763 S764 S765 V766 L767 F768 Y769 E770 G771 L772 Q773 K774
I775 P776 S777 N778 A779 I780 A781 I782 E783 I784 A787 G788 L789 L790 Q791 S792 V793 I794 K795 K796 S797 L798 G799 Q800 D801 C802 T803 I804 V805 A806 L807 Q808 K809 R810 K811 S812 P813 N814 N815 L816 E817 V818 F819 P820 S821 A822 L823 H829 G830 V831 P832 M833 N834 L838 Y839 P840 A841
V842 Q843 L853 V857 S864 A865 K866 P870 E873 E876 Y877 GLY SER GLY SER SER S883 D888 E893 D894 S895 L901 M909 T916 L917 T957 V971 E987 T993 L1003 L1011 L1012 Y1018 R1019 E1020 Q1033 G1034 D1044 D1050
G1051 S1055 T1059 V1082 Q1092 K1106 W1107 D1108 Q1112 E1120 D1136 E1174 F1175 S1176 R1177 M1180 K1181 R1182 W1183 V1191 L1192 P1193 N1194 H1208 A1209 SER THR PRO GLN ALA ALA SER N1217 S1220 L1225 V1229 H1240 F1243 E1244 M1245 E1255 G1256
D1257 Y1258 W1259 D1260 R1261 L1262 R1263 M1264 K1265 L1266 H1267 D1268 V1269 L1273 L1282 V1291 T1294 V1295 S1296 D1297 N1298 M1304 R1313 Q1334 V1337 V1343 M1353 M1354 L1368 T1369 E1370 L1375 V1376 L1377 L1381 V1385 L1404 L1413 I1419 I1422 V1423
L1427 G1428 D1436 R1437 A1438 M1439 F1442 Y1443 F1457 A1468 V1469 S1470 M1471 R1475 I1486 I1487 C1494 V1500 Q1501 L1516 L1524 L1531 V1535 R1544 C1545 I1548 K1559 I1560 F1567 V1571 R1572 K1573 D1595 R1602 S1638 N1657 L1658 R1659
I1662 I1668 Q1669 E1675 E1687 V1698 L1701 T1709 S1717 L1718 V1733 P1734 A1760 S1763 V1764 I1780 D1802 R1803 N1804 E1814 K1815 Y1816 I1817 R1818 R1842 R1843 L1844 L1845 F1851 D1859 S1860 D1879 Q1885 S1902 R1910 K1933 R1939 D1940
C1947 I1969 L1970 V1971 M1977 G1978 T1981 R1988 I1994 L1995 T1996 S1997 R2008 E2021 V2022 L2023 V2027 N2028 T2029 H2039 K2042 M2052 F2061 F2069 L2070 S2075 M2079 T2080 L2083 S2087 R2088 L2096 M2101 V2107 I2127 R2131
D2134 I2146 V2149 GLY THR VAL ALA LEU MET GLY THR GLY ASN GLU T2161 V2174 D2179 V2201 ALA ALA GLY GLU E2206 S2207 M2208 V2209 D2210 Q2211 V2212 L2213 R2214 A2215 V2216 G2217 K2218 V2219 L2220 G2221 I2222 K2223 D2224 V2225 S2226 S2227 V2228 D2229 G2230 D2231 K2232 E2233 F2234 I2235 D2236 M2237 G2238
V2239 D2240 4HH2241 L2242 M2243 S2244 V2245 E2246 I2247 K2248 Q2249 A2250 L2251 E2252 R2253 D2254 A2255 G2256 L2257 V2258 I2259 S2260 T2261 K2262 D2263 T2264 Q2265 L2266 M2267 T2268 F2269 N2270 T2271 L2272 R2273 S2274 M2275 V2276 K2277 G2278 SER HIS VAL HIS HIS HIS HIS HIS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	258974	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.794	Depositor
Minimum map value	-0.282	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.024	Depositor
Recommended contour level	0.105	Depositor
Map size (Å)	339.19998, 339.19998, 339.19998	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAP, 4HH, MLC

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.25	0/17814	0.48	0/24118
1	B	0.25	0/17790	0.49	1/24084 (0.0%)
All	All	0.25	0/35604	0.48	1/48202 (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	B	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	165	MET	CG-SD-CE	5.22	108.56	100.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	2253	ARG	Sidechain

5.2 Too-close contacts

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	17456	17346	17347	215	0
1	B	17433	17327	17327	231	0
2	A	54	33	33	1	0
2	B	54	33	33	4	0
3	A	48	25	25	0	0
3	B	48	25	25	3	0
All	All	35093	34789	34790	439	0

