Full wwPDB EM Validation Report ⓘ

Sep 2, 2025 – 02:18 PM EDT

PDB ID	:	9DGP / pdb_00009dgp
EMDB ID	:	EMD-46843
Title	:	Motor domain of dynein-1 complex on microtubules
Authors	:	Rao, Q.; Chai, P.; Zhang, K.
Deposited on	:	2024-09-03
Resolution	:	3.50 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 ⓘ 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:

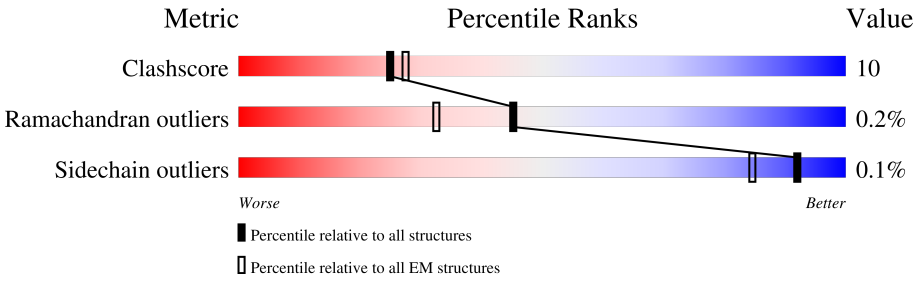
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

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 3.50 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	4646	48% 17% 35%

2 Entry composition

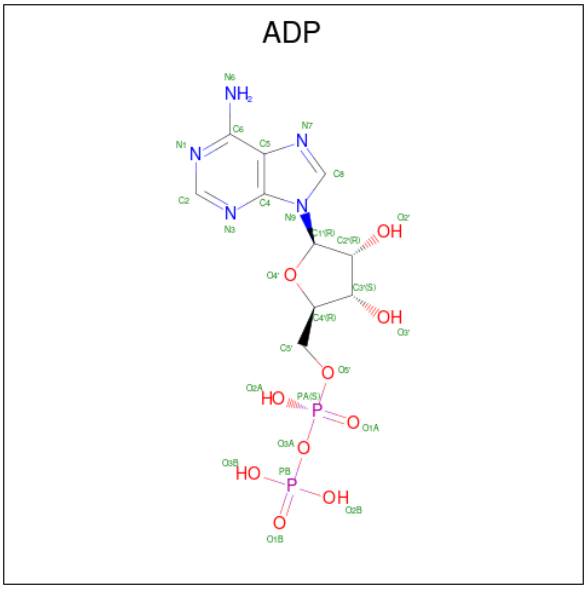
There are 5 unique types of molecules in this entry. The entry contains 24585 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Cytoplasmic dynein 1 heavy chain 1.

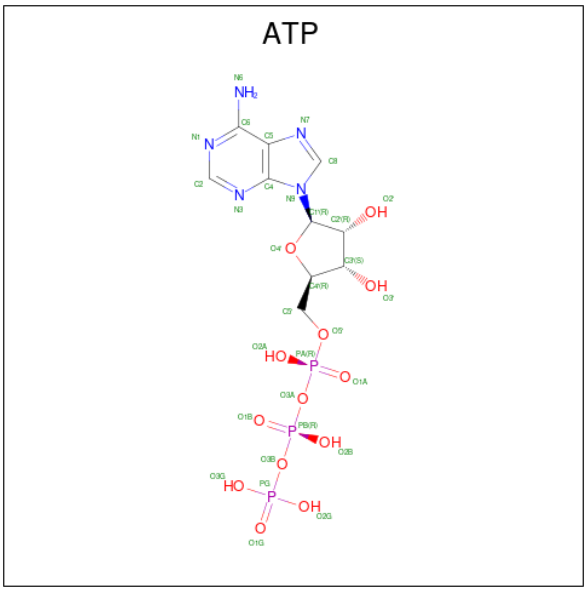
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3037	24461	15582	4227	4533	119	1	0

- Molecule 2 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



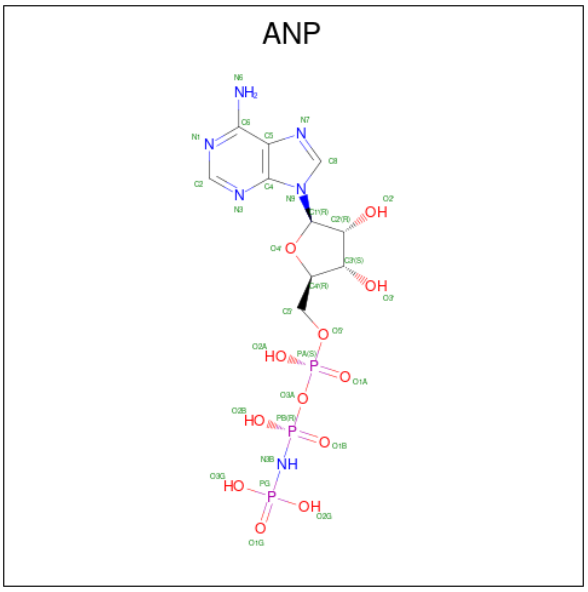
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
2	A	1	27	10	5	10	2	0

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 4 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			31	10	6	12	3	
4	A	1	Total	C	N	O	P	0
			31	10	6	12	3	

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

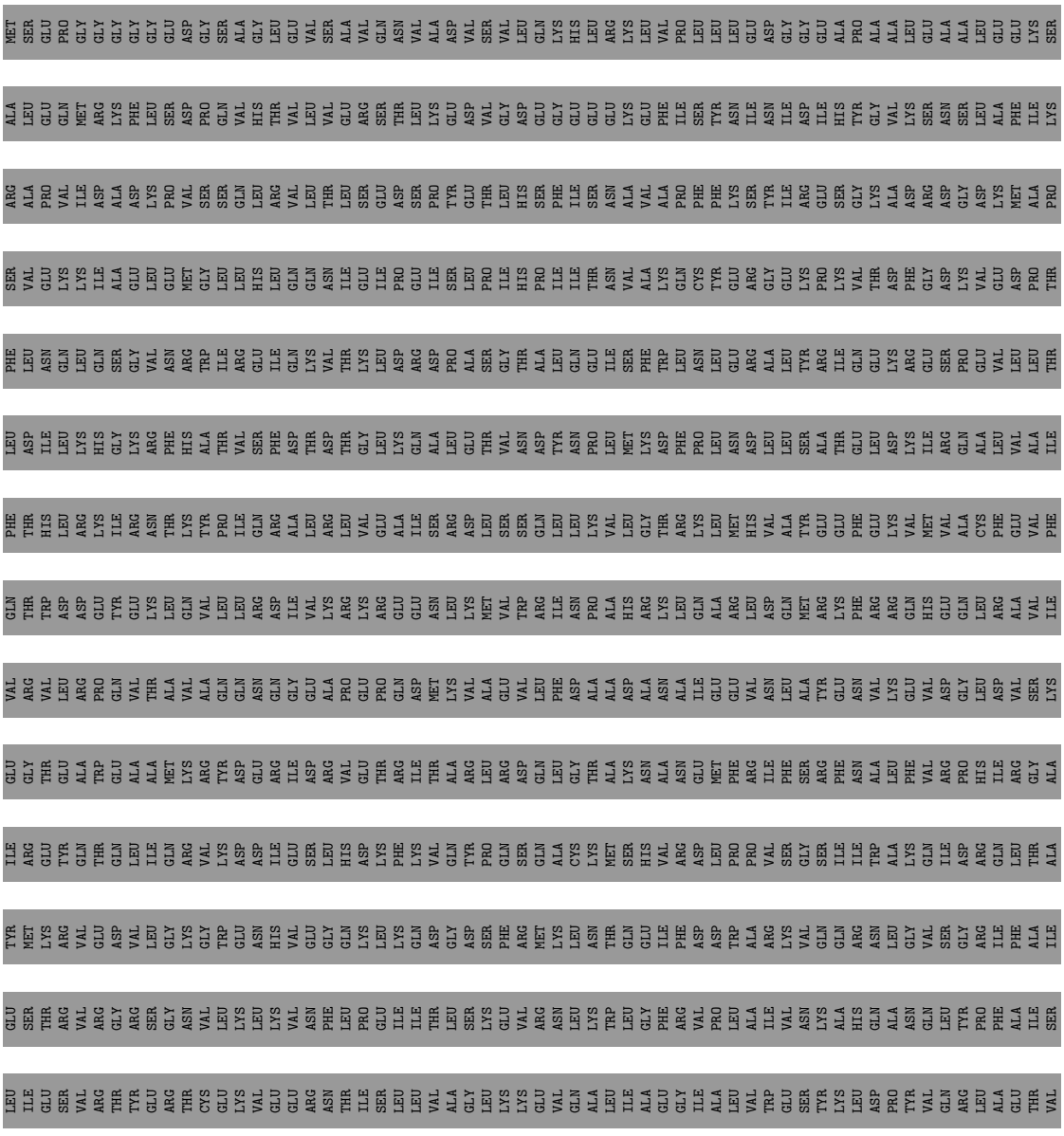
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
5	A	4	4	4	0