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

All (439) 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:125:SER:OG	1:A:126:MET:SD	2.27	0.92
1:A:993:THR:OG1	1:A:1120:GLU:OE2	1.90	0.88
1:A:130:ARG:NH2	1:A:204:GLY:O	2.16	0.79
1:A:772:LEU:HD21	1:A:794:ILE:HD13	1.64	0.79
1:B:198:GLU:OE1	1:B:199:ARG:NH2	2.17	0.77
1:B:195:ASP:OD1	1:B:199:ARG:NH1	2.16	0.77
1:A:1709:THR:O	1:A:1939:ARG:NH2	2.19	0.75
1:B:888:ASP:OD1	1:B:957:THR:OG1	2.04	0.75
1:A:893:GLU:N	1:A:893:GLU:OE2	2.20	0.74
1:B:993:THR:OG1	1:B:1120:GLU:OE2	2.06	0.74
1:B:2209:VAL:HG12	1:B:2276:VAL:HG23	1.71	0.72
1:A:292:GLU:OE1	1:B:18:LYS:NZ	2.22	0.72
1:A:126:MET:SD	1:A:126:MET:N	2.62	0.72
1:B:893:GLU:N	1:B:893:GLU:OE2	2.23	0.70
1:B:102:ASP:OD2	1:B:166:TYR:OH	2.08	0.70
1:A:416:ASN:OD1	1:A:426:HIS:ND1	2.25	0.70
1:A:437:GLU:OE1	1:A:437:GLU:N	2.25	0.70
1:B:437:GLU:N	1:B:437:GLU:OE1	2.25	0.69
1:A:1258:TYR:CE1	1:A:1262:LEU:HD22	2.27	0.69
1:A:1348:GLU:N	1:A:1348:GLU:OE1	2.24	0.69
1:A:2215:ALA:O	1:A:2219:VAL:HG23	1.93	0.69
1:A:2204:GLY:O	1:A:2207:SER:OG	2.09	0.68
1:A:2253:ARG:O	1:A:2253:ARG:NE	2.26	0.68
1:A:890:ASP:N	1:A:897:GLU:OE1	2.27	0.68
1:A:772:LEU:HD23	1:A:797:SER:HB2	1.75	0.68
1:A:1764:VAL:HG11	1:A:1933:LYS:HG2	1.74	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:416:ASN:OD1	1:B:426:HIS:ND1	2.27	0.67
1:A:187:CYS:O	1:A:361:SER:OG	2.13	0.67
1:B:369:VAL:HG11	1:B:429:PHE:CD1	2.29	0.66
1:A:2234:PHE:HB3	1:A:2239:VAL:HG21	1.78	0.66
1:A:139:ASN:ND2	1:A:216:PHE:O	2.29	0.66
1:B:1192:LEU:HD12	1:B:1259:TRP:HE1	1.60	0.66
1:A:157:MET:O	1:A:161:CYS:N	2.27	0.65
1:B:1709:THR:O	1:B:1939:ARG:NH2	2.29	0.65
1:B:1971:VAL:HG21	1:B:2083:LEU:HD11	1.79	0.65
1:B:1262:LEU:HD23	1:B:1422:ILE:HG21	1.79	0.65
1:B:1267:HIS:O	1:B:1267:HIS:ND1	2.30	0.65
1:A:195:ASP:OD1	1:A:199:ARG:NH1	2.30	0.65
1:A:1267:HIS:O	1:A:1267:HIS:ND1	2.30	0.64
1:A:2240:ASP:O	1:A:2242:LEU:N	2.30	0.64
1:A:484:THR:O	1:A:492:ARG:NH1	2.29	0.64
1:B:484:THR:O	1:B:492:ARG:NH1	2.29	0.64
1:B:130:ARG:NH2	1:B:204:GLY:O	2.30	0.64
1:A:373:MET:SD	1:A:413:ILE:HD12	2.38	0.64
1:A:2065:ASN:OD1	1:A:2068:GLN:NE2	2.31	0.64
1:A:1051:GLY:O	1:A:1092:GLN:NE2	2.31	0.63
1:A:2021:GLU:OE1	1:A:2042:LYS:NZ	2.31	0.63
1:A:1439:MET:SD	1:A:1439:MET:N	2.71	0.63
1:A:203:MET:SD	1:B:199:ARG:HD2	2.39	0.63
1:B:636:ASP:OD1	1:B:637:CYS:N	2.32	0.62
1:B:1051:GLY:O	1:B:1092:GLN:NE2	2.32	0.62
1:B:1662:ILE:HG21	1:B:1668:ILE:HD12	1.80	0.62
1:B:2237:MET:SD	1:B:2239:VAL:HG23	2.40	0.62
1:B:1258:TYR:CE1	1:B:1262:LEU:HD22	2.35	0.62
1:A:1354:MET:HE1	1:A:1368:LEU:HD21	1.81	0.62
1:B:2146:ILE:HD12	1:B:2174:VAL:HG21	1.81	0.62
1:A:636:ASP:OD1	1:A:637:CYS:N	2.33	0.61
1:B:521:SER:O	1:B:584:GLN:NE2	2.32	0.61
1:B:2021:GLU:OE1	1:B:2042:LYS:NZ	2.30	0.61
1:A:1548:ILE:HD11	1:A:1560:ILE:HD12	1.81	0.61
1:B:1422:ILE:HG22	1:B:1422:ILE:O	1.99	0.61
1:A:2146:ILE:HD12	1:A:2174:VAL:HG21	1.82	0.61
1:B:142:VAL:HG12	1:B:870:PRO:HG2	1.83	0.61
1:A:521:SER:OG	1:A:783:GLU:OE1	2.20	0.60
1:A:1662:ILE:HG21	1:A:1668:ILE:HD12	1.82	0.60
1:A:441:ALA:O	1:A:442:SER:OG	2.14	0.60
1:A:18:LYS:NZ	1:B:292:GLU:OE1	2.29	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1266:LEU:HD11	1:A:1422:ILE:HD11	1.84	0.60
1:A:1343:VAL:N	1:A:1353:MET:SD	2.73	0.60
1:B:185:THR:O	1:B:185:THR:HG22	2.02	0.60
1:B:550:ILE:HD12	1:B:621:ARG:HD2	1.83	0.60
1:B:1531:LEU:HD12	1:B:1545:CYS:HB2	1.83	0.59
1:A:334:CYS:SG	1:A:398:ARG:NH1	2.75	0.59
1:B:1194:ASN:HB3	1:B:1427:LEU:HD12	1.85	0.59
1:B:1845:LEU:HD11	1:B:1851:PHE:HB2	1.85	0.59
1:B:1994:ILE:HD11	1:B:2023:LEU:HD11	1.85	0.59
1:A:210:ILE:HG22	1:A:210:ILE:O	2.04	0.58
1:B:606:LEU:HD13	1:B:606:LEU:O	2.02	0.58
1:A:1438:ALA:N	1:A:1442:PHE:O	2.35	0.58
1:B:210:ILE:O	1:B:210:ILE:HG22	2.03	0.58
1:B:235:SER:OG	1:B:236:THR:N	2.37	0.58
1:A:1845:LEU:HD11	1:A:1851:PHE:HB2	1.85	0.58
1:A:229:MET:SD	1:B:155:ALA:HB1	2.44	0.58
1:A:420:MET:SD	1:B:165:MET:SD	3.01	0.58
1:B:2269:PHE:HA	1:B:2272:LEU:HD12	1.84	0.58
1:A:164:SER:OG	1:A:165:MET:SD	2.60	0.57
1:A:199:ARG:O	1:A:203:MET:HG2	2.04	0.57
1:B:2088:ARG:NH1	1:B:2134:ASP:OD2	2.38	0.57
1:A:1262:LEU:HD23	1:A:1422:ILE:HD13	1.86	0.57
1:B:2079:MET:SD	3:B:5001:NAP:N6A	2.76	0.57
1:B:1294:THR:O	1:B:1298:ASN:ND2	2.38	0.56
1:A:235:SER:OG	1:A:236:THR:N	2.37	0.56
1:A:376:ARG:NH2	1:A:409:ASP:O	2.38	0.56
1:A:1929:ARG:O	1:A:1929:ARG:NH1	2.38	0.56
1:B:2216:VAL:HG22	1:B:2247:ILE:HG23	1.87	0.56
1:B:227:MET:HG3	1:B:232:LEU:HD12	1.87	0.56
1:A:148:LYS:NZ	1:A:876:GLU:O	2.38	0.56
1:A:772:LEU:HD21	1:A:794:ILE:CD1	2.34	0.56
1:B:441:ALA:O	1:B:442:SER:OG	2.14	0.56
1:B:1717:SER:OG	1:B:1885:GLN:NE2	2.39	0.56
1:B:2027:VAL:O	1:B:2079:MET:HG2	2.06	0.55
1:A:1225:LEU:HD13	1:A:1243:PHE:CD1	2.41	0.55
1:B:1225:LEU:HD13	1:B:1243:PHE:CD1	2.40	0.55
1:B:1764:VAL:HG11	1:B:1933:LYS:HD3	1.88	0.55
1:A:2021:GLU:OE2	1:A:2039:HIS:ND1	2.37	0.55
1:B:1487:ILE:HD12	1:B:1516:LEU:HD11	1.88	0.55
1:B:1567:PHE:O	1:B:1571:VAL:HG23	2.07	0.55
1:B:1978:GLY:HA2	1:B:2052:MET:SD	2.47	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:643:LYS:C	1:A:682:MET:HE2	2.26	0.55
1:B:148:LYS:NZ	1:B:876:GLU:O	2.37	0.55
1:B:187:CYS:O	1:B:361:SER:OG	2.24	0.55
1:A:165:MET:SD	1:A:165:MET:N	2.80	0.55
1:B:47:GLU:O	1:B:51:ASN:ND2	2.40	0.55
1:B:139:ASN:ND2	1:B:216:PHE:O	2.40	0.55
1:A:1687:GLU:OE2	1:A:1933:LYS:NZ	2.29	0.54
1:B:1291:VAL:O	1:B:1295:VAL:HG23	2.07	0.54
1:B:1969:ILE:HA	1:B:1994:ILE:HG23	1.90	0.54
1:A:991:LEU:HD22	1:A:1120:GLU:HG3	1.88	0.54
1:B:139:ASN:O	1:B:163:HIS:NE2	2.35	0.54
1:A:1012:LEU:HD11	1:A:2008:ARG:HD2	1.90	0.54
1:A:1487:ILE:HD12	1:A:1516:LEU:HD11	1.89	0.54
1:A:47:GLU:O	1:A:51:ASN:ND2	2.41	0.53
1:B:1988:ARG:NH2	1:B:2179:ASP:OD2	2.41	0.53
1:A:895:SER:OG	1:A:897:GLU:OE2	2.26	0.53
1:B:551:LEU:HD21	1:B:578:ILE:HD12	1.90	0.53
1:B:1548:ILE:HD11	1:B:1560:ILE:HG12	1.90	0.53
1:A:888:ASP:OD1	1:A:957:THR:OG1	2.25	0.53
1:A:1192:LEU:HD12	1:A:1259:TRP:HE1	1.73	0.53
1:B:185:THR:O	1:B:186:ALA:HB3	2.09	0.53
1:A:2088:ARG:NH1	1:A:2134:ASP:OD2	2.40	0.53
1:A:2441:4HH:O	1:A:2244:SER:OG	2.25	0.53
1:A:1970:LEU:HB2	1:A:1995:LEU:HD23	1.91	0.53
1:A:1291:VAL:O	1:A:1295:VAL:HG23	2.09	0.53
1:B:31:ALA:HB1	1:B:267:VAL:HG13	1.90	0.53
1:B:2021:GLU:OE2	1:B:2039:HIS:ND1	2.41	0.53
1:A:652:GLU:OE1	1:A:652:GLU:N	2.40	0.52
1:B:58:MET:SD	1:B:354:LEU:HB3	2.50	0.52
1:B:807:LEU:O	1:B:808:GLN:NE2	2.42	0.52
1:A:1567:PHE:O	1:A:1571:VAL:HG23	2.09	0.52
1:B:1012:LEU:HD11	1:B:2008:ARG:HD2	1.90	0.52
1:A:1262:LEU:HG	1:A:1422:ILE:CD1	2.38	0.52
1:A:1548:ILE:HD11	1:A:1560:ILE:CD1	2.39	0.52
1:A:1988:ARG:NH2	1:A:2179:ASP:OD2	2.42	0.52
1:B:551:LEU:HD23	1:B:556:VAL:HG11	1.90	0.52
1:A:807:LEU:O	1:A:808:GLN:NE2	2.42	0.52
1:B:1475:ARG:NH1	1:B:1573:LYS:O	2.38	0.52
1:B:1343:VAL:HB	1:B:1353:MET:SD	2.49	0.52
1:A:1417:PHE:HE1	1:A:1427:LEU:HD11	1.74	0.52
1:A:1494:CYS:HB2	1:A:2070:LEU:HD11	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1294:THR:O	1:A:1298:ASN:ND2	2.42	0.51
1:A:402:VAL:HG13	1:A:402:VAL:O	2.10	0.51
1:A:2220:LEU:HD22	1:A:2239:VAL:HG22	1.92	0.51
1:B:1257:ASP:O	1:B:1261:ARG:NH1	2.44	0.51
1:A:1020:GLU:OE1	1:A:2008:ARG:NH1	2.44	0.51
1:A:1266:LEU:CD1	1:A:1422:ILE:HD11	2.41	0.51
1:B:402:VAL:HG13	1:B:402:VAL:O	2.10	0.51
1:B:1258:TYR:CZ	1:B:1262:LEU:HD22	2.45	0.51
1:B:2267:MET:SD	1:B:2272:LEU:HG	2.50	0.51
1:A:1971:VAL:HG21	1:A:2083:LEU:HD11	1.91	0.51
1:A:1313:ARG:HE	1:A:1383:MET:HE1	1.76	0.51
1:B:630:ARG:NH2	2:B:3001:MLC:OM4	2.44	0.51
1:B:354:LEU:HD11	1:B:364:ASN:ND2	2.26	0.51
1:A:156:TYR:HA	1:B:229:MET:HE2	1.93	0.51
1:B:819:PHE:CZ	1:B:823:LEU:HD11	2.46	0.51
1:B:1354:MET:HE3	1:B:1368:LEU:HD11	1.93	0.51
1:B:1531:LEU:CD2	1:B:1535:VAL:HG23	2.41	0.51
1:A:772:LEU:HD23	1:A:797:SER:CB	2.39	0.50
1:B:1020:GLU:OE1	1:B:2008:ARG:NH1	2.45	0.50
1:B:2087:SER:OG	1:B:2131:ARG:NH1	2.41	0.50
1:A:590:LEU:O	1:A:594:MET:HG3	2.11	0.50
1:A:2272:LEU:HD12	1:A:2272:LEU:O	2.11	0.50
1:B:1438:ALA:N	1:B:1442:PHE:O	2.45	0.50
1:A:198:GLU:OE1	1:A:199:ARG:NH2	2.45	0.50
1:A:550:ILE:HD12	1:A:621:ARG:HD2	1.93	0.50
1:A:2087:SER:OG	1:A:2131:ARG:NH1	2.43	0.50
1:B:1370:GLU:OE1	1:B:1370:GLU:N	2.45	0.50
1:A:917:LEU:HD13	1:A:1082:VAL:HG11	1.94	0.50
1:A:1978:GLY:HA2	1:A:2052:MET:SD	2.52	0.50
1:B:1034:GLY:HA3	1:B:1059:THR:HG21	1.92	0.50
1:B:1494:CYS:HB2	1:B:2070:LEU:HD11	1.92	0.50
1:A:551:LEU:HD23	1:A:556:VAL:HG11	1.93	0.49
1:A:1208:HIS:CG	1:A:1208:HIS:O	2.65	0.49
1:B:594:MET:O	1:B:834:ASN:N	2.41	0.49
1:B:1136:ASP:OD1	1:B:1136:ASP:N	2.39	0.49
2:B:3001:MLC:NP2	2:B:3001:MLC:HP91	2.26	0.49
1:B:574:MET:HE1	1:B:631:ALA:HB3	1.95	0.49
1:A:1034:GLY:HA3	1:A:1059:THR:HG21	1.93	0.49
1:A:1208:HIS:O	1:A:1208:HIS:ND1	2.46	0.49
1:B:917:LEU:HD13	1:B:1082:VAL:HG11	1.94	0.49
1:B:449:THR:HG21	1:B:833:MET:HE2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1050:ASP:OD1	1:B:1050:ASP:N	2.46	0.49
1:B:2220:LEU:HD21	1:B:2247:ILE:HD11	1.94	0.49
1:A:1247:ASP:OD1	1:A:1251:SER:OG	2.25	0.49
1:B:1469:VAL:HG12	1:B:1470:SER:N	2.28	0.49
1:B:1501:GLN:NE2	1:B:2061:PHE:O	2.46	0.49
1:B:1662:ILE:CG2	1:B:1668:ILE:HD12	2.42	0.49
1:A:142:VAL:HG23	1:A:870:PRO:HG3	1.95	0.49
1:A:760:ASN:O	1:A:764:SER:OG	2.30	0.49
1:A:1262:LEU:CD2	1:A:1422:ILE:HD13	2.43	0.49
1:B:521:SER:OG	1:B:783:GLU:OE1	2.31	0.49
1:A:139:ASN:O	1:A:163:HIS:NE2	2.36	0.49
1:A:551:LEU:HD21	1:A:578:ILE:HD12	1.93	0.49
1:A:1974:MET:HB2	1:A:1997:SER:OG	2.13	0.49
1:A:2105:LEU:HD23	1:A:2105:LEU:O	2.13	0.49
1:A:1469:VAL:HG12	1:A:1470:SER:N	2.27	0.48
1:B:1304:MET:O	1:B:1334:GLN:N	2.41	0.48
1:B:2242:LEU:O	1:B:2245:VAL:HG12	2.12	0.48
1:A:713:GLU:HB3	1:A:714:PRO:HD3	1.95	0.48
1:A:1698:VAL:HB	1:A:1718:LEU:HD22	1.94	0.48
1:A:1638:SER:OG	1:A:1675:GLU:OE1	2.26	0.48
1:B:1208:HIS:O	1:B:1208:HIS:CG	2.66	0.48
1:B:185:THR:O	1:B:185:THR:CG2	2.61	0.48
1:A:1662:ILE:CG2	1:A:1668:ILE:HD12	2.43	0.48
1:B:449:THR:HG22	1:B:494:ALA:HB2	1.95	0.48
1:B:805:VAL:HG12	1:B:822:ALA:HB1	1.95	0.48
1:A:236:THR:HG1	1:A:383:HIS:CE1	2.31	0.48
1:A:1255:GLU:OE2	1:A:1261:ARG:NH2	2.47	0.48
1:B:1044:ASP:OD1	1:B:1106:LYS:NZ	2.39	0.48
1:B:1997:SER:OG	3:B:5001:NAP:O3X	2.30	0.48
1:B:2146:ILE:CD1	1:B:2174:VAL:HG21	2.44	0.48
1:A:647:VAL:HG12	1:A:696:VAL:HG22	1.96	0.48
1:B:350:ILE:HD12	1:B:368:LYS:HB2	1.96	0.48
1:A:440:PRO:O	1:A:444:LYS:NZ	2.46	0.48
1:B:1436:ASP:OD1	1:B:1436:ASP:N	2.47	0.48
1:B:1698:VAL:HB	1:B:1718:LEU:HD22	1.95	0.48
1:B:2267:MET:SD	1:B:2272:LEU:HD11	2.53	0.48
1:B:1208:HIS:O	1:B:1208:HIS:ND1	2.46	0.47
1:A:1003:LEU:HB3	1:A:1011:LEU:HD21	1.96	0.47
1:A:1257:ASP:O	1:A:1261:ARG:NH1	2.47	0.47
1:B:165:MET:HE2	1:B:165:MET:HA	1.96	0.47
1:B:1191:VAL:HG22	1:B:1191:VAL:O	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1494:CYS:HG	1:B:2069:PHE:HE2	1.62	0.47
1:B:2252:GLU:OE2	1:B:2258:VAL:HG22	2.14	0.47
1:A:819:PHE:CZ	1:A:823:LEU:HD11	2.48	0.47
1:A:1191:VAL:O	1:A:1191:VAL:HG22	2.14	0.47
1:B:142:VAL:HG12	1:B:870:PRO:CG	2.44	0.47
1:B:1385:VAL:HG12	1:B:1428:GLY:O	2.14	0.47
1:B:1994:ILE:HD11	1:B:2023:LEU:CD1	2.45	0.47
1:B:1531:LEU:HD23	1:B:1531:LEU:O	2.14	0.47
1:B:157:MET:O	1:B:161:CYS:N	2.42	0.47
1:A:589:ASP:OD2	1:A:620:ARG:NH1	2.48	0.47
1:B:1780:ILE:O	1:B:1804:ASN:ND2	2.48	0.47
1:A:1370:GLU:N	1:A:1370:GLU:OE1	2.47	0.47
1:B:1282:LEU:HD13	1:B:1471:MET:HB2	1.96	0.47
1:B:2234:PHE:HB3	1:B:2239:VAL:HG21	1.96	0.47
1:A:250:GLY:N	1:A:356:HIS:O	2.48	0.47
1:A:1142:ASP:OD2	1:A:1156:ARG:NH1	2.47	0.47
1:B:2219:VAL:HG11	1:B:2247:ILE:HG13	1.96	0.47
1:A:229:MET:HE2	1:B:155:ALA:O	2.14	0.47
1:A:1266:LEU:HD12	1:A:1423:VAL:HG23	1.96	0.47
1:A:1486:ILE:HD11	1:A:1567:PHE:CE2	2.50	0.47
1:A:121:GLU:HB3	1:A:126:MET:SD	2.56	0.46
1:B:191:LEU:HD12	1:B:417:SER:HB2	1.97	0.46
1:B:373:MET:SD	1:B:431:SER:HA	2.55	0.46
1:B:662:VAL:HG13	1:B:682:MET:SD	2.55	0.46
1:B:1003:LEU:HB3	1:B:1011:LEU:HD21	1.97	0.46
1:B:1377:LEU:HD13	1:B:1381:LEU:HD13	1.97	0.46
1:B:1486:ILE:HD11	1:B:1567:PHE:CE2	2.50	0.46
1:A:269:CYS:HB3	1:A:373:MET:HE3	1.97	0.46
1:A:1174:GLU:OE1	1:A:1177:ARG:NH1	2.48	0.46
1:A:2205:GLU:O	1:A:2209:VAL:HG23	2.15	0.46
1:B:2253:ARG:O	1:B:2253:ARG:NH1	2.48	0.46
1:A:1050:ASP:OD1	1:A:1050:ASP:N	2.45	0.46
1:A:1377:LEU:HD13	1:A:1381:LEU:HD13	1.96	0.46
1:B:574:MET:CE	1:B:631:ALA:HB3	2.45	0.46
1:B:597:VAL:HG13	1:B:597:VAL:O	2.16	0.46
1:B:1337:VAL:HG23	1:B:1353:MET:HG2	1.97	0.46
1:A:31:ALA:HB1	1:A:267:VAL:HG13	1.97	0.46
1:B:1803:ARG:O	1:B:1816:TYR:OH	2.19	0.46
1:A:805:VAL:HG12	1:A:822:ALA:HB1	1.97	0.46
1:B:105:LEU:HD13	1:B:166:TYR:HA	1.98	0.46
1:A:458:LEU:HD23	1:A:506:ILE:HG23	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:897:GLU:OE2	1:A:897:GLU:N	2.47	0.46
1:A:1717:SER:OG	1:A:1885:GLN:NE2	2.44	0.46
1:B:1524:LEU:HD22	1:B:2127:ILE:HG13	1.97	0.46
1:A:282:GLN:NE2	1:A:288:TYR:O	2.46	0.46
1:A:590:LEU:O	1:A:593:SER:OG	2.29	0.46
1:B:760:ASN:O	1:B:764:SER:OG	2.32	0.46
1:A:1427:LEU:HD23	1:A:1427:LEU:O	2.15	0.46
1:B:153:ASP:OD1	1:B:153:ASP:C	2.53	0.46
1:B:1559:LYS:HE3	1:B:1559:LYS:HA	1.98	0.46
1:B:1595:ASP:OD2	1:B:1595:ASP:C	2.54	0.46
1:B:2234:PHE:CZ	1:B:2272:LEU:HD11	2.50	0.46
1:B:2251:LEU:HD13	1:B:2257:LEU:HD12	1.96	0.46
1:A:1012:LEU:HD12	1:A:1039:SER:O	2.16	0.46
1:A:1375:LEU:HD23	1:A:1404:LEU:CD1	2.46	0.46
1:A:2219:VAL:HG11	1:A:2247:ILE:HG13	1.97	0.45
1:B:1375:LEU:HD23	1:B:1404:LEU:CD1	2.45	0.45
1:A:2146:ILE:CD1	1:A:2174:VAL:HG21	2.45	0.45
1:A:2272:LEU:HD12	1:A:2272:LEU:C	2.36	0.45
1:B:1255:GLU:OE2	1:B:1261:ARG:NH2	2.49	0.45
1:A:153:ASP:C	1:A:153:ASP:OD1	2.55	0.45
1:A:597:VAL:HG13	1:A:597:VAL:O	2.16	0.45
1:B:74:PRO:HD3	1:B:227:MET:SD	2.57	0.45
1:B:1265:LYS:O	1:B:1269:VAL:HG22	2.15	0.45
1:A:1417:PHE:CE1	1:A:1427:LEU:HD11	2.50	0.45
1:A:1524:LEU:HD22	1:A:2127:ILE:HG13	1.99	0.45
1:A:1879:ASP:N	1:A:1879:ASP:OD1	2.49	0.45
1:B:1354:MET:CE	1:B:1368:LEU:HD11	2.47	0.45
1:B:1879:ASP:OD1	1:B:1879:ASP:N	2.50	0.45
1:B:108:LEU:HD21	1:B:135:ILE:HG23	1.98	0.45
1:B:1687:GLU:HB3	1:B:1701:LEU:HD23	1.99	0.45
1:B:2241:4HH:O	1:B:2243:MET:N	2.46	0.45
1:B:1859:ASP:OD1	1:B:1860:SER:N	2.48	0.45
1:A:760:ASN:OD1	1:A:764:SER:OG	2.32	0.45
1:A:1971:VAL:HG12	1:A:2079:MET:HE1	1.99	0.45
1:B:2212:VAL:HG11	1:B:2276:VAL:HG11	1.99	0.45
1:A:2220:LEU:HD21	1:A:2247:ILE:HD11	1.98	0.45
1:B:916:THR:HB	1:B:971:VAL:HG21	2.00	0.45
1:B:2241:4HH:OM	1:B:2241:4HH:O1P	2.27	0.45
1:B:1439:MET:HE3	1:B:1442:PHE:HD2	1.82	0.44
1:A:1494:CYS:HG	1:A:2069:PHE:HE2	1.61	0.44
1:A:1803:ARG:O	1:A:1816:TYR:OH	2.19	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1981:THR:HG21	1:B:2052:MET:HE2	1.99	0.44
1:A:894:ASP:OD1	1:A:894:ASP:N	2.46	0.44
1:A:1354:MET:HE1	1:A:1368:LEU:HD11	1.99	0.44
1:B:1977:MET:HE3	3:B:5001:NAP:O4D	2.18	0.44
1:A:1487:ILE:HG21	1:A:1500:VAL:HG22	1.99	0.44
1:A:1814:GLU:OE2	1:A:1818[B]:ARG:NH2	2.51	0.44
1:B:458:LEU:HD23	1:B:506:ILE:HG23	1.98	0.44
1:B:666:CYS:N	1:B:674:THR:OG1	2.46	0.44
1:A:594:MET:CE	1:A:596:ILE:HD12	2.47	0.44
1:B:794:ILE:CG2	1:B:804:ILE:HD11	2.48	0.44
1:A:916:THR:HB	1:A:971:VAL:HG21	1.99	0.44
1:A:594:MET:O	1:A:834:ASN:N	2.50	0.44
1:B:894:ASP:OD1	1:B:894:ASP:N	2.50	0.44
1:B:1487:ILE:HG21	1:B:1500:VAL:HG22	2.00	0.44
1:A:205:VAL:HG12	1:A:206:ILE:HG23	2.00	0.43
1:A:1859:ASP:OD1	1:A:1860:SER:N	2.48	0.43
1:A:2057:TYR:CE2	1:A:2068:GLN:HG2	2.53	0.43
1:B:2220:LEU:CD2	1:B:2247:ILE:HD11	2.48	0.43
1:B:1018:TYR:CZ	1:B:1033:GLN:HA	2.53	0.43
1:B:282:GLN:NE2	1:B:288:TYR:O	2.49	0.43
1:B:1638:SER:OG	1:B:1675:GLU:OE1	2.25	0.43
1:A:1780:ILE:O	1:A:1804:ASN:ND2	2.50	0.43
1:A:144:THR:HB	1:B:144:THR:HG22	2.00	0.43
1:A:155:ALA:O	1:A:158:VAL:HG12	2.18	0.43
1:B:1559:LYS:HA	1:B:1559:LYS:CE	2.47	0.43
1:A:1943:ARG:HB3	1:A:1943:ARG:CZ	2.49	0.43
1:A:951:ASN:OD1	1:A:951:ASN:N	2.52	0.43
1:B:987:GLU:HA	1:B:987:GLU:OE2	2.18	0.43
1:B:1814:GLU:OE1	1:B:1843:ARG:NH2	2.50	0.43
1:B:558:LEU:HD23	1:B:558:LEU:O	2.18	0.43
1:B:1174:GLU:OE1	1:B:1177:ARG:NH1	2.51	0.43
1:B:1175:PHE:CD2	1:B:1225:LEU:HD12	2.54	0.43
1:B:574:MET:HB3	1:B:575:PRO:HD3	2.00	0.43
1:B:1531:LEU:HD23	1:B:1535:VAL:HG23	1.99	0.43
1:B:1970:LEU:HB2	1:B:1995:LEU:HD23	2.00	0.43
1:A:612:ALA:HB1	1:A:618:LEU:HD13	2.00	0.42
1:A:1217:ASN:O	1:A:1220:SER:OG	2.37	0.42
1:B:1055:SER:O	1:B:1059:THR:HG23	2.19	0.42
1:B:1229:VAL:HG22	1:B:1240:HIS:CG	2.54	0.42
1:B:758:GLN:N	1:B:758:GLN:OE1	2.52	0.42
1:B:1814:GLU:OE2	1:B:1818[B]:ARG:NH2	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1377:LEU:HD13	1:A:1381:LEU:CD1	2.50	0.42
1:B:250:GLY:N	1:B:356:HIS:O	2.52	0.42
1:B:523:MET:HB2	2:B:3001:MLC:CM1	2.49	0.42
1:B:630:ARG:HA	1:B:718:LEU:HD13	2.00	0.42
1:B:831:VAL:O	1:B:831:VAL:HG23	2.19	0.42
1:A:158:VAL:HG11	1:B:229:MET:HG3	2.01	0.42
1:A:1545:CYS:SG	1:A:1546:ILE:N	2.93	0.42
1:B:713:GLU:HB3	1:B:714:PRO:HD3	2.02	0.42
1:B:2257:LEU:CD1	1:B:2276:VAL:HG12	2.48	0.42
1:A:1018:TYR:CZ	1:A:1033:GLN:HA	2.54	0.42
1:B:1760:ALA:O	1:B:1763:SER:OG	2.38	0.42
1:A:229:MET:HB2	1:A:231:PHE:CD2	2.54	0.42
1:A:615:ASP:OD1	1:A:732:SER:OG	2.31	0.42
1:A:1969:ILE:HD11	1:A:2040:ALA:CB	2.50	0.42
1:B:652:GLU:OE1	1:B:652:GLU:N	2.43	0.42
1:B:693:GLY:O	1:B:694:VAL:HG23	2.19	0.42
1:B:1108:ASP:O	1:B:1112:GLN:N	2.51	0.42
1:A:203:MET:HE2	1:A:205:VAL:HG23	2.01	0.42
1:A:2107:VAL:HG12	1:A:2107:VAL:O	2.20	0.42
1:B:275:MET:SD	1:B:301:ILE:HA	2.59	0.42
1:B:1377:LEU:HD13	1:B:1381:LEU:CD1	2.49	0.42
1:B:1560:ILE:HD13	1:B:1560:ILE:N	2.34	0.42
1:A:1055:SER:O	1:A:1059:THR:HG23	2.20	0.42
1:A:2067:GLU:OE2	1:A:2068:GLN:HG3	2.19	0.42
1:A:2263:ASP:O	1:A:2267:MET:HG3	2.19	0.42
1:A:2273:ARG:O	1:A:2276:VAL:HG22	2.20	0.42
1:B:165:MET:HA	1:B:165:MET:CE	2.50	0.42
1:B:665:ALA:N	1:B:674:THR:O	2.45	0.42
1:A:105:LEU:HD13	1:A:166:TYR:HA	2.00	0.41
1:A:647:VAL:HG12	1:A:696:VAL:HG13	2.02	0.41
1:B:1733:VAL:N	1:B:1734:PRO:HD2	2.35	0.41
1:A:478:CYS:SG	1:A:853:LEU:HD21	2.60	0.41
1:A:831:VAL:O	1:A:831:VAL:HG23	2.20	0.41
1:B:39:TYR:CD1	1:B:48:LEU:HD22	2.56	0.41
1:B:558:LEU:HD11	1:B:582:ALA:HB2	2.02	0.41
1:B:1266:LEU:HD12	1:B:1423:VAL:HG23	2.02	0.41
1:A:117:VAL:HG11	1:A:857:VAL:HG21	2.02	0.41
1:B:1659:ARG:NE	1:B:1879:ASP:OD2	2.53	0.41
1:B:2075:SER:HA	1:B:2079:MET:SD	2.61	0.41
1:A:910:LEU:CD2	1:A:947:ALA:HB1	2.50	0.41
1:B:117:VAL:HG11	1:B:857:VAL:HG21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:630:ARG:O	1:B:634:VAL:HG23	2.20	0.41
1:A:558:LEU:HD21	1:A:582:ALA:HB2	2.01	0.41
1:A:2234:PHE:N	1:A:2234:PHE:CD2	2.88	0.41
1:B:41:GLU:OE2	1:B:64:ARG:NH2	2.49	0.41
1:B:1595:ASP:OD2	1:B:1595:ASP:O	2.38	0.41
1:A:917:LEU:HD21	1:A:942:VAL:HG11	2.03	0.41
1:A:74:PRO:HD3	1:A:227:MET:SD	2.61	0.41
1:A:523:MET:HB2	2:A:3001:MLC:CM1	2.51	0.41
1:A:1044:ASP:OD1	1:A:1106:LYS:NZ	2.46	0.41
1:A:1229:VAL:HG22	1:A:1240:HIS:CG	2.55	0.41
1:A:630:ARG:O	1:A:634:VAL:HG23	2.21	0.41
1:A:1733:VAL:N	1:A:1734:PRO:HD2	2.35	0.41
1:A:1943:ARG:HB3	1:A:1943:ARG:NH1	2.36	0.41
1:A:2105:LEU:HD12	1:A:2144:ALA:HB2	2.02	0.41
1:B:192:VAL:HG22	1:B:276:LEU:HD13	2.02	0.41
1:B:315:PHE:HB2	1:B:345:LEU:HD21	2.02	0.41
1:B:631:ALA:O	1:B:635:ILE:HG22	2.21	0.41
1:B:1369:THR:HG23	1:B:1369:THR:O	2.21	0.41
1:B:2080:THR:HG23	1:B:2101:MET:HE2	2.03	0.41
1:B:2107:VAL:HG12	1:B:2107:VAL:O	2.21	0.41
1:A:71:LEU:HD23	1:A:71:LEU:N	2.36	0.41
1:A:635:ILE:HG23	1:A:636:ASP:N	2.36	0.41
1:B:39:TYR:CE1	1:B:48:LEU:HD22	2.56	0.41
1:B:102:ASP:OD1	1:B:142:VAL:HG11	2.21	0.41
1:B:711:MET:HE3	1:B:762:LEU:HD11	2.03	0.41
1:B:1413:LEU:HD12	1:B:1413:LEU:H	1.86	0.41
1:A:571:LYS:HA	1:A:571:LYS:HD3	1.95	0.40
1:A:606:LEU:HD13	1:A:606:LEU:O	2.21	0.40
1:B:478:CYS:SG	1:B:853:LEU:HD21	2.61	0.40
1:B:1657:ASN:ND2	1:B:1687:GLU:OE2	2.45	0.40
1:A:65:ARG:NH2	1:A:251:GLU:OE1	2.51	0.40
1:A:612:ALA:HB2	1:A:735:TRP:CH2	2.56	0.40
1:A:631:ALA:O	1:A:635:ILE:HG22	2.22	0.40
1:B:635:ILE:HG23	1:B:636:ASP:N	2.36	0.40
1:B:2273:ARG:HA	1:B:2276:VAL:HG22	2.03	0.40
1:A:1455:HIS:N	1:A:1455:HIS:CD2	2.87	0.40
1:A:1687:GLU:HB3	1:A:1701:LEU:HD23	2.02	0.40
1:B:1217:ASN:O	1:B:1220:SER:OG	2.37	0.40
2:B:3001:MLC:C5'	2:B:3001:MLC:H8	2.52	0.40
1:A:269:CYS:HB3	1:A:373:MET:CE	2.52	0.40
1:A:558:LEU:HD12	1:A:558:LEU:O	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:615:ASP:OD1	1:B:732:SER:OG	2.32	0.40
1:B:901:LEU:HD22	1:B:909:MET:SD	2.62	0.40
1:B:1245:MET:HG2	1:B:1419:ILE:CD1	2.51	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	2234/2287 (98%)	2169 (97%)	64 (3%)	1 (0%)	100	100
1	B	2228/2287 (97%)	2159 (97%)	67 (3%)	2 (0%)	48	77
All	All	4462/4574 (98%)	4328 (97%)	131 (3%)	3 (0%)	50	77