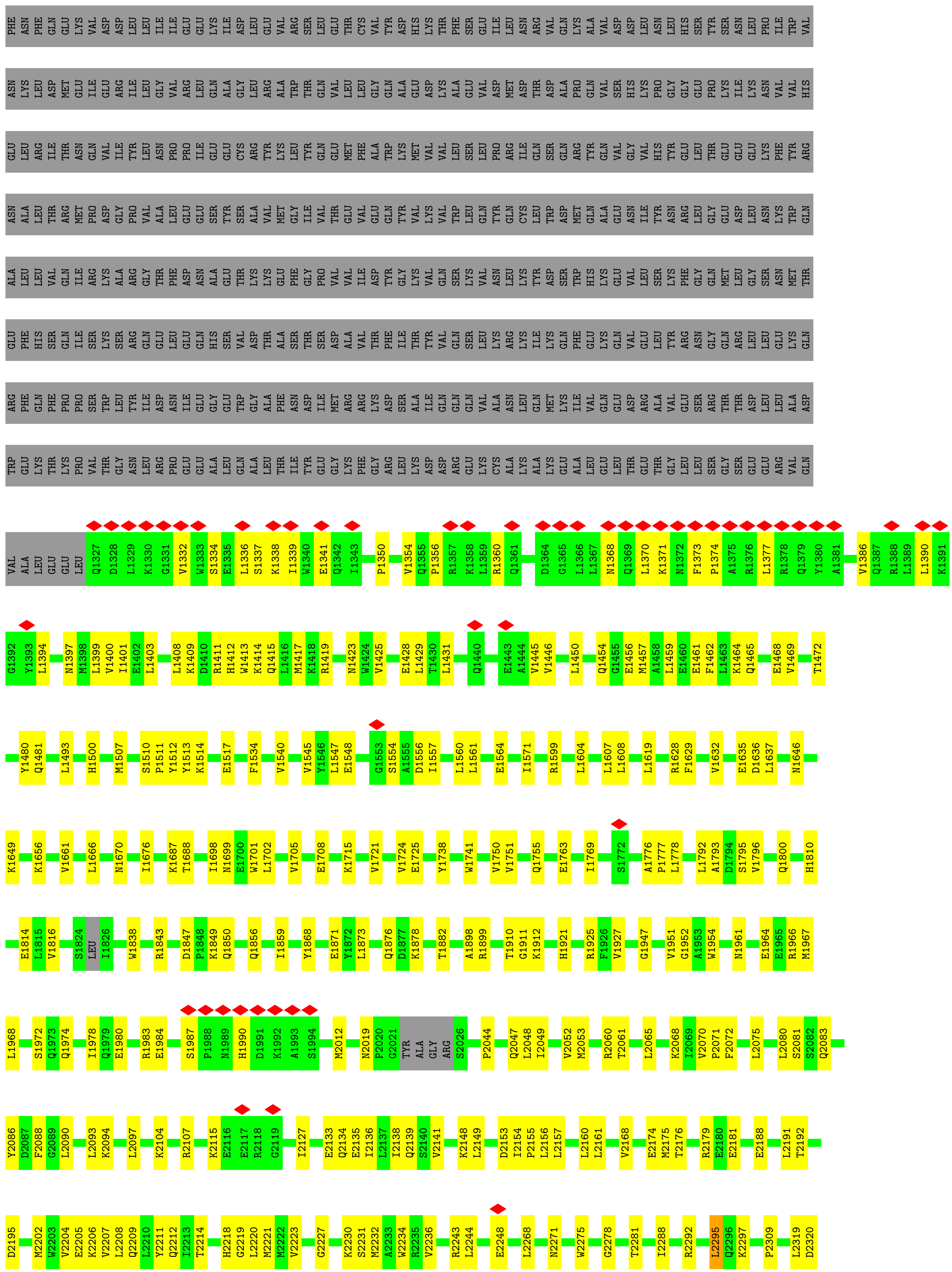
3 Residue-property plots (i)

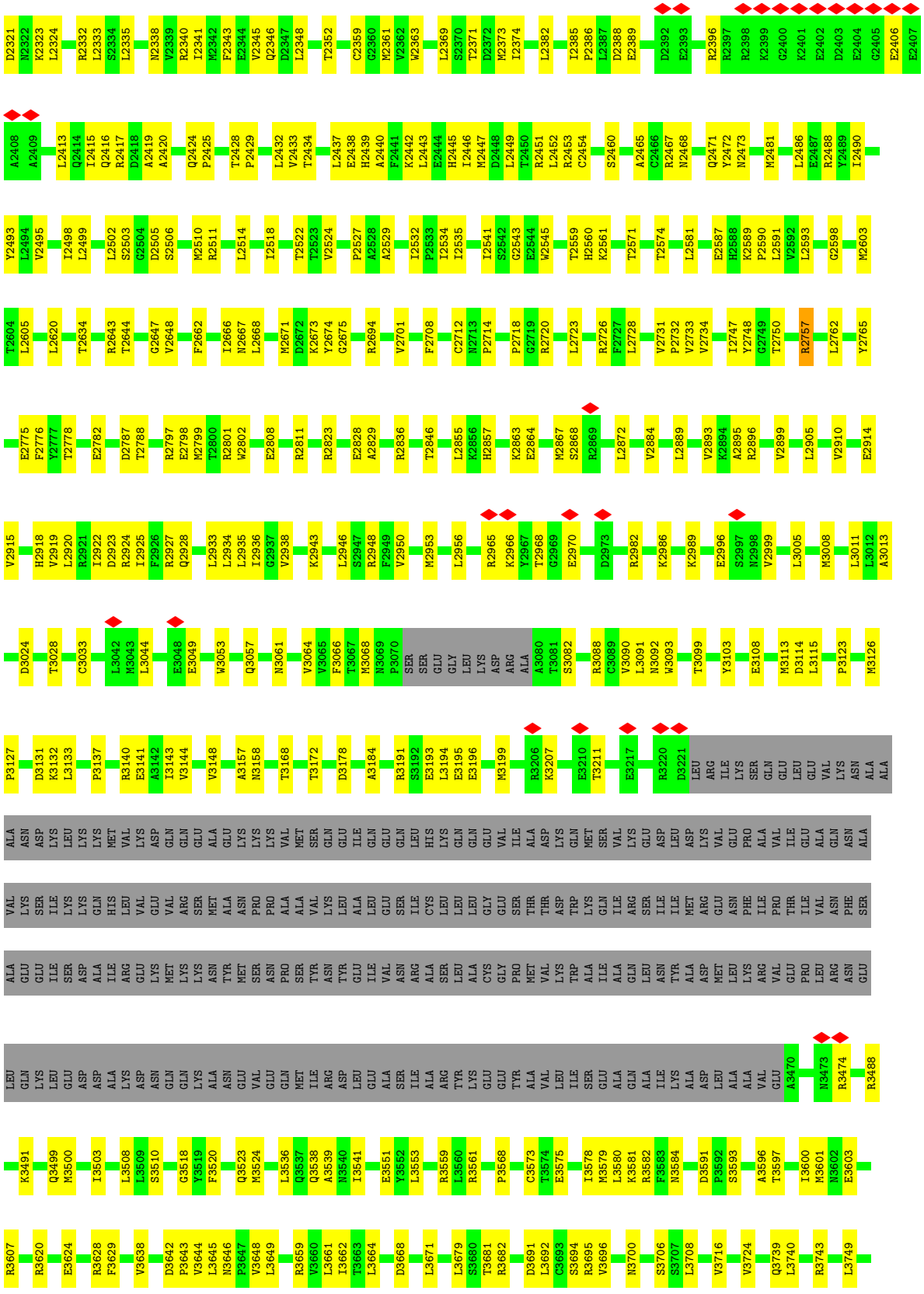
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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.