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	186	ALA
1	A	1468	ALA
1	B	1468	ALA

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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1895/1929 (98%)	1843 (97%)	52 (3%)	40	65
1	B	1894/1929 (98%)	1835 (97%)	59 (3%)	35	62
All	All	3789/3858 (98%)	3678 (97%)	111 (3%)	39	63

All (111) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	142	VAL
1	A	198	GLU
1	A	235	SER
1	A	443	ASP
1	A	526	GLN
1	A	533	SER
1	A	604	HIS
1	A	621	ARG
1	A	657	LEU
1	A	684	LYS
1	A	685	PHE
1	A	703	ASN
1	A	717	TYR
1	A	783	GLU
1	A	795	LYS
1	A	895	SER
1	A	1176	SER
1	A	1182	ARG
1	A	1208	HIS
1	A	1296	SER
1	A	1304	MET
1	A	1439	MET
1	A	1443	TYR
1	A	1457	PHE
1	A	1474	LEU
1	A	1475	ARG
1	A	1532	ARG
1	A	1544	ARG
1	A	1545	CYS
1	A	1578	ASN
1	A	1602	ARG
1	A	1669	GLN

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Mol	Chain	Res	Type
1	A	1724	GLN
1	A	1802	ASP
1	A	1803	ARG
1	A	1842[A]	ARG
1	A	1842[B]	ARG
1	A	1879	ASP
1	A	1910	ARG
1	A	1940	ASP
1	A	1977	MET
1	A	1994	ILE
1	A	2008	ARG
1	A	2042	LYS
1	A	2096	LEU
1	A	2185	ASP
1	A	2213	LEU
1	A	2218	LYS
1	A	2265	GLN
1	A	2267	MET
1	A	2272	LEU
1	A	2273	ARG
1	B	58	MET
1	B	91	PHE
1	B	169	TRP
1	B	198	GLU
1	B	235	SER
1	B	275	MET
1	B	429	PHE
1	B	443	ASP
1	B	526	GLN
1	B	530	MET
1	B	533	SER
1	B	599	ASP
1	B	621	ARG
1	B	684	LYS
1	B	685	PHE
1	B	703	ASN
1	B	717	TYR
1	B	768	PHE
1	B	888	ASP
1	B	895	SER
1	B	1136	ASP
1	B	1176	SER

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Mol	Chain	Res	Type
1	B	1180	MET
1	B	1182	ARG
1	B	1183	TRP
1	B	1208	HIS
1	B	1264	MET
1	B	1269	VAL
1	B	1273	LEU
1	B	1296	SER
1	B	1313	ARG
1	B	1443	TYR
1	B	1457	PHE
1	B	1475	ARG
1	B	1544	ARG
1	B	1545	CYS
1	B	1602	ARG
1	B	1669	GLN
1	B	1802	ASP
1	B	1803	ARG
1	B	1842[A]	ARG
1	B	1842[B]	ARG
1	B	1879	ASP
1	B	1902	SER
1	B	1910	ARG
1	B	1940	ASP
1	B	1947	CYS
1	B	1977	MET
1	B	1996	THR
1	B	2008	ARG
1	B	2029	THR
1	B	2042	LYS
1	B	2096	LEU
1	B	2213	LEU
1	B	2218	LYS
1	B	2244	SER
1	B	2248	LYS
1	B	2263	ASP
1	B	2274	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1578	ASN

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Mol	Chain	Res	Type
1	A	2068	GLN
1	B	1194	ASN
1	B	1578	ASN
1	B	2249	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	4HH	B	2241	1	22,26,27	0.45	0	27,35,37	0.60	0
1	4HH	A	2441	1	22,26,27	0.45	0	27,35,37	0.51	0

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
1	4HH	B	2241	1	-	15/33/35/37	-
1	4HH	A	2441	1	-	7/33/35/37	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	2441	4HH	N-CA-CB-OG
1	A	2441	4HH	NN-CL3-CM-OM
1	A	2441	4HH	CJ-O3P-P-O2P
1	A	2441	4HH	CT-CS-NR-CQ
1	B	2241	4HH	C-CA-CB-OG
1	B	2241	4HH	N-CA-CB-OG
1	B	2241	4HH	O3P-CJ-CK-CL1
1	B	2241	4HH	O3P-CJ-CK-CL2
1	B	2241	4HH	O3P-CJ-CK-CM
1	B	2241	4HH	CK-CJ-O3P-P
1	B	2241	4HH	NN-CL3-CM-OM
1	B	2241	4HH	CJ-O3P-P-OG
1	B	2241	4HH	CJ-O3P-P-O1P
1	A	2441	4HH	ON-CL3-CM-OM
1	B	2241	4HH	ON-CL3-CM-OM
1	A	2441	4HH	CO-CP-CQ-OR
1	B	2241	4HH	ON-CL3-CM-CK
1	B	2241	4HH	NN-CL3-CM-CK
1	B	2241	4HH	CO-CP-CQ-OR
1	B	2241	4HH	CB-OG-P-O2P
1	A	2441	4HH	CO-CP-CQ-NR
1	B	2241	4HH	CO-CP-CQ-NR

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	B	2241	4HH	2	0
1	A	2441	4HH	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	NAP	A	5001	-	46,52,52	1.80	5 (10%)	61,80,80	1.16	5 (8%)
2	MLC	A	3001	-	49,56,56	3.67	19 (38%)	64,83,83	2.11	10 (15%)
3	NAP	B	5001	-	46,52,52	1.81	5 (10%)	61,80,80	1.16	5 (8%)
2	MLC	B	3001	-	49,56,56	3.69	19 (38%)	64,83,83	2.16	13 (20%)

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
3	NAP	A	5001	-	-	8/31/67/67	0/5/5/5
2	MLC	A	3001	-	-	25/50/71/71	0/3/3/3
3	NAP	B	5001	-	-	8/31/67/67	0/5/5/5
2	MLC	B	3001	-	-	27/50/71/71	0/3/3/3

All (48) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	3001	MLC	O4'-C1'	13.19	1.58	1.40
2	A	3001	MLC	O4'-C1'	13.11	1.58	1.40
2	A	3001	MLC	C2'-C3'	-9.11	1.33	1.53
2	B	3001	MLC	C2'-C3'	-9.05	1.33	1.53
3	A	5001	NAP	P2B-O2B	8.26	1.74	1.59
3	B	5001	NAP	P2B-O2B	8.26	1.74	1.59
2	B	3001	MLC	P2-O6	8.07	1.68	1.59
2	A	3001	MLC	P2-O6	7.93	1.68	1.59
2	B	3001	MLC	P1-O6	7.61	1.67	1.59
2	A	3001	MLC	P1-O6	7.54	1.67	1.59
2	B	3001	MLC	O4'-C4'	-6.53	1.30	1.45
2	A	3001	MLC	O4'-C4'	-6.34	1.30	1.45
2	A	3001	MLC	P3-O3'	5.95	1.70	1.59
2	B	3001	MLC	P3-O3'	5.94	1.69	1.59
2	A	3001	MLC	CP6-NP2	5.90	1.47	1.33
2	B	3001	MLC	CP6-NP2	5.89	1.47	1.33
2	A	3001	MLC	C1'-N9	-5.66	1.35	1.49
2	A	3001	MLC	CP3-NP1	5.60	1.46	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	3001	MLC	C1'-N9	-5.58	1.36	1.49
2	B	3001	MLC	CP3-NP1	5.53	1.46	1.33
3	B	5001	NAP	PA-O3	4.92	1.64	1.59
3	A	5001	NAP	PA-O3	4.87	1.64	1.59
3	A	5001	NAP	PN-O3	4.57	1.64	1.59
3	B	5001	NAP	PN-O3	4.57	1.64	1.59
2	A	3001	MLC	C3'-C4'	4.15	1.63	1.52
2	B	3001	MLC	C3'-C4'	4.05	1.63	1.52
2	A	3001	MLC	C6-N6	3.76	1.47	1.34
2	B	3001	MLC	C6-N6	3.71	1.47	1.34
2	B	3001	MLC	CM1-S	3.46	1.84	1.76
2	A	3001	MLC	CM1-S	3.44	1.84	1.76
2	B	3001	MLC	C2-N3	2.88	1.36	1.32
2	A	3001	MLC	C2-N3	2.86	1.36	1.32
2	B	3001	MLC	O2'-C2'	2.56	1.49	1.43
3	B	5001	NAP	O4D-C1D	-2.56	1.37	1.40
2	A	3001	MLC	O2'-C2'	2.53	1.49	1.43
2	B	3001	MLC	OP2-CP6	-2.41	1.18	1.23
2	B	3001	MLC	OP1-CP3	-2.41	1.18	1.23
2	A	3001	MLC	OP2-CP6	-2.39	1.18	1.23
2	A	3001	MLC	OP1-CP3	-2.36	1.18	1.23
3	A	5001	NAP	O4D-C1D	-2.35	1.37	1.40
3	B	5001	NAP	C8A-N7A	-2.22	1.30	1.34
3	A	5001	NAP	C8A-N7A	-2.18	1.30	1.34
2	B	3001	MLC	OP3-CP7	-2.15	1.38	1.42
2	A	3001	MLC	CM2-CM3	2.13	1.54	1.51
2	B	3001	MLC	CM2-CM3	2.11	1.54	1.51
2	A	3001	MLC	OP3-CP7	-2.10	1.38	1.42
2	B	3001	MLC	P2-O7	2.04	1.67	1.59
2	A	3001	MLC	P2-O7	2.03	1.67	1.59

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	3001	MLC	C5-C6-N6	9.70	135.09	120.31
2	A	3001	MLC	C5-C6-N6	9.60	134.93	120.31
2	B	3001	MLC	N6-C6-N1	-6.41	104.65	118.33
2	A	3001	MLC	N6-C6-N1	-6.35	104.76	118.33
2	B	3001	MLC	N3-C2-N1	-5.96	120.58	128.67
2	A	3001	MLC	N3-C2-N1	-5.87	120.70	128.67
2	B	3001	MLC	CM2-CM1-S	4.95	119.91	113.63
2	A	3001	MLC	CM2-CM1-S	4.53	119.38	113.63

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	3001	MLC	C4'-O4'-C1'	-4.39	105.91	109.92
2	B	3001	MLC	C4'-O4'-C1'	-3.77	106.47	109.92
3	A	5001	NAP	O4B-C1B-N9A	3.28	113.09	108.75
2	A	3001	MLC	CP5-CP4-CP3	-3.20	107.06	112.39
2	B	3001	MLC	CP5-CP4-CP3	-3.19	107.08	112.39
3	A	5001	NAP	P2B-O2B-C2B	-2.92	115.63	123.43
2	B	3001	MLC	CP4-CP3-NP1	2.89	121.61	116.34
3	B	5001	NAP	P2B-O2B-C2B	-2.84	115.84	123.43
3	B	5001	NAP	O4B-C1B-N9A	2.80	112.45	108.75
2	B	3001	MLC	CP7-CP6-NP2	2.77	121.75	116.48
3	A	5001	NAP	C1B-N9A-C4A	-2.64	122.00	126.64
2	A	3001	MLC	CP4-CP3-NP1	2.32	120.58	116.34
3	A	5001	NAP	O2N-PN-O1N	2.21	122.72	112.44
2	B	3001	MLC	CP2-NP1-CP3	-2.21	118.72	122.82
3	B	5001	NAP	O2N-PN-O1N	2.20	122.69	112.44
3	B	5001	NAP	O3X-P2B-O2X	2.16	115.91	107.80
2	A	3001	MLC	CP7-CP6-NP2	2.15	120.57	116.48
3	B	5001	NAP	C4D-O4D-C1D	2.13	111.88	109.92
3	A	5001	NAP	O3X-P2B-O2X	2.10	115.68	107.80
2	A	3001	MLC	O4'-C1'-N9	2.08	111.51	108.75
2	B	3001	MLC	OM2-CM1-S	-2.07	120.05	122.68
2	B	3001	MLC	CM3-CM2-CM1	-2.06	108.75	116.27
2	A	3001	MLC	CM3-CM2-CM1	-2.03	108.87	116.27
2	B	3001	MLC	OM2-CM1-CM2	-2.02	120.04	123.40
2	B	3001	MLC	C3'-C2'-C1'	2.01	104.32	99.89

There are no chirality outliers.