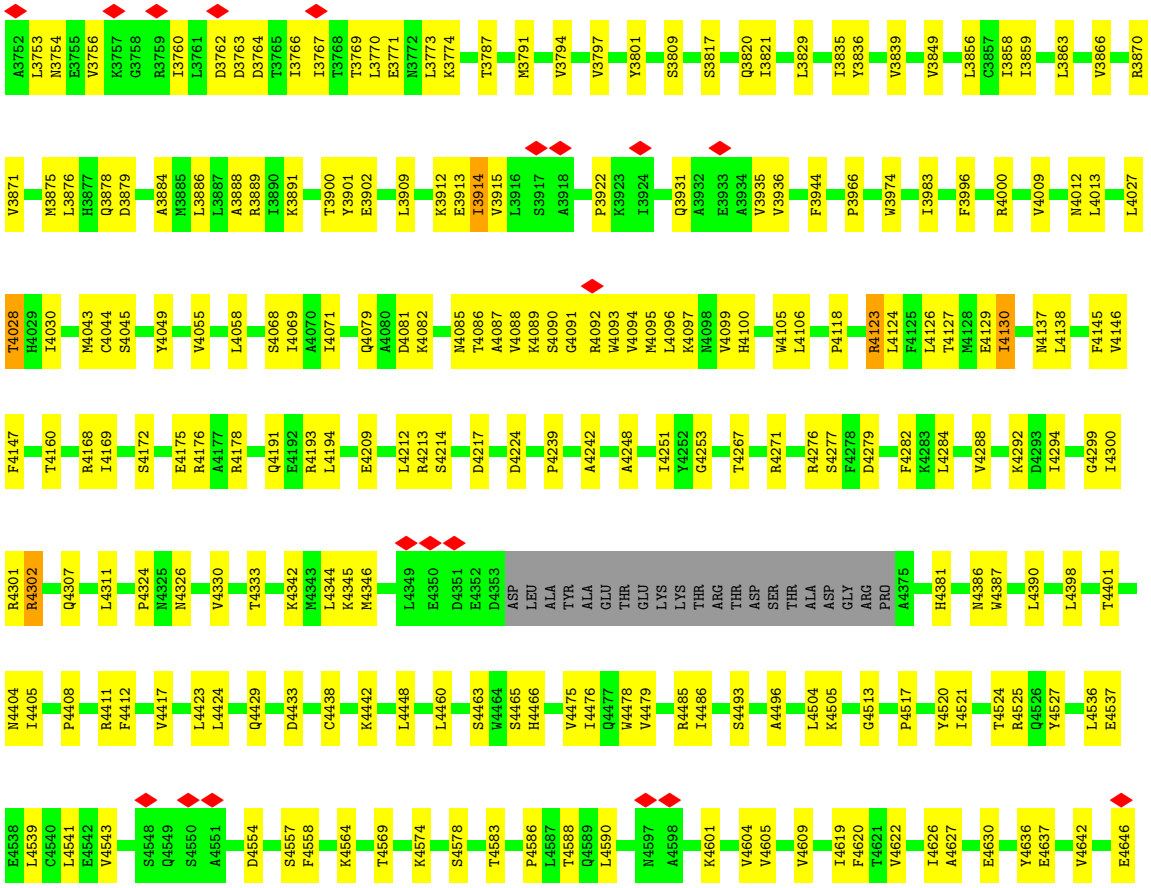
- Molecule 1: Cytoplasmic dynein 1 heavy chain 1

Chain A:




PHE ASN PHE GLN GLU LYS VAL ASP ASP LEU LEU ILE ILE GLU GLU LYS ILE ASP LEU GLU GLU VAL ARG SER LEU GLU THR CYS VAL TYR ASP HIS LYS THR PHE SER GLU ILE LEU ASN ARG VAL GLN LYS ALA VAL ASP ASP LEU ASN LEU HIS SER TYR SER ASN LEU PRO ILE TRP VAL
ASN LYS LEU ASP MET GLU ILE GLU ARG ILE LEU GLY VAL ARG LEU GLN ALA GLY LEU ARG ALA TRP THR GLN VAL LEU LEU GLY GLN ALA GLU ASP LYS ALA GLU VAL ASP MET ASP THR ASP ALA PRO GLN VAL SER HIS LYS PRO GLY GLY GLU PRO LYS ILE LYS ASN VAL VAL HIS
GLU LEU ARG ILE THR ASN GLN VAL ILE TYR LEU ASN PRO PRO ILE GLU GLU CYS ARG TYR LYS LEU TYR GLN GLU MET PHE ALA TRP LYS MET VAL VAL LEU SER LEU PRO ARG ILE GLN SER GLN ARG TYR GLN VAL GLY VAL HIS TYR GLU LEU THR GLU GLU GLU LYS PHE TYR ARG
ASN ALA LEU THR ARG MET PRO ASP GLY PRO VAL ALA LEU GLU GLU SER TYR SER ALA VAL MET GLY ILE VAL THR GLU VAL GLU GLN TYR VAL LYS VAL TRP LEU GLN TYR GLN CYS LEU TRP ASP MET GLN ALA GLU ASN ILE TYR ASN ARG LEU GLY GLU ASP LEU ASN LYS TRP GLN
ALA LEU LEU VAL GLN ILE ARG LYS ALA ARG GLY THR PHE ASP ASN ALA GLU THR LYS LYS GLU PHE GLY PRO VAL VAL ILE ASP TYR GLY LYS VAL GLN SER LYS VAL ASN LEU LYS TYR ASP SER TRP HIS LYS GLU VAL LEU SER LYS PHE GLY GLN MET LEU GLY SER ASN MET THR
GLU PHE HIS SER GLN ILE SER LYS SER ARG GLN GLU LEU GLU GLN HIS SER VAL ASP THR ALA SER THR SER ASP ALA ALA VAL THR PHE ILE THR TYR VAL GLN SER LEU LYS ARG LYS ILE LYS GLN PHE GLU LYS GLN VAL GLU LEU TYR ARG ASN GLY GLN ARG LEU LEU GLU LYS GLN
ARG PHE GLN PHE PRO PRO SER TRP LEU TYR ILE ASP ASN ILE GLU GLY GLU TRP GLY ALA PHE ASN ASP ILE MET ARG ARG LYS ASP SER ALA ILE GLN GLN GLN VAL ALA ASN LEU GLN MET LYS ILE VAL GLN GLU ASP ARG ALA VAL GLU SER ARG THR THR ASP LEU LEU ALA ASP
TRP GLU LYS THR LYS PRO VAL THR GLY ASN LEU ARG PRO GLU GLU ALA LEU GLN ALA LEU THR ILE TYR GLU GLY LYS PHE GLY ARG LEU LYS ASP ASP ARG GLU LYS CYS ALA LYS ALA LYS GLU ALA LEU GLU LEU THR GLU THR GLY LEU LEU SER GLY SER GLU GLU ARG VAL GLN
VAL ALA LEU GLU GLU LEU Q1327 D1328 L1329 K1330 G1331 V1332 W1333 S1334 E1335 L1336 S1337 K1338 I1339 W1340 E1341 Q1342 I1343 P1350 V1354 Q1355 P1356 R1357 K1358 L1359 R1360 Q1361 D1364 G1365 L1366 L1367 N1368 Q1369 L1370 K1371 N1372 F1373 P1374 A1375 R1376 L1377 R1378 Q1379 Y1380 A1381 V1386 Q1387 R1388 L1389 L1390 K1391
G1392 Y1393 L1394 N1397 M1398 L1399 V1400 I1401 E1402 L1403 L1408 K1409 D1410 R1411 H1412 W1413 K1414 Q1415 L1416 M1417 K1418 R1419 N1423 W1424 V1425 E1428 L1429 T1430 L1431 Q1440 E1443 A1444 V1445 V1446 L1450 Q1454 G1455 E1456 M1457 A1458 L1459 E1460 E1461 F1462 L1463 K1464 Q1465 E1468 V1469 T1472
Y1480 Q1481 L1493 H1500 M1507 S1510 P1511 Y1512 Y1513 K1514 E1517 F1534 V1540 V1545 Y1546 L1547 E1548 G1553 S1554 A1555 D1556 I1557 L1560 L1561 E1564 I1571 R1599 L1604 L1607 L1608 L1619 R1628 F1629 V1632 E1635 D1636 L1637 N1646
K1649 K1656 V1661 L1666 N1670 I1676 K1687 T1688 I1698 N1699 E1700 W1701 L1702 V1705 E1708 K1715 V1721 V1724 E1725 Y1738 W1741 V1750 V1751 Q1755 E1763 I1769 S1772 A1776 P1777 L1778 L1792 A1793 D1794 S1795 V1796 Q1800 H1810
E1814 L1815 V1816 S1824 LEU I1826 W1838 R1843 D1847 P1848 K1849 Q1850 Q1856 I1859 Y1868 E1871 Y1872 L1873 Q1876 D1877 K1878 T1882 A1898 R1899 T1910 G1911 K1912 H1921 R1925 F1926 V1927 G1947 V1951 G1952 A1953 W1954 N1961 E1964 E1965 R1966 M1967
L1968 S1972 Q1973 Q1974 I1978 Q1979 E1980 R1983 E1984 S1987 P1988 N1989 H1990 D1991 K1992 A1993 S1994 M2012 N2019 P2020 G2021 TYR ALA GLY ARG S2026 P2044 Q2047 L2048 I2049 V2052 M2053 R2060 T2061 L2065 K2068 I2069 V2070 P2071 F2072 L2075 L2080 S2081 S2082 Q2083
Y2086 D2087 F2088 G2089 L2090 L2093 K2094 L2097 K2104 R2107 K2115 E2116 E2117 R2118 G2119 I2127 E2133 Q2134 E2135 I2136 L2137 I2138 Q2139 S2140 V2141 K2148 L2149 D2153 I2154 P2155 L2156 L2157 L2160 L2161 V2168 E2174 M2175 T2176 R2179 E2180 E2181 E2188 L2191 T2192
D2195 M2202 W2203 V2204 E2205 K2206 V2207 L2208 Q2209 L2210 Y2211 Q2212 I2213 T2214 H2218 G2219 L2220 M2221 M2222 V2223 G2227 K2230 S2231 M2232 A2233 W2234 R2235 V2236 R2243 L2244 E2248 L2268 N2271 W2275 G2278 T2281 I2288 R2292 L2295 Q2296 K2297 P2309 L2319 D2320




A3752 L3753 N3754 E3755 V3756 K3757 G3758 R3759 I3760 L3761 D3762 D3763 D3764 T3765 I3766 I3767 T3768 T3769 L3770 E3771 N3772 L3773 K3774 T3787 M3791 V3794 V3797 Y3801 S3809 S3817 Q3820 I3821 L3829 I3835 Y3836 V3839 V3849 L3856 C3857 I3858 I3859 L3863 V3866 R3870
V3871 M3875 L3876 H3877 Q3878 D3879 A3884 M3885 L3886 L3887 A3888 R3889 I3890 K3891 T3900 Y3901 E3902 L3909 K3912 E3913 I3914 V3915 L3916 S3917 A3918 P3922 K3923 I3924 Q3931 A3932 E3933 A3934 V3935 V3936 F3944 P3966 W3974 I3983 F3996 R4000 V4009 N4012 L4013 L4027
T4028 H4029 I4030 M4043 C4044 S4045 Y4049 V4055 L4058 S4068 I4069 A4070 I4071 Q4079 A4080 D4081 K4082 N4085 T4086 A4087 V4088 K4089 S4090 G4091 R4092 W4093 V4094 M4095 L4096 K4097 N4098 V4099 H4100 W4105 L4106 P4118 R4123 L4124 F4125 L4126 T4127 N4128 E4129 T4130 N4137 L4138 F4145 V4146
F4147 T4160 R4168 I4169 S4172 E4175 R4176 A4177 R4178 Q4191 E4192 R4193 L4194 E4209 L4212 R4213 S4214 D4217 D4224 P4239 A4242 A4248 I4251 Y4252 G4253 T4267 R4271 R4276 S4277 F4278 D4279 F4282 K4283 L4284 V4288 K4292 D4293 I4294 G4299 I4300
R4301 R4302 Q4307 L4311 P4324 N4325 N4326 V4330 T4333 K4342 M4343 L4344 K4345 M4346 L4349 E4350 D4351 E4352 D4353 ASP LEU ALA TYR ALA GLU THR GLU LYS LYS THR ARG THR ASP SER THR ALA ASP GLY ARG PRO A4375 H4381 N4386 W4387 L4390 L4398 T4401
N4404 I4405 P4408 R4411 F4412 V4417 L4423 L4424 Q4429 D4433 C4438 K4442 L4448 L4460 S4463 W4464 S4465 H4466 V4475 I4476 Q4477 W4478 V4479 R4485 I4486 S4493 A4496 L4504 K4505 G4513 P4517 Y4520 I4521 T4524 R4525 Q4526 Y4527 L4536 E4537
E4538 L4539 C4540 L4541 E4542 V4543 S4548 Q4549 S4550 A4551 D4554 S4557 F4558 K4564 T4569 K4574 S4578 T4583 P4586 L4587 T4588 Q4589 L4590 N4597 A4598 K4601 V4604 V4605 V4609 I4619 F4620 T4621 V4622 I4626 A4627 E4630 Y4636 E4637 V4642 E4646

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	106660	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.813	Depositor
Minimum map value	-1.093	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.046	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	333.312, 333.312, 333.312	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.302, 1.302, 1.302	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.37	0/24982	0.49	0/33848

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	5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1360	ARG	Sidechain
1	A	2292	ARG	Sidechain
1	A	2757	ARG	Sidechain
1	A	4123	ARG	Sidechain
1	A	4302	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	24461	0	24528	508	0
2	A	27	0	12	2	0
3	A	31	0	12	2	0
4	A	62	0	26	4	0
5	A	4	0	0	0	0
All	All	24585	0	24578	508	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 10.