All (68) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	3001	MLC	C4'-C5'-O5'-P1
2	A	3001	MLC	C5'-O5'-P1-O12
2	A	3001	MLC	C5'-O5'-P1-O6
2	A	3001	MLC	CPB-O7-P2-O22
2	A	3001	MLC	CP7-CPA-CPB-O7
2	A	3001	MLC	CP9-CPA-CPB-O7
2	A	3001	MLC	CP8-CPA-CPB-O7
2	A	3001	MLC	OP3-CP7-CPA-CPB
2	A	3001	MLC	CP6-CP7-CPA-CPB
2	A	3001	MLC	OP3-CP7-CPA-CP9
2	A	3001	MLC	CP6-CP7-CPA-CP9
2	A	3001	MLC	OP3-CP7-CPA-CP8

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Mol	Chain	Res	Type	Atoms
2	A	3001	MLC	CP6-CP7-CPA-CP8
2	A	3001	MLC	NP2-CP6-CP7-OP3
2	A	3001	MLC	CM2-CM1-S-CP1
2	A	3001	MLC	OM2-CM1-S-CP1
2	B	3001	MLC	C5'-O5'-P1-O11
2	B	3001	MLC	C5'-O5'-P1-O6
2	B	3001	MLC	CPB-O7-P2-O21
2	B	3001	MLC	CPB-O7-P2-O22
2	B	3001	MLC	CP7-CPA-CPB-O7
2	B	3001	MLC	CP9-CPA-CPB-O7
2	B	3001	MLC	CP8-CPA-CPB-O7
2	B	3001	MLC	OP2-CP6-CP7-CPA
2	B	3001	MLC	NP2-CP6-CP7-CPA
2	B	3001	MLC	OP2-CP6-CP7-OP3
2	B	3001	MLC	CP2-CP1-S-CM1
2	B	3001	MLC	CM2-CM1-S-CP1
2	B	3001	MLC	OM2-CM1-S-CP1
3	A	5001	NAP	C5B-O5B-PA-O3
3	A	5001	NAP	C5D-O5D-PN-O3
3	A	5001	NAP	C5D-O5D-PN-O1N
3	A	5001	NAP	C5D-O5D-PN-O2N
3	B	5001	NAP	C5B-O5B-PA-O1A
3	B	5001	NAP	C5D-O5D-PN-O3
3	B	5001	NAP	C5D-O5D-PN-O1N
2	B	3001	MLC	S-CP1-CP2-NP1
2	B	3001	MLC	C3'-C4'-C5'-O5'
2	B	3001	MLC	O4'-C4'-C5'-O5'
2	A	3001	MLC	OP2-CP6-CP7-OP3
2	A	3001	MLC	C3'-C4'-C5'-O5'
3	B	5001	NAP	O4B-C4B-C5B-O5B
2	B	3001	MLC	OP3-CP7-CPA-CP8
2	A	3001	MLC	OP2-CP6-CP7-CPA
2	B	3001	MLC	NP2-CP6-CP7-OP3
3	B	5001	NAP	C3B-C4B-C5B-O5B
3	B	5001	NAP	PA-O3-PN-O5D
2	B	3001	MLC	CP3-CP4-CP5-NP2
2	B	3001	MLC	CP6-CP7-CPA-CP9
3	A	5001	NAP	O4B-C4B-C5B-O5B
3	A	5001	NAP	C4B-C5B-O5B-PA
2	B	3001	MLC	CP6-CP7-CPA-CPB
3	B	5001	NAP	C4B-C5B-O5B-PA
2	A	3001	MLC	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	A	3001	MLC	C5'-O5'-P1-O11
2	A	3001	MLC	CPB-O7-P2-O6
2	A	3001	MLC	CPB-O7-P2-O21
2	B	3001	MLC	CPB-O7-P2-O6
2	B	3001	MLC	OP3-CP7-CPA-CPB
3	A	5001	NAP	C5B-O5B-PA-O1A
3	B	5001	NAP	C5D-O5D-PN-O2N
2	B	3001	MLC	CP4-CP5-NP2-CP6
2	A	3001	MLC	NP2-CP6-CP7-CPA
2	B	3001	MLC	CP6-CP7-CPA-CP8
2	B	3001	MLC	OP3-CP7-CPA-CP9
2	B	3001	MLC	P2-O6-P1-O12
3	A	5001	NAP	C3B-C4B-C5B-O5B
2	A	3001	MLC	C3'-O3'-P3-O33

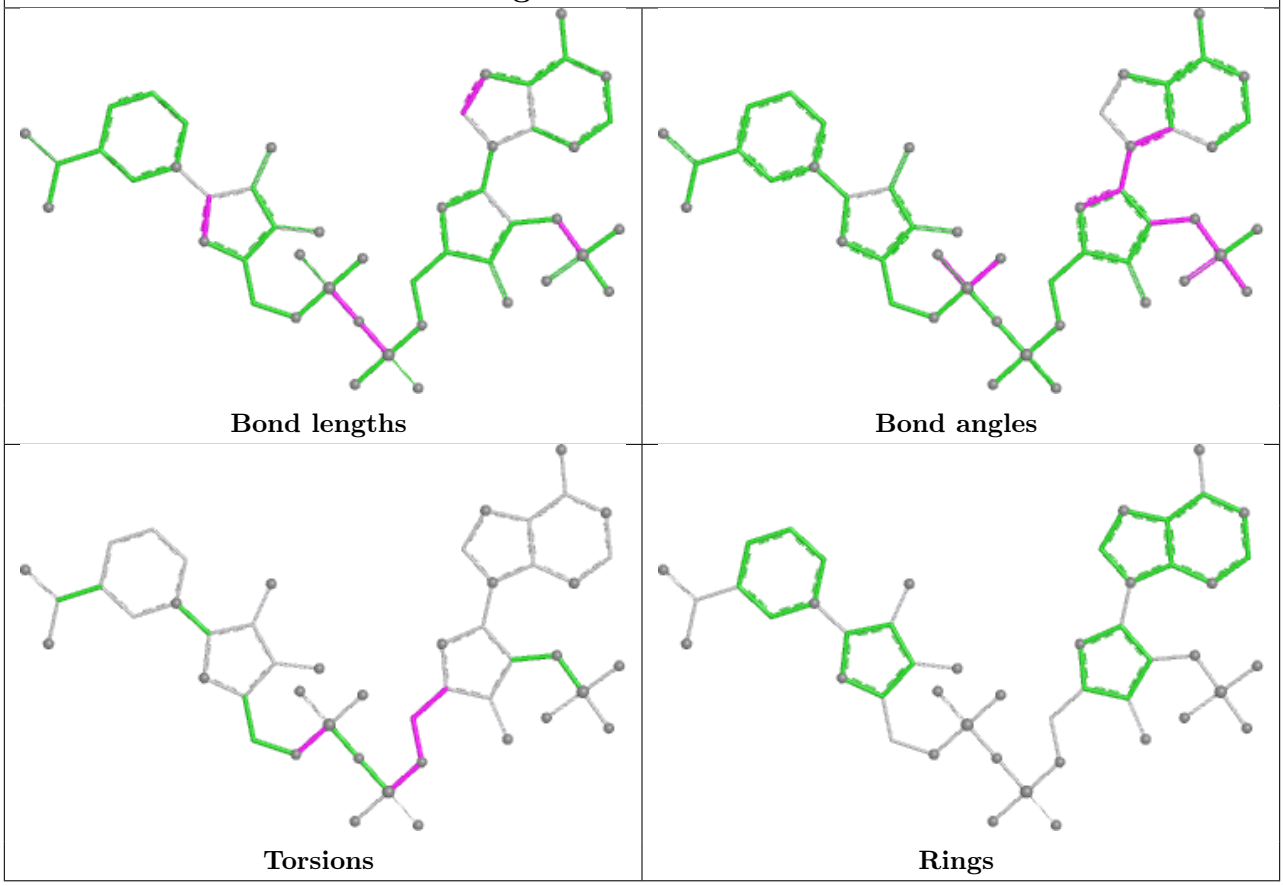
There are no ring outliers.

3 monomers are involved in 8 short contacts:

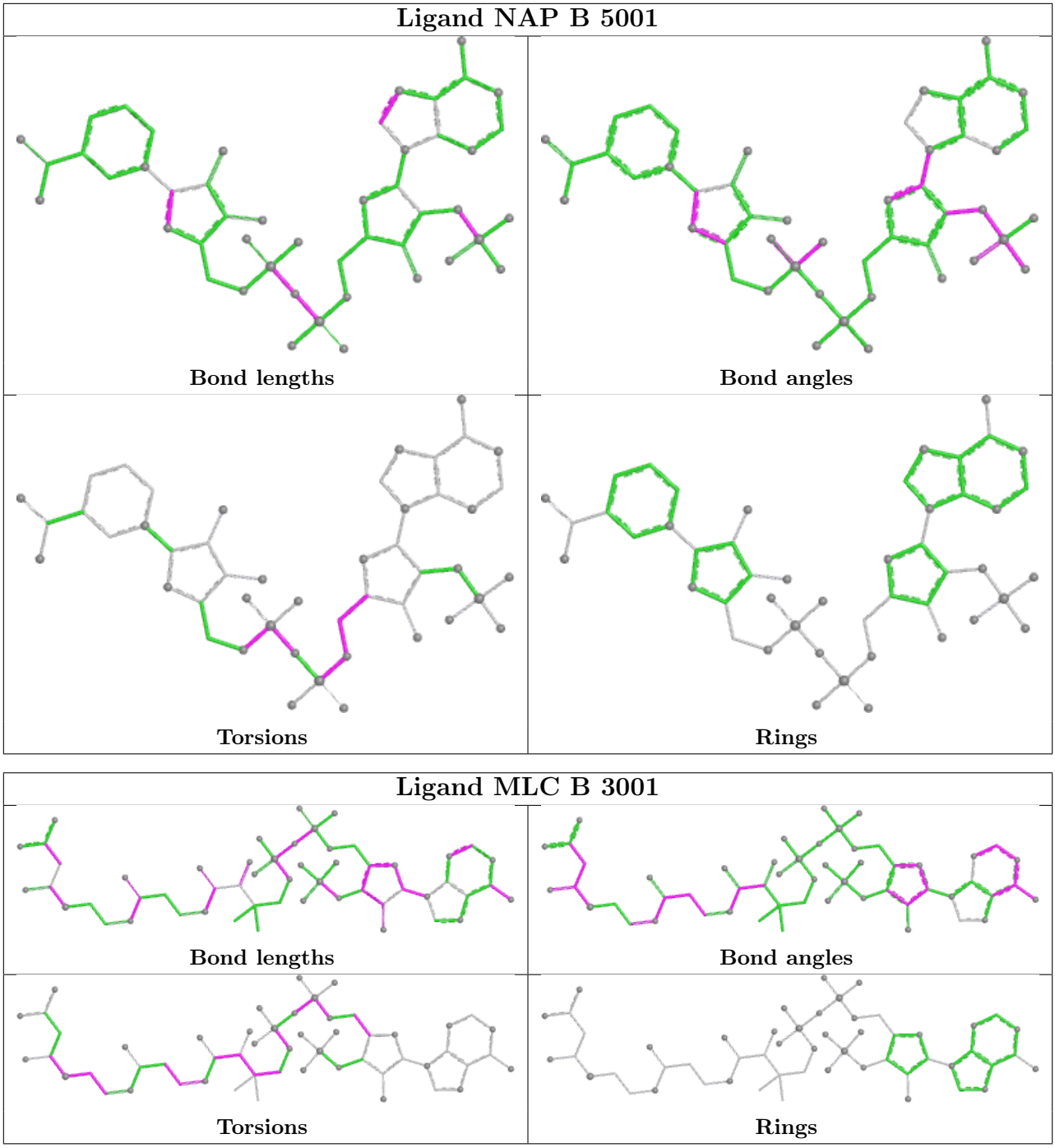
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	3001	MLC	1	0
3	B	5001	NAP	3	0
2	B	3001	MLC	4	0

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

Ligand NAP A 5001



Ligand MLC A 3001



5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

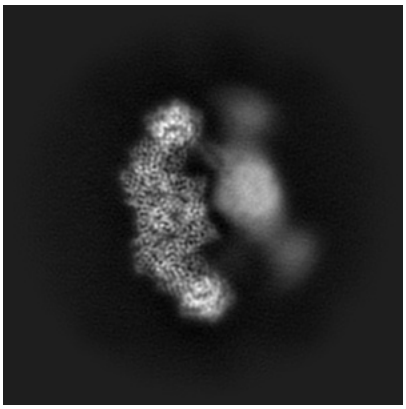
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-45910. These allow visual inspection of the internal detail of the map and identification of artifacts.