All (508) 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:2598:GLY:H	4:A:4703:ANP:HNB1	1.23	0.85
1:A:3638:VAL:HG12	1:A:3681:THR:HB	1.64	0.79
1:A:1370:LEU:HD11	1:A:1390:LEU:HD12	1.66	0.77
1:A:2581:LEU:HD21	1:A:2605:LEU:HD23	1.68	0.75
1:A:2506:SER:HB3	1:A:2510:MET:HB2	1.71	0.70
1:A:4569:THR:HG22	1:A:4583:THR:HG21	1.73	0.70
1:A:2590:PRO:HB2	1:A:2731:VAL:HG12	1.75	0.69
1:A:4079:GLN:HA	1:A:4082:LYS:HE3	1.73	0.68
1:A:1898:ALA:O	1:A:1983:ARG:NH1	2.26	0.67
1:A:3474:ARG:HE	1:A:3764:ASP:HB3	1.59	0.67
1:A:3691:ASP:OD1	1:A:3695:ARG:NH1	2.27	0.67
1:A:4408:PRO:HA	1:A:4411:ARG:HE	1.59	0.67
1:A:4160:THR:HG23	1:A:4212:LEU:HD21	1.75	0.66
1:A:1374:PRO:HD2	1:A:1377:LEU:HD12	1.77	0.66
1:A:3194:LEU:HD22	1:A:3500:MET:HE3	1.75	0.66
1:A:2179:ARG:NH2	1:A:2195:ASP:OD1	2.28	0.66
1:A:4574:LYS:HB3	1:A:4627:ALA:HB2	1.76	0.66
1:A:1336:LEU:HA	1:A:1339:ILE:HD12	1.77	0.66
1:A:4541:LEU:HD11	1:A:4590:LEU:HB3	1.77	0.66
1:A:1462:PHE:HB2	1:A:3628:ARG:HD2	1.78	0.65
1:A:4276:ARG:NH2	1:A:4279:ASP:OD2	2.30	0.65
1:A:2148:LYS:HG2	1:A:2361:MET:HB3	1.78	0.65
1:A:2925:ILE:HG21	1:A:2933:LEU:HB2	1.78	0.65
1:A:4009:VAL:HG13	1:A:4013:LEU:HD12	1.79	0.65
1:A:3113:MET:HE2	1:A:3184:ALA:HA	1.78	0.65
1:A:4099:VAL:HB	1:A:4106:LEU:HD21	1.78	0.64
1:A:4564:LYS:HG3	1:A:4646:GLU:HB2	1.79	0.64
1:A:2221:MET:HE3	1:A:2343:PHE:HD2	1.61	0.64
1:A:2324:LEU:HD11	1:A:2332:ARG:HB3	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2320:ASP:OD1	1:A:2321:ASP:N	2.31	0.63
1:A:2428:THR:HB	1:A:2429:PRO:HD2	1.81	0.63
1:A:4176:ARG:NH2	1:A:4224:ASP:OD1	2.31	0.63
1:A:1666:LEU:HB3	1:A:1670:ASN:HA	1.80	0.63
1:A:2925:ILE:HG13	1:A:2933:LEU:HD13	1.79	0.63
1:A:4543:VAL:HG21	1:A:4622:VAL:HG12	1.79	0.63
1:A:1571:ILE:HG23	1:A:1604:LEU:HD22	1.80	0.62
1:A:3871:VAL:HG12	1:A:3875:MET:HE2	1.80	0.62
1:A:3839:VAL:HG21	1:A:3863:LEU:HA	1.82	0.62
1:A:3820:GLN:HE21	1:A:4345:LYS:HG2	1.63	0.62
1:A:3113:MET:O	1:A:3140:ARG:NH2	2.32	0.62
1:A:3113:MET:HB3	1:A:3115:LEU:HG	1.82	0.62
1:A:1417:MET:HE1	1:A:1423:ASN:HA	1.82	0.61
1:A:4193:ARG:NH2	1:A:4637:GLU:O	2.25	0.61
1:A:2453:ARG:NH1	1:A:2505:ASP:OD2	2.33	0.61
1:A:2889:LEU:HD13	1:A:2920:LEU:HD11	1.82	0.61
1:A:2385:ILE:O	1:A:2416:GLN:NE2	2.32	0.61
1:A:2138:ILE:HG13	1:A:2161:LEU:HD21	1.82	0.60
1:A:4172:SER:O	1:A:4176:ARG:NH1	2.33	0.60
1:A:2149:LEU:HD11	1:A:2157:LEU:HD22	1.82	0.59
1:A:2433:VAL:HG22	1:A:2498:ILE:HD11	1.85	0.59
1:A:2728:LEU:HA	1:A:2731:VAL:HG22	1.84	0.59
1:A:2605:LEU:HD13	1:A:2662:PHE:HE1	1.67	0.59
1:A:3749:LEU:HD11	1:A:3770:LEU:HG	1.83	0.59
1:A:2230:LYS:NZ	1:A:2345:VAL:O	2.35	0.59
1:A:3488:ARG:HA	1:A:3491:LYS:HE2	1.85	0.58
1:A:3553:LEU:HB2	1:A:3578:ILE:HD13	1.85	0.58
1:A:3886:LEU:HD11	1:A:4346:MET:HG3	1.86	0.58
1:A:4071:ILE:HG13	1:A:4099:VAL:HG12	1.84	0.58
1:A:2447:MET:HG3	1:A:2733:VAL:HG11	1.86	0.58
1:A:4300:ILE:HG13	1:A:4301:ARG:HD3	1.85	0.58
1:A:1961:ASN:ND2	1:A:2019:ASN:O	2.37	0.57
1:A:2386:PRO:HG3	1:A:2413:LEU:HD22	1.85	0.57
1:A:2107:ARG:NH2	1:A:2139:GLN:OE1	2.33	0.57
1:A:3624:GLU:HG2	1:A:3664:LEU:HD23	1.87	0.57
1:A:1964:GLU:HG2	1:A:1967:MET:HE2	1.85	0.57
1:A:2968:THR:HG22	1:A:2970:GLU:H	1.70	0.57
1:A:4030:ILE:HG21	1:A:4145:PHE:HZ	1.70	0.57
1:A:2593:LEU:HD23	1:A:2734:VAL:HB	1.86	0.57
1:A:4068:SER:HA	1:A:4095:MET:HB3	1.87	0.57
1:A:2559:THR:HG22	1:A:2757:ARG:HB3	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2776:PHE:HZ	1:A:2846:THR:HG23	1.68	0.57
1:A:1687:LYS:HG3	1:A:1715:LYS:HD2	1.86	0.56
1:A:2324:LEU:HD21	1:A:2332:ARG:HG2	1.87	0.56
1:A:4175:GLU:OE1	1:A:4175:GLU:N	2.38	0.56
1:A:3211:THR:HG21	1:A:3753:LEU:HD11	1.86	0.56
1:A:3510:SER:HB3	1:A:3553:LEU:HD21	1.86	0.56
1:A:1688:THR:OG1	1:A:1708:GLU:OE2	2.16	0.56
1:A:2472:TYR:CD1	1:A:2541:ILE:HG21	2.40	0.56
1:A:3008:MET:HG2	1:A:3066:PHE:HZ	1.69	0.56
1:A:2396:ARG:NH1	1:A:2406:GLU:OE2	2.39	0.56
1:A:2511:ARG:HD3	1:A:2535:ILE:HD13	1.87	0.56
1:A:3661:LEU:HD12	1:A:3668:ASP:HB3	1.86	0.56
1:A:1397:ASN:O	1:A:1401:ILE:HD12	2.05	0.56
1:A:1510:SER:HB2	1:A:3629:PHE:HB3	1.87	0.56
1:A:2188:GLU:OE1	1:A:2243:ARG:NH1	2.39	0.56
1:A:1545:VAL:O	1:A:1548:GLU:HG3	2.06	0.56
1:A:3708:LEU:HD23	1:A:3809:SER:HA	1.87	0.56
1:A:4543:VAL:HG13	1:A:4588:THR:HG23	1.88	0.55
1:A:2694:ARG:HG3	1:A:2701:VAL:HG21	1.87	0.55
1:A:3889:ARG:HH12	1:A:3909:LEU:HD11	1.71	0.55
1:A:3931:GLN:O	1:A:3935:VAL:HG23	2.06	0.55
1:A:3620:ARG:NH2	1:A:3642:ASP:OD2	2.39	0.55
1:A:2965:ARG:HG3	1:A:2966:LYS:HD2	1.88	0.55
1:A:4088:VAL:HG23	1:A:4118:PRO:HA	1.88	0.55
1:A:4386:ASN:O	1:A:4390:LEU:HG	2.05	0.55
1:A:2192:THR:HB	1:A:2373:MET:HG2	1.89	0.55
1:A:2075:LEU:HD11	1:A:4536:LEU:CD2	2.38	0.54
1:A:3716:VAL:HG23	1:A:3836:TYR:OH	2.06	0.54
1:A:3879:ASP:OD1	1:A:4342:LYS:NZ	2.35	0.54
1:A:4465:SER:OG	1:A:4478:TRP:NE1	2.41	0.54
1:A:3194:LEU:HD11	1:A:3499:GLN:HB2	1.89	0.54
1:A:3835:ILE:HG23	1:A:3866:VAL:HG12	1.90	0.54
1:A:2075:LEU:HD11	1:A:4536:LEU:HD22	1.88	0.54
1:A:2104:LYS:HA	1:A:2136:ILE:HD13	1.89	0.54
1:A:2374:ILE:HD13	1:A:2452:LEU:HD21	1.89	0.54
1:A:2914:GLU:O	1:A:2918:HIS:ND1	2.28	0.54
1:A:1368:ASN:HA	1:A:1371:LYS:HD2	1.89	0.54
1:A:4398:LEU:HD21	1:A:4493:SER:HA	1.90	0.54
1:A:3172:THR:HG21	1:A:3694:SER:HB3	1.89	0.54
1:A:4527:TYR:CD2	1:A:4558:PHE:HZ	2.25	0.54
1:A:4398:LEU:HG	1:A:4417:VAL:HG21	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1632:VAL:HG12	1:A:1656:LYS:HD2	1.90	0.53
1:A:3499:GLN:O	1:A:3503:ILE:HG13	2.08	0.53
1:A:3551:GLU:HG3	1:A:3559:ARG:NH1	2.23	0.53
1:A:1457:MET:HE2	1:A:3659:ARG:HB3	1.90	0.53
1:A:2081:SER:O	1:A:2083:GLN:HG2	2.08	0.53
1:A:2797:ARG:NH1	4:A:4703:ANP:O1G	2.36	0.53
1:A:1925:ARG:HG2	1:A:1954:TRP:CD1	2.42	0.53
1:A:2910:VAL:HG22	1:A:3108:GLU:HG2	1.90	0.53
1:A:2936:ILE:HG23	1:A:3093:TRP:HE3	1.73	0.53
1:A:3123:PRO:HG3	1:A:3539:ALA:HA	1.89	0.53
1:A:4093:TRP:CD1	1:A:4123:ARG:HB2	2.43	0.53
1:A:2156:LEU:O	1:A:2160:LEU:HG	2.09	0.53
1:A:2309:PRO:HB3	1:A:2352:THR:HG23	1.90	0.53
1:A:2775:GLU:OE1	1:A:2857:HIS:NE2	2.40	0.53
1:A:3891:LYS:HD2	1:A:4013:LEU:HD23	1.91	0.53
1:A:2446:ILE:HD11	1:A:2714:PRO:HB3	1.91	0.53
1:A:2718:PRO:HG2	1:A:3082:SER:HA	1.90	0.53
1:A:3659:ARG:HG3	1:A:3661:LEU:HD21	1.90	0.53
1:A:4525:ARG:HE	1:A:4539:LEU:HB2	1.73	0.53
1:A:3581:LYS:NZ	1:A:3582:ARG:HH11	2.06	0.53
1:A:1947:GLY:O	1:A:1951:VAL:HG12	2.08	0.53
1:A:2437:LEU:HD21	1:A:2451:ARG:HG3	1.89	0.53
1:A:2248:GLU:HG2	1:A:2297:LYS:NZ	2.23	0.53
1:A:2591:LEU:HA	1:A:2732:PRO:HD2	1.91	0.53
1:A:3644:VAL:HG22	1:A:3664:LEU:HD12	1.91	0.53
1:A:2060:ARG:HG3	1:A:2061:THR:HG23	1.91	0.52
1:A:2488:ARG:HH21	1:A:2543:GLY:H	1.57	0.52
1:A:2644:THR:OG1	1:A:2647:GLY:O	2.26	0.52
1:A:3835:ILE:HG12	1:A:3870:ARG:HG3	1.91	0.52
1:A:2218:HIS:HA	1:A:2340:ARG:HD3	1.90	0.52
1:A:3901:TYR:HE2	1:A:3983:ILE:HG23	1.75	0.52
1:A:2080:LEU:HD12	1:A:2088:PHE:CZ	2.44	0.52
1:A:2154:ILE:N	1:A:2155:PRO:HD2	2.24	0.52
1:A:3088:ARG:NH1	4:A:4703:ANP:O1G	2.42	0.52
1:A:2065:LEU:HD11	1:A:2133:GLU:HB3	1.91	0.52
1:A:2449:LEU:HD11	1:A:2454:CYS:SG	2.49	0.52
1:A:2896:ARG:HG3	1:A:2953:MET:HE3	1.92	0.52
1:A:1882:THR:HG22	1:A:2048:LEU:HD23	1.92	0.52
1:A:3593:SER:O	1:A:3682:ARG:NH2	2.43	0.52
1:A:1755:GLN:HG3	1:A:1814:GLU:OE2	2.09	0.52
1:A:2808:GLU:OE1	1:A:2811:ARG:NH2	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2440:ALA:HB2	1:A:2502:LEU:HB3	1.90	0.51
1:A:3762:ASP:OD1	1:A:3763:ASP:N	2.43	0.51
1:A:1513:TYR:CZ	1:A:1517:GLU:HG2	2.45	0.51
1:A:4271:ARG:NH1	1:A:4284:LEU:O	2.38	0.51
1:A:1419:ARG:HD2	1:A:1445:VAL:HG13	1.91	0.51
1:A:2481:MET:HE2	1:A:2486:LEU:HA	1.92	0.51
1:A:4071:ILE:HD11	1:A:4096:LEU:HD22	1.93	0.51
1:A:4520:TYR:O	1:A:4524:THR:HG23	2.10	0.51
1:A:3520:PHE:HB3	1:A:3524:MET:HB3	1.93	0.51
1:A:2072:PHE:HE2	1:A:2141:VAL:HG11	1.76	0.51
1:A:2295:LEU:HA	1:A:2338:ASN:ND2	2.26	0.51
1:A:2424:GLN:HB3	1:A:2425:PRO:HD3	1.92	0.51
1:A:3133:LEU:HD21	1:A:3137:PRO:HB3	1.93	0.51
1:A:4086:THR:O	1:A:4090:SER:OG	2.26	0.51
1:A:2053:MET:HE1	1:A:2094:LYS:HB3	1.92	0.51
1:A:2181:GLU:HG3	1:A:2244:LEU:HB2	1.92	0.51
1:A:3679:LEU:HD12	1:A:3696:VAL:HG11	1.93	0.51
1:A:4543:VAL:HG21	1:A:4622:VAL:CG1	2.40	0.51
1:A:2499:LEU:O	1:A:2503:SER:OG	2.25	0.50
1:A:1964:GLU:OE2	1:A:1966:ARG:NH1	2.45	0.50