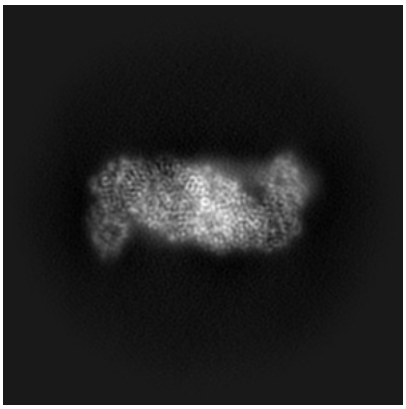
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

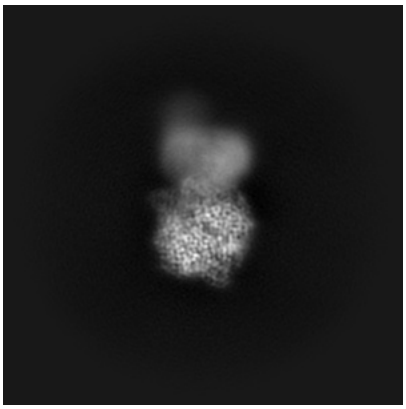
6.1.1 Primary map



X

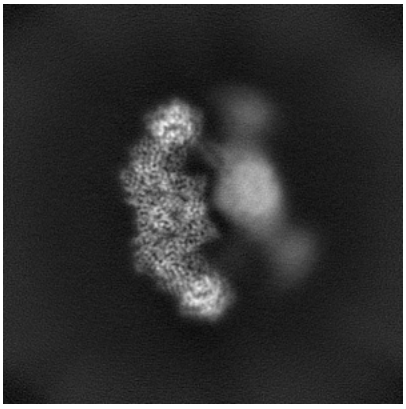


Y

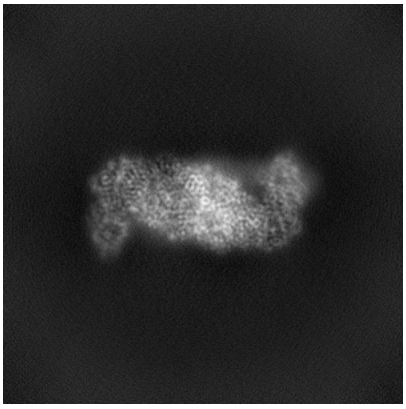


Z

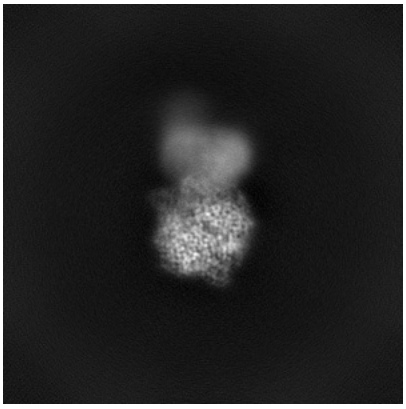
6.1.2 Raw map



X



Y

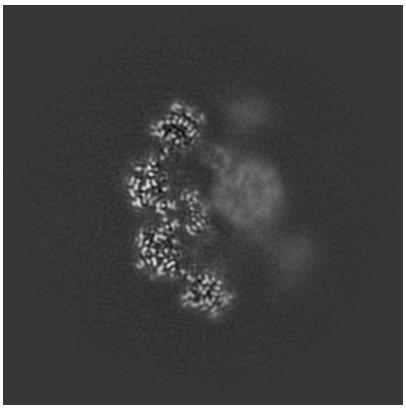


Z

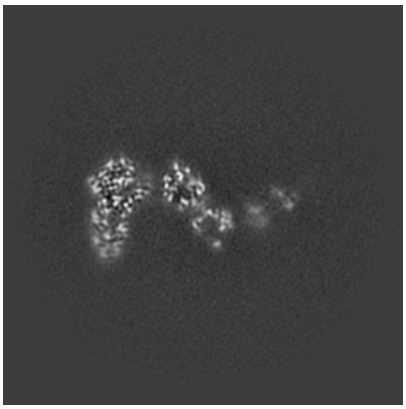
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

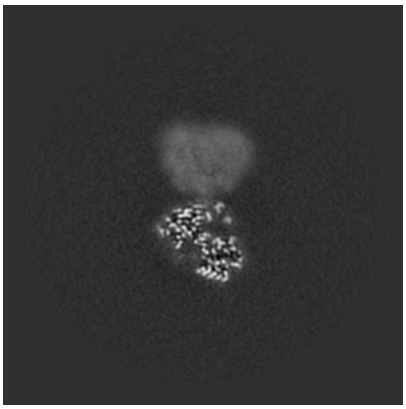
6.2.1 Primary map



X Index: 160

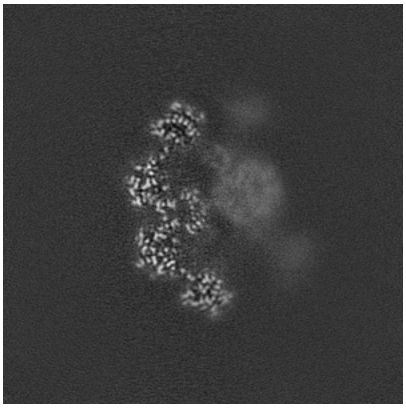


Y Index: 160

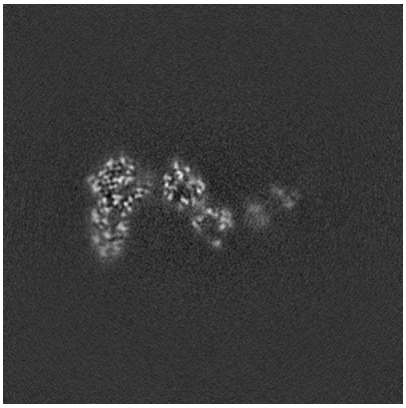


Z Index: 160

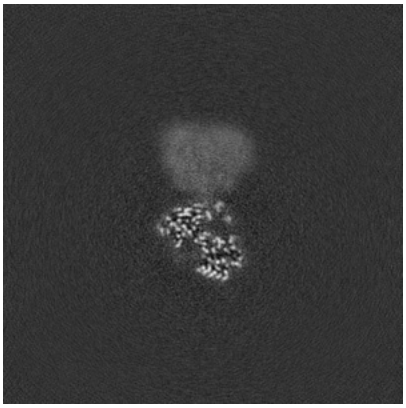
6.2.2 Raw map



X Index: 160



Y Index: 160

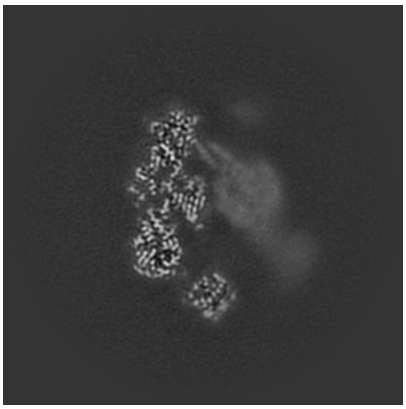


Z Index: 160

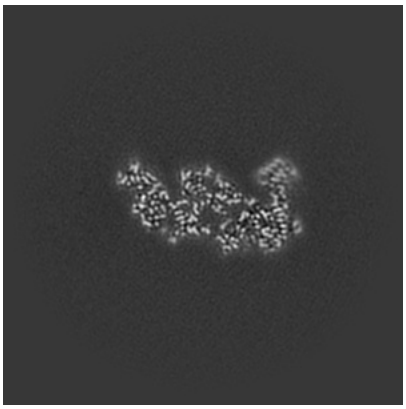
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

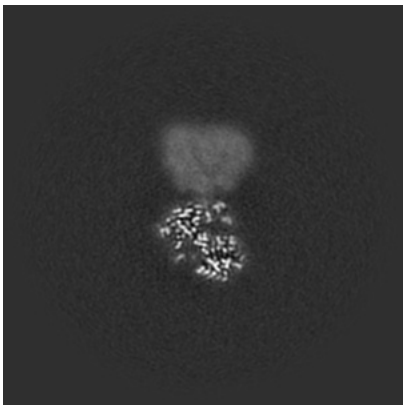
6.3.1 Primary map



X Index: 154

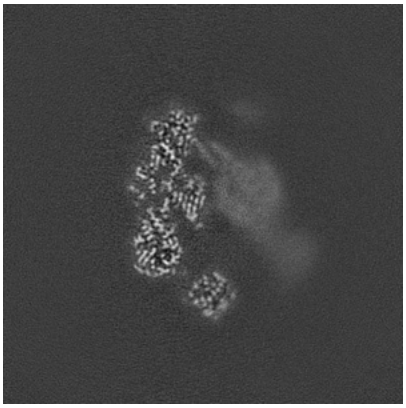


Y Index: 127

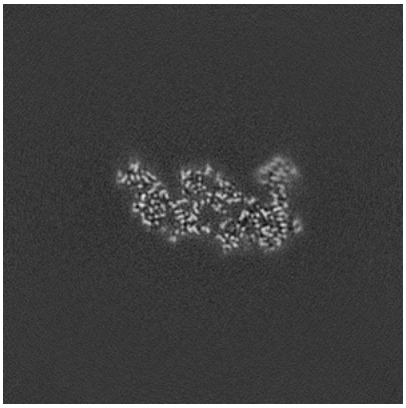


Z Index: 159

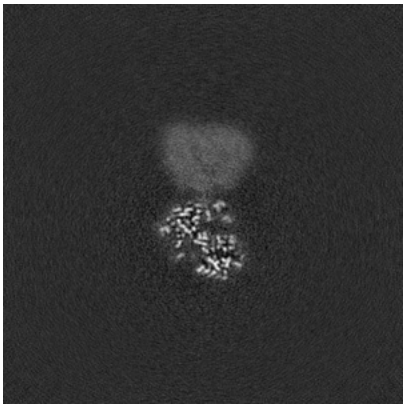
6.3.2 Raw map



X Index: 154



Y Index: 127

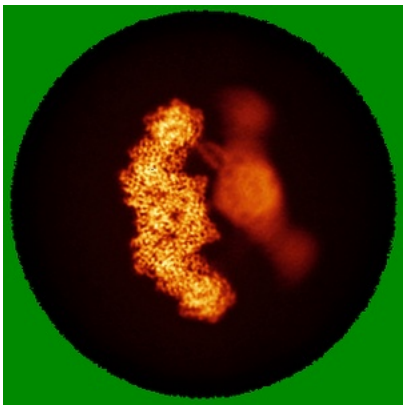


Z Index: 159

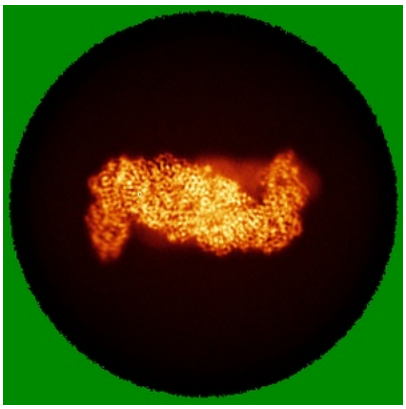
The images above show the largest variance slices of the map in three orthogonal directions.