1:A:3131:ASP:OD1	1:A:3132:LYS:N	2.44	0.50
1:A:2747:ILE:O	1:A:2750:THR:OG1	2.27	0.50
1:A:3561:ARG:NH1	1:A:3603:GLU:OE1	2.44	0.50
1:A:3580:LEU:HD13	1:A:3600:ILE:HD11	1.93	0.50
1:A:4288:VAL:HG21	1:A:4294:ILE:HG13	1.94	0.50
1:A:2231:SER:HA	1:A:2234:TRP:CD1	2.46	0.50
1:A:3044:LEU:HD22	1:A:3049:GLU:HG2	1.93	0.50
1:A:3551:GLU:HG3	1:A:3559:ARG:HH12	1.77	0.50
1:A:2919:VAL:HG13	1:A:2950:VAL:HG22	1.94	0.50
1:A:3194:LEU:HD13	1:A:3500:MET:HE2	1.94	0.50
1:A:1816:VAL:HG11	1:A:2052:VAL:HG22	1.93	0.50
1:A:2666:ILE:HB	1:A:2712:CYS:SG	2.52	0.50
1:A:3143:ILE:HD13	1:A:3541:ILE:HD13	1.93	0.50
1:A:4342:LYS:O	1:A:4346:MET:HG2	2.12	0.50
1:A:1661:VAL:HG22	1:A:1676:ILE:HD12	1.94	0.49
1:A:3191:ARG:O	1:A:3195:GLU:HG3	2.12	0.49
1:A:4099:VAL:HG21	1:A:4126:LEU:HB3	1.94	0.49
1:A:3912:LYS:HB2	1:A:4476:ILE:HG21	1.94	0.49
1:A:1399:LEU:HD12	1:A:1446:VAL:HG11	1.94	0.49
1:A:2787:ASP:OD1	1:A:2788:THR:N	2.45	0.49
1:A:3591:ASP:OD2	1:A:3596:ALA:HB3	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1332:VAL:HB	1:A:1377:LEU:HD22	1.94	0.49
1:A:3024:ASP:O	1:A:3028:THR:HG23	2.12	0.49
1:A:3771:GLU:OE1	1:A:3774:LYS:NZ	2.34	0.49
1:A:4442:LYS:HE2	1:A:4448:LEU:HD11	1.94	0.49
1:A:4460:LEU:HA	1:A:4475:VAL:HG22	1.93	0.49
1:A:3767:ILE:HA	1:A:3770:LEU:HD13	1.94	0.49
1:A:2872:LEU:HD13	1:A:2889:LEU:HD12	1.95	0.49
1:A:3888:ALA:O	1:A:4012:ASN:ND2	2.46	0.49
1:A:1425:VAL:HB	1:A:1428:GLU:HB2	1.94	0.49
1:A:2179:ARG:HD3	1:A:2208:LEU:HD11	1.94	0.49
1:A:2232:MET:HG3	3:A:4702:ATP:C8	2.48	0.49
1:A:4045:SER:HB3	1:A:4049:TYR:HB3	1.93	0.49
1:A:1751:VAL:HG11	1:A:1878:LYS:HD2	1.94	0.49
1:A:2495:VAL:HG21	1:A:2524:VAL:HG11	1.95	0.49
1:A:1540:VAL:HG13	1:A:1608:LEU:HD12	1.94	0.49
1:A:2209:GLN:O	1:A:2212:GLN:HG2	2.12	0.49
1:A:3127:PRO:HG3	1:A:3538:GLN:HB3	1.94	0.49
1:A:2053:MET:SD	1:A:2094:LYS:HG2	2.53	0.48
1:A:2527:PRO:HD3	1:A:2545:TRP:CE2	2.48	0.48
1:A:2666:ILE:HG22	1:A:2723:LEU:HD21	1.94	0.48
1:A:2223:VAL:HG11	1:A:2348:LEU:HG	1.94	0.48
1:A:2472:TYR:HB2	1:A:2541:ILE:HD12	1.95	0.48
1:A:4069:ILE:HD13	1:A:4079:GLN:HG2	1.95	0.48
1:A:2465:ALA:HB2	1:A:2493:TYR:CD1	2.49	0.48
1:A:3193:GLU:O	1:A:3196:GLU:HG3	2.13	0.48
1:A:3597:THR:O	1:A:3601:MET:HG2	2.13	0.48
1:A:2415:ILE:HD11	1:A:2473:ASN:HD22	1.79	0.48
1:A:2965:ARG:HE	1:A:2966:LYS:HD2	1.79	0.48
1:A:4081:ASP:OD1	1:A:4082:LYS:N	2.47	0.48
1:A:1721:VAL:HA	1:A:1724:VAL:HG12	1.94	0.48
1:A:2918:HIS:O	1:A:2922:ILE:HG13	2.13	0.48
1:A:4178:ARG:NH2	1:A:4299:GLY:O	2.46	0.48
1:A:2446:ILE:HG23	1:A:2447:MET:HG2	1.95	0.48
1:A:3659:ARG:HG3	1:A:3661:LEU:CD2	2.44	0.48
1:A:1403:LEU:HD21	1:A:1446:VAL:HG13	1.94	0.48
1:A:1556:ASP:O	1:A:1560:LEU:HG	2.13	0.48
1:A:3766:ILE:O	1:A:3769:THR:HG22	2.14	0.48
1:A:3801:TYR:HD1	1:A:3856:LEU:HD13	1.79	0.48
1:A:3157:ALA:HB1	1:A:3524:MET:HE2	1.96	0.48
1:A:2757:ARG:HG3	1:A:2757:ARG:HH11	1.79	0.47
1:A:3488:ARG:HH12	1:A:3773:LEU:HB3	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3575:GLU:O	1:A:3579:MET:HG3	2.14	0.47
1:A:1769:ILE:HD11	1:A:1778:LEU:HB2	1.96	0.47
1:A:3123:PRO:HG2	1:A:3126:MET:HG3	1.96	0.47
1:A:1403:LEU:HD23	1:A:1450:LEU:HD11	1.96	0.47
1:A:1987:SER:HB3	1:A:1990:HIS:CD2	2.49	0.47
1:A:2534:ILE:HD12	1:A:2534:ILE:H	1.79	0.47
1:A:1628:ARG:NH2	1:A:1871:GLU:OE1	2.47	0.47
1:A:3194:LEU:HD13	1:A:3500:MET:CE	2.44	0.47
1:A:4424:LEU:HD13	1:A:4486:ILE:HG13	1.95	0.47
1:A:2439:HIS:HA	1:A:2442:LYS:HD2	1.97	0.47
1:A:3817:SER:C	1:A:4346:MET:HE1	2.39	0.47
1:A:1397:ASN:O	1:A:1400:VAL:HB	2.14	0.47
1:A:1469:VAL:HG11	1:A:1500:HIS:CE1	2.50	0.47
1:A:2268:LEU:HB3	1:A:2275:TRP:HE3	1.79	0.47
1:A:2371:THR:HG22	1:A:2451:ARG:HD2	1.97	0.47
1:A:3849:VAL:HG11	1:A:3858:ILE:HD12	1.96	0.47
1:A:4044:CYS:HB3	1:A:4130:ILE:HG12	1.96	0.47
1:A:1511:PRO:O	1:A:1514:LYS:NZ	2.37	0.47
1:A:2956:LEU:HG	1:A:2989:LYS:HB3	1.97	0.47
1:A:3935:VAL:HG22	1:A:3996:PHE:HE1	1.79	0.47
1:A:1456:GLU:HG2	1:A:1512:TYR:HB3	1.97	0.47
1:A:3724:VAL:HG13	1:A:3794:VAL:HG12	1.96	0.47
1:A:4137:ASN:OD1	1:A:4138:LEU:N	2.48	0.47
1:A:1850:GLN:HB2	1:A:1856:GLN:HG2	1.97	0.46
1:A:2726:ARG:NH1	3:A:4702:ATP:O3G	2.48	0.46