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

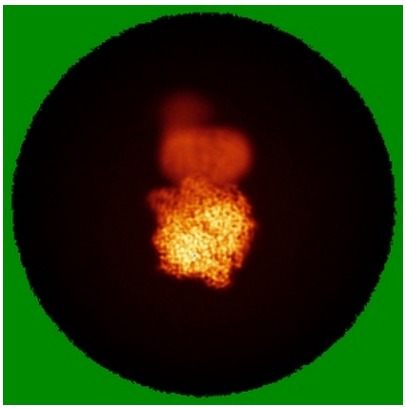
6.4.1 Primary map



X

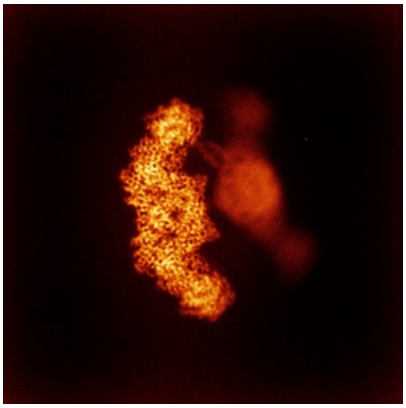


Y

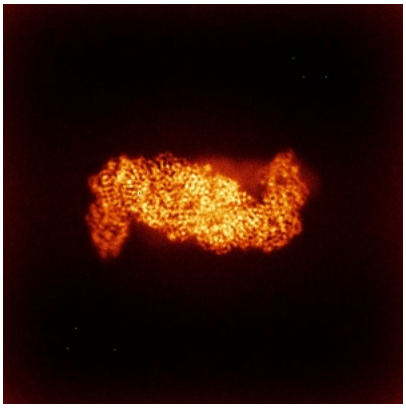


Z

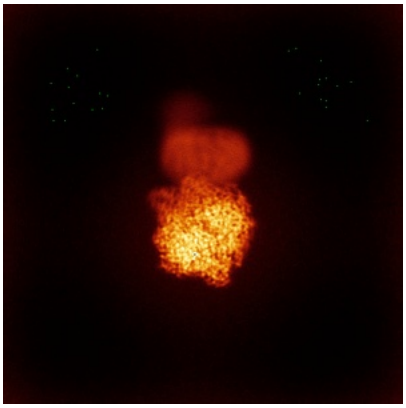
6.4.2 Raw map



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 0.105. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

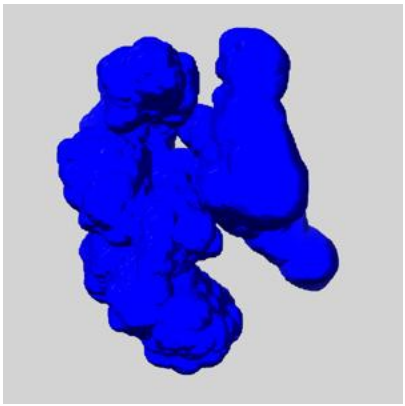
6.6 Mask visualisation

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

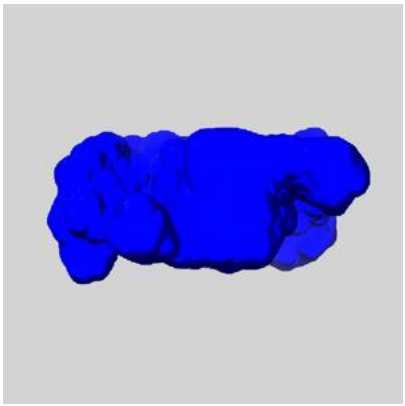
A mask typically either:

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

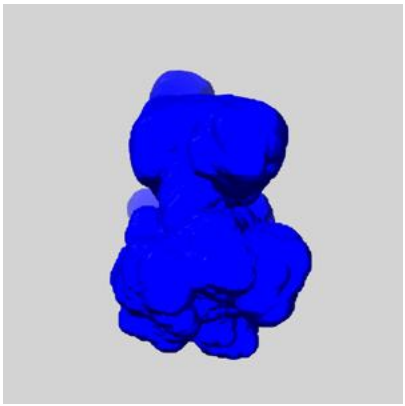
6.6.1 emd_45910_msk_1.map



X



Y

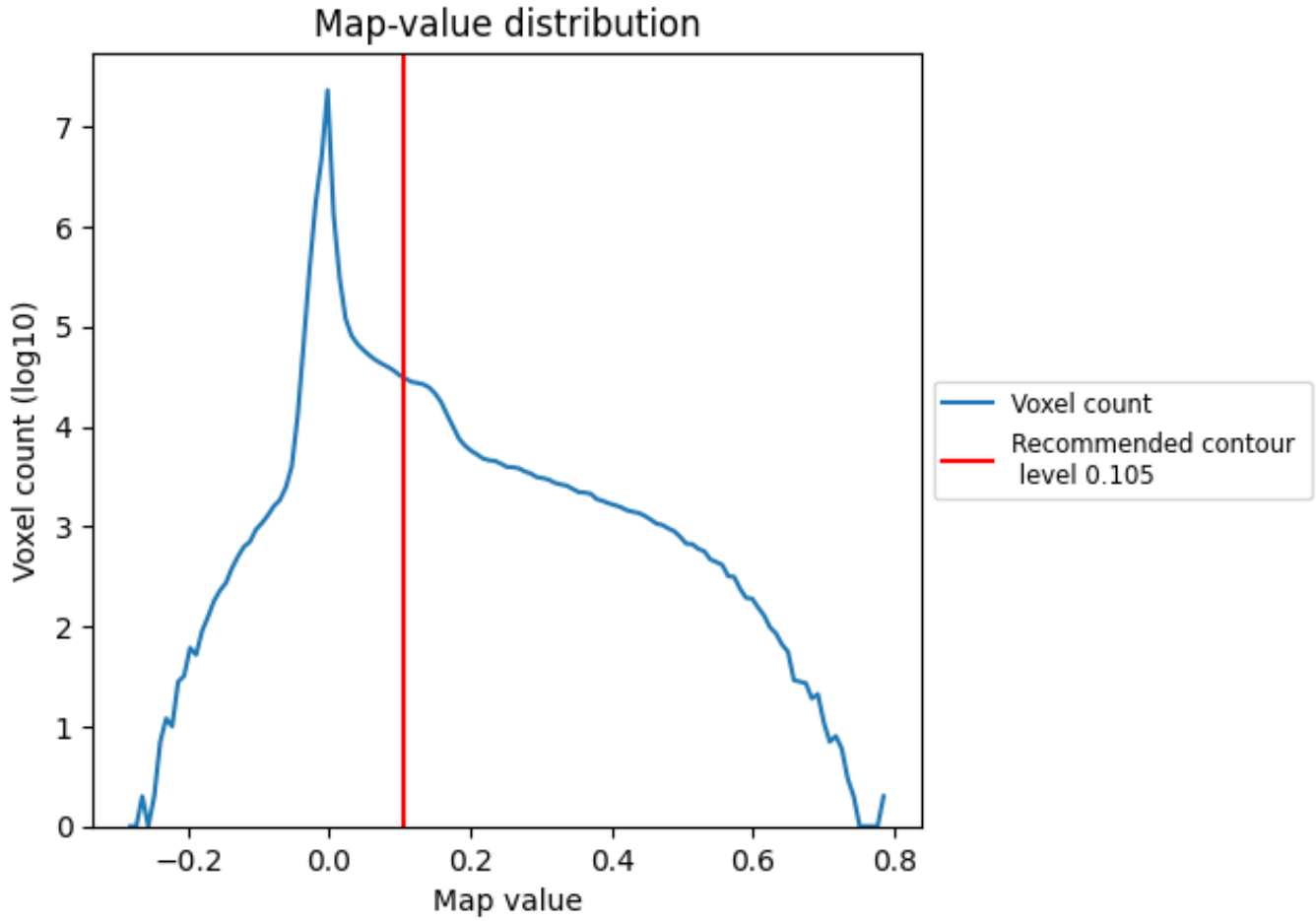


Z

7 Map analysis

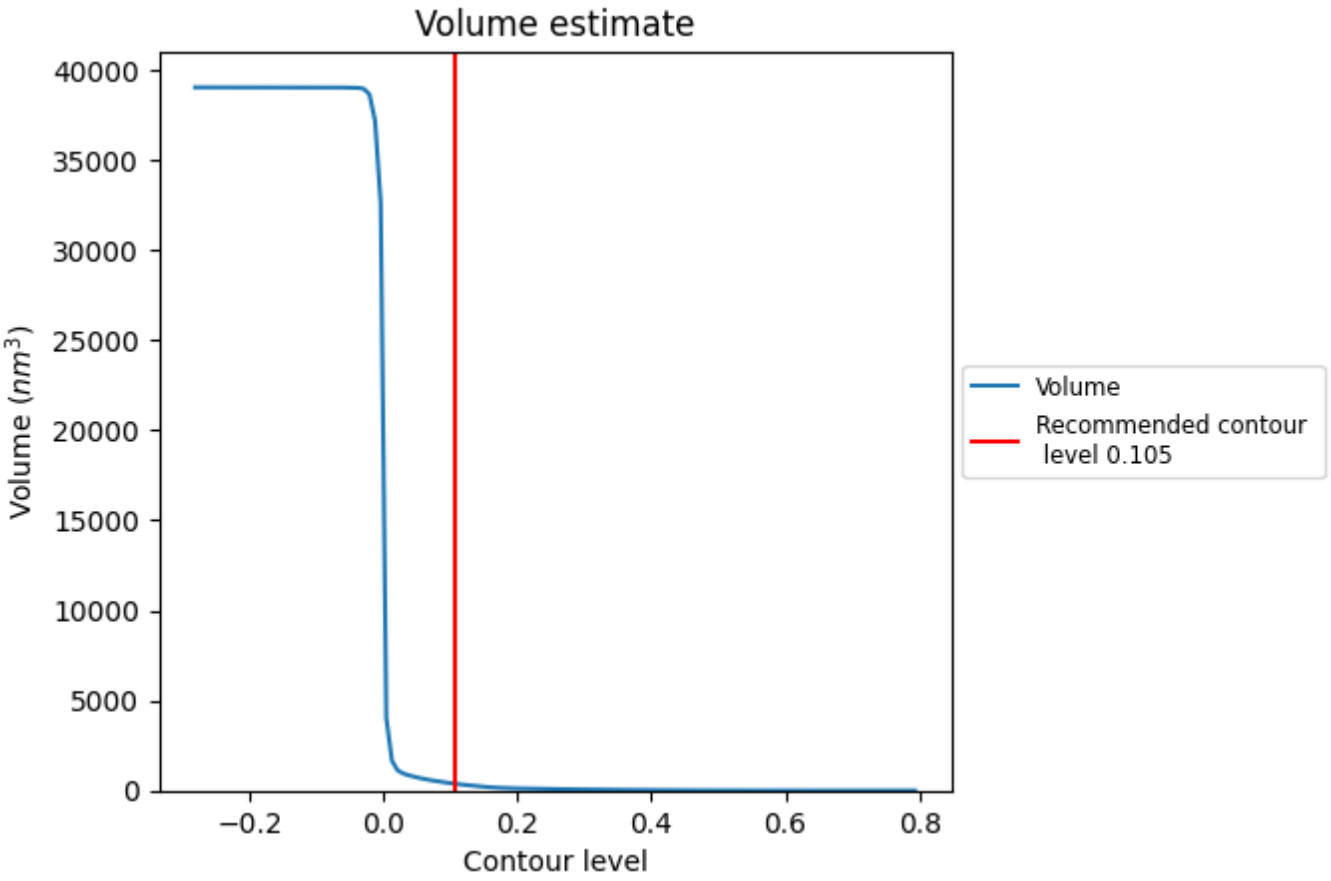
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

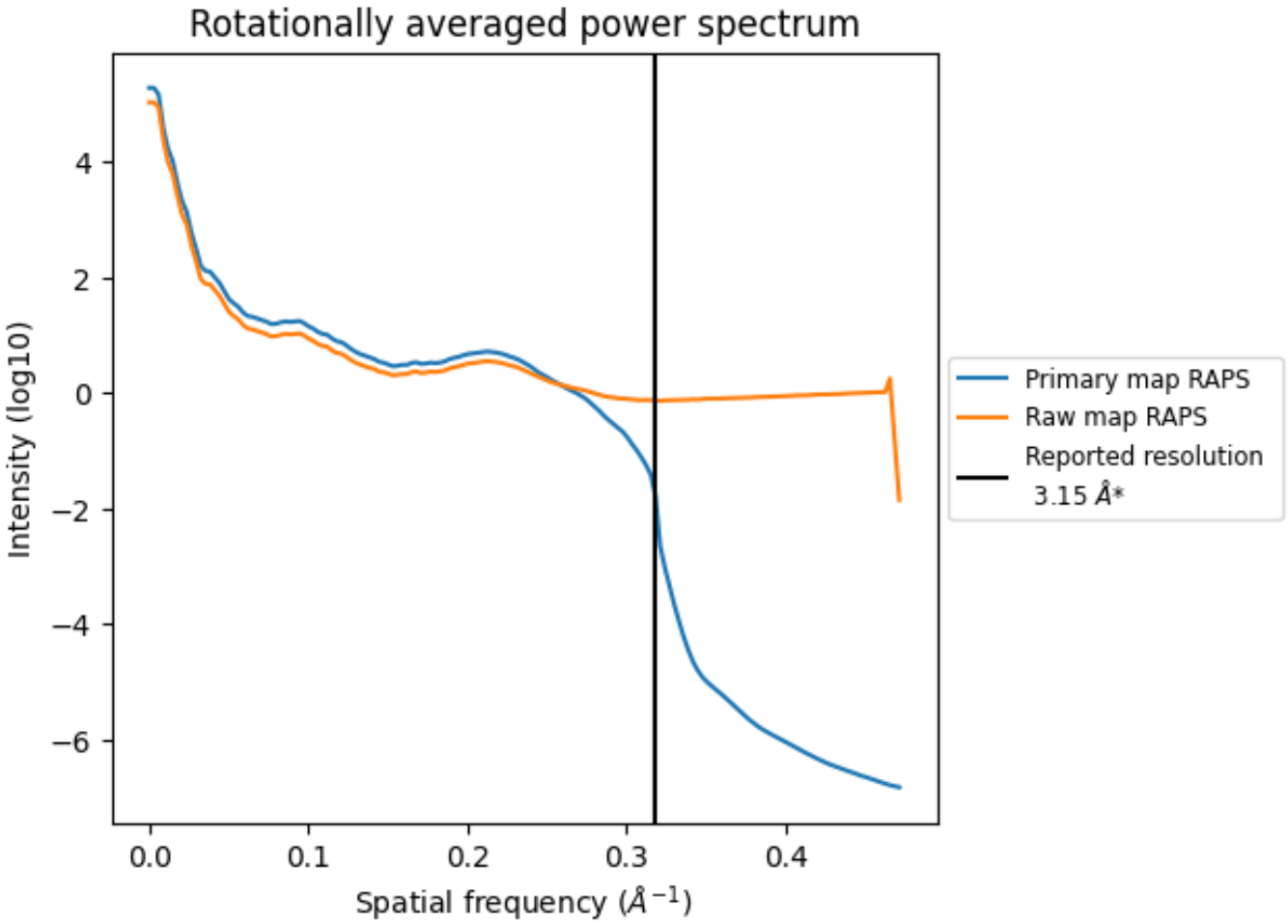
7.2 Volume estimate



The volume at the recommended contour level is 383 nm^3; this corresponds to an approximate mass of 346 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)

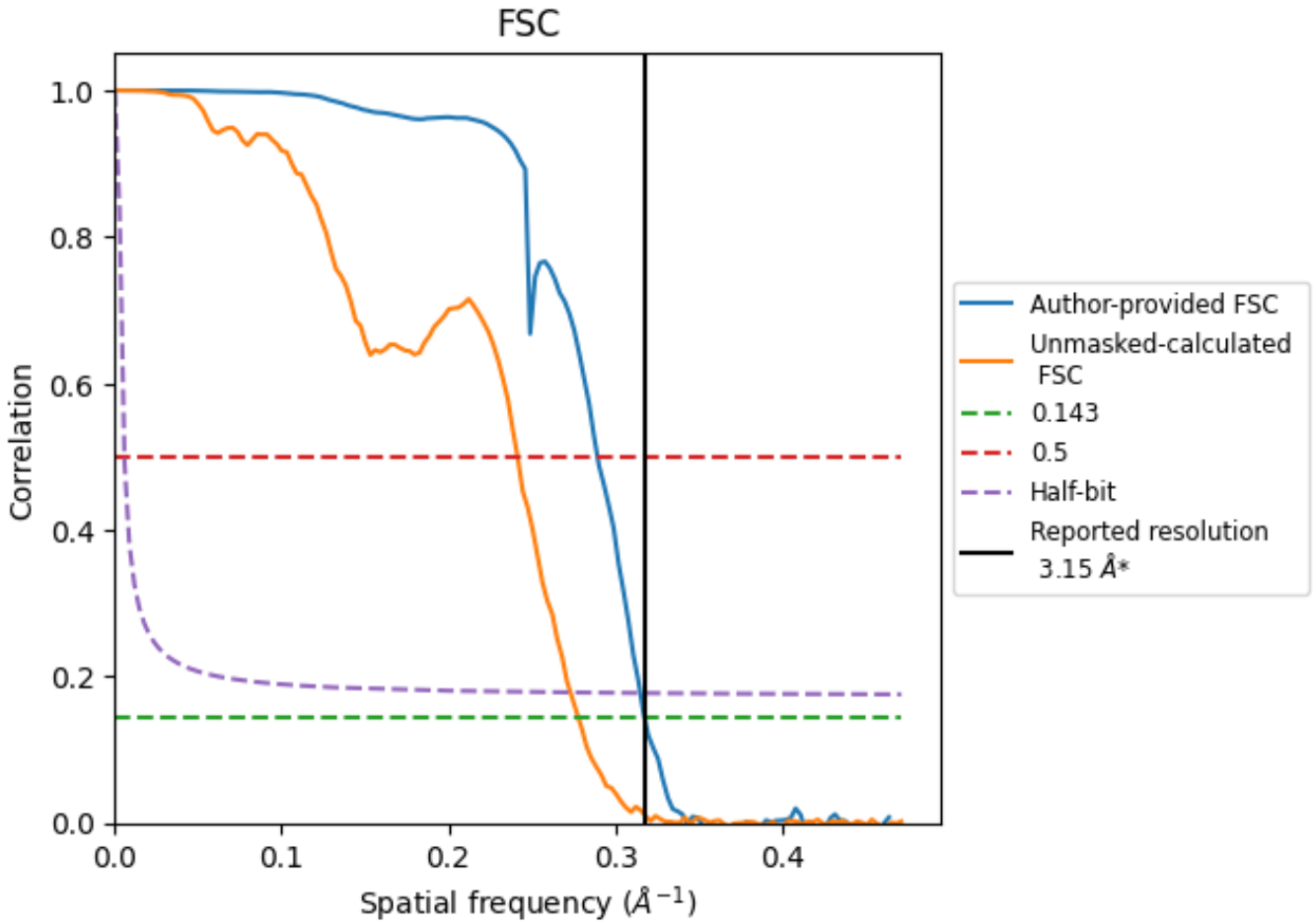


*Reported resolution corresponds to spatial frequency of 0.317 Å^{-1}

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 0.317 Å^{-1}

8.2 Resolution estimates (i)

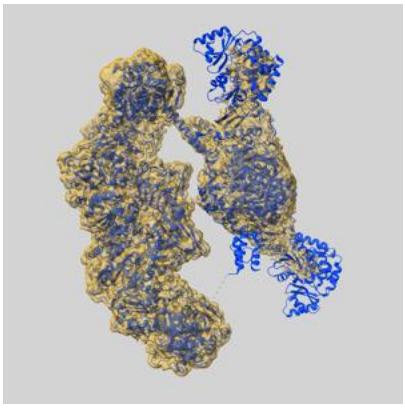
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.15	-	-
Author-provided FSC curve	3.15	3.45	3.17
Unmasked-calculated*	3.60	4.14	3.66

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.60 differs from the reported value 3.15 by more than 10 %

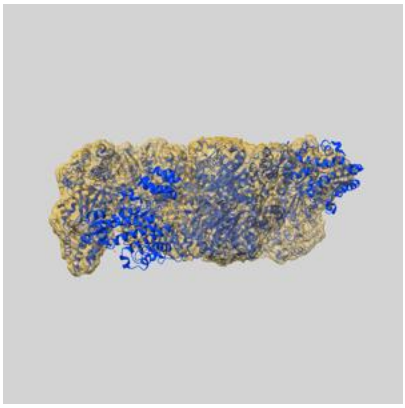
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-45910 and PDB model 9CTL. Per-residue inclusion information can be found in section 3 on page 5.

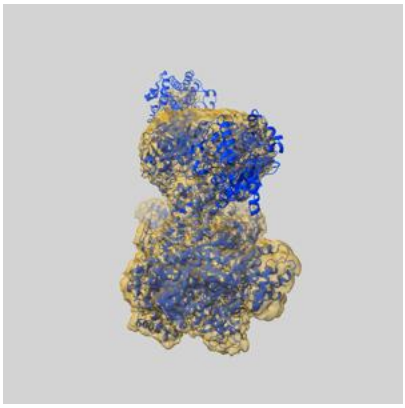
9.1 Map-model overlay



X



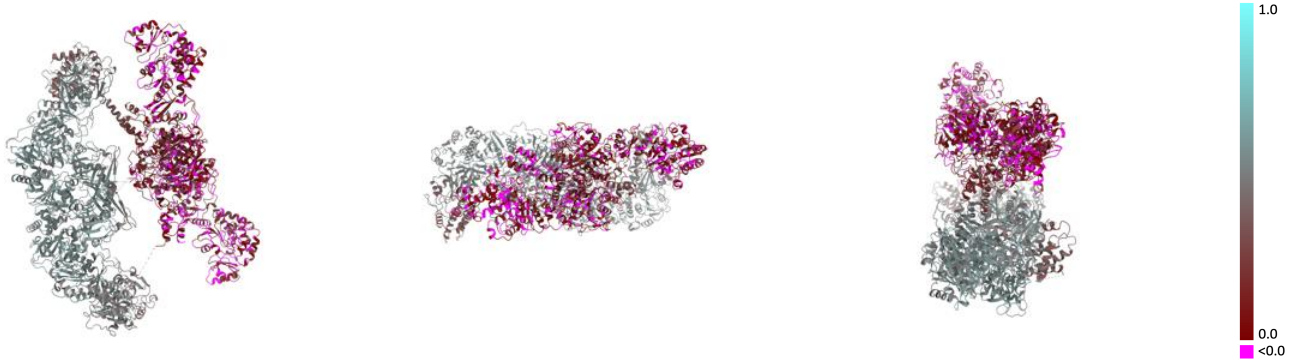
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.105 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

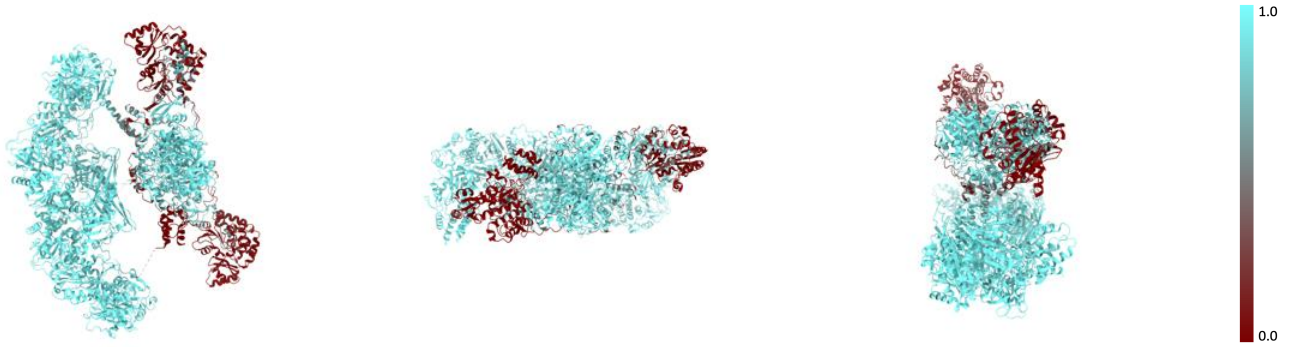
9.2 Q-score mapped to coordinate model



X Y Z

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

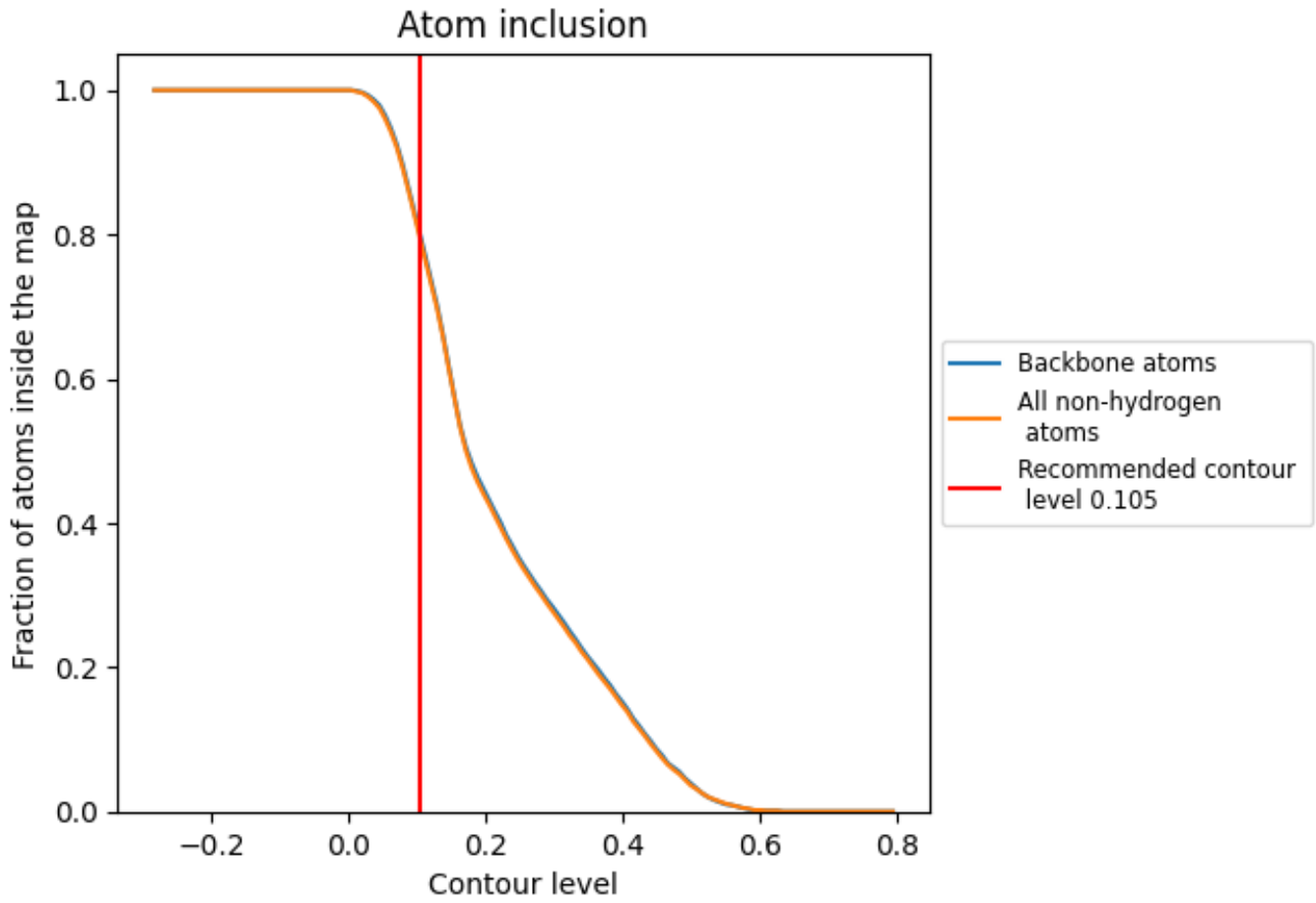
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.105).

9.4 Atom inclusion (i)



At the recommended contour level, 80% of all backbone atoms, 79% 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 (0.105) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7940	0.3380
A	0.8130	0.3480
B	0.7760	0.3270