1:A:4055:VAL:HB	1:A:4095:MET:HE1	1.96	0.46
1:A:1701:TRP:O	1:A:1705:VAL:HG23	2.15	0.46
1:A:2094:LYS:NZ	2:A:4701:ADP:O2'	2.32	0.46
1:A:2080:LEU:HD22	1:A:2153:ASP:HB3	1.97	0.46
1:A:2454:CYS:HB3	1:A:2502:LEU:HD23	1.97	0.46
1:A:3909:LEU:HB3	1:A:4344:LEU:HD21	1.97	0.46
1:A:3591:ASP:O	1:A:3682:ARG:HA	2.15	0.46
1:A:3915:VAL:HG21	1:A:4390:LEU:HD22	1.97	0.46
1:A:1571:ILE:HD11	1:A:1607:LEU:HB3	1.97	0.46
1:A:1619:LEU:HD22	1:A:1637:LEU:HD23	1.97	0.46
1:A:1847:ASP:OD1	1:A:1849:LYS:HG2	2.15	0.46
1:A:3692:LEU:O	1:A:3696:VAL:HG22	2.16	0.46
1:A:4027:LEU:HD11	1:A:4043:MET:HE1	1.96	0.46
1:A:4405:ILE:HD12	1:A:4411:ARG:HG2	1.97	0.46
1:A:1763:GLU:CD	1:A:1838:TRP:HE1	2.23	0.46
1:A:2206:LYS:NZ	1:A:2363:TRP:O	2.32	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2227:GLY:HA3	1:A:2452:LEU:HD12	1.97	0.46
1:A:2445:HIS:NE2	1:A:2449:LEU:HD22	2.31	0.46
1:A:3099:THR:HG23	1:A:3148:VAL:HG11	1.98	0.46
1:A:4094:VAL:HB	1:A:4124:LEU:HD12	1.98	0.46
1:A:1793:ALA:HA	1:A:1796:VAL:HG12	1.98	0.46
1:A:2453:ARG:HD3	1:A:2728:LEU:O	2.16	0.46
1:A:2748:TYR:CD2	1:A:2799:MET:HE3	2.51	0.46
1:A:3044:LEU:HD13	1:A:3049:GLU:HG3	1.97	0.46
1:A:2934:LEU:HD23	1:A:3091:LEU:CD2	2.46	0.46
1:A:1859:ILE:HD11	1:A:1868:TYR:HD1	1.80	0.45
1:A:4267:THR:HG21	1:A:4636:TYR:HD2	1.79	0.45
1:A:2135:GLU:HG2	1:A:2168:VAL:HG13	1.97	0.45
1:A:2135:GLU:HA	1:A:2138:ILE:HG22	1.97	0.45
1:A:2419:ALA:HA	1:A:2490:ILE:HD13	1.98	0.45
1:A:2935:LEU:HD23	1:A:3092:ASN:HB3	1.99	0.45
1:A:3568:PRO:HG2	1:A:3573:CYS:SG	2.56	0.45
1:A:4554:ASP:H	1:A:4557:SER:HB2	1.81	0.45
1:A:2643:ARG:HE	1:A:2648:VAL:HG22	1.80	0.45
1:A:2936:ILE:HA	1:A:3068:MET:O	2.16	0.45
1:A:2996:GLU:HA	1:A:2999:VAL:HB	1.99	0.45
1:A:4214:SER:HB2	1:A:4251:ILE:HG23	1.98	0.45
1:A:1468:GLU:O	1:A:1472:THR:HG22	2.17	0.45
1:A:2775:GLU:O	1:A:2778:THR:OG1	2.35	0.45
1:A:3207:LYS:HZ1	1:A:3754:ASN:HA	1.81	0.45
1:A:3821:ILE:HD12	1:A:4342:LYS:HG2	1.97	0.45
1:A:3839:VAL:HG12	1:A:3859:ILE:HG23	1.98	0.45
1:A:3876:LEU:HD23	1:A:4146:VAL:HG11	1.98	0.45
1:A:2905:LEU:HD23	1:A:2948:ARG:HH22	1.82	0.45
1:A:1480:TYR:OH	1:A:1548:GLU:OE2	2.27	0.45
1:A:1635:GLU:HG2	1:A:1636:ASP:N	2.32	0.45
1:A:2369:LEU:HD12	1:A:2373:MET:HE2	1.99	0.45
1:A:3196:GLU:HA	1:A:3199:MET:HG3	1.97	0.45
1:A:2134:GLN:HE21	1:A:2168:VAL:HG21	1.82	0.45
1:A:2288:ILE:CD1	1:A:2333:LEU:HD22	2.47	0.45
1:A:2346:GLN:HB2	1:A:2726:ARG:HD2	1.98	0.45
1:A:2468:ASN:HA	1:A:2471:GLN:HG2	1.99	0.45
1:A:2560:HIS:O	1:A:2561:LYS:HG2	2.17	0.45
1:A:2884:VAL:HG13	1:A:2889:LEU:HD11	1.98	0.45
1:A:2924:ARG:O	1:A:2928:GLN:HG2	2.16	0.45
1:A:3057:GLN:O	1:A:3061:ASN:HB2	2.16	0.45
1:A:3178:ASP:OD1	1:A:3584:ASN:HB2	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2072:PHE:CE2	1:A:2141:VAL:HG11	2.52	0.45
1:A:2191:LEU:HD12	1:A:2236:VAL:HG21	1.98	0.45
1:A:3900:THR:HB	1:A:3902:GLU:HG3	1.98	0.45
1:A:3944:PHE:CE1	1:A:3974:TRP:HB3	2.52	0.45
1:A:4277:SER:HA	1:A:4282:PHE:CG	2.52	0.45
1:A:2065:LEU:HD21	1:A:2134:GLN:HG2	1.99	0.45
1:A:2452:LEU:HD23	1:A:2452:LEU:HA	1.79	0.45
1:A:2093:LEU:O	1:A:2097:LEU:HG	2.17	0.45
1:A:1459:LEU:HD22	1:A:1507:MET:HG3	1.99	0.44
1:A:1561:LEU:HB3	1:A:1564:GLU:HB2	2.00	0.44
1:A:1721:VAL:O	1:A:1725:GLU:HG3	2.17	0.44
1:A:2202:MET:O	1:A:2205:GLU:HG2	2.18	0.44
1:A:2823:ARG:HH12	1:A:2868:SER:H	1.64	0.44
1:A:3901:TYR:CE2	1:A:3983:ILE:HG23	2.52	0.44
1:A:4401:THR:H	1:A:4404:ASN:HB2	1.82	0.44
1:A:4517:PRO:O	1:A:4521:ILE:HG12	2.18	0.44
1:A:1778:LEU:HD23	1:A:1778:LEU:HA	1.89	0.44
1:A:2323:LYS:HB3	1:A:2335:LEU:HB3	1.98	0.44
1:A:2382:LEU:HD23	1:A:2420:ALA:HB2	1.98	0.44
1:A:2884:VAL:HG11	1:A:2889:LEU:HD21	1.99	0.44
1:A:3643:PRO:O	1:A:3646:ASN:ND2	2.50	0.44
1:A:3724:VAL:HG21	1:A:3797:VAL:HG21	1.98	0.44
1:A:4168:ARG:NH2	1:A:4217:ASP:OD1	2.50	0.44
1:A:3922:PRO:HD2	1:A:3936:VAL:HG21	1.98	0.44
1:A:1334:SER:O	1:A:1338:LYS:HD3	2.17	0.44
1:A:1337:SER:O	1:A:1341:GLU:HG2	2.17	0.44
1:A:1394:LEU:HD23	1:A:1394:LEU:HA	1.85	0.44
1:A:2443:LEU:HD11	1:A:2514:LEU:HB2	2.00	0.44
1:A:2905:LEU:HD23	1:A:2948:ARG:NH2	2.32	0.44
1:A:3878:GLN:HG3	1:A:3879:ASP:OD1	2.17	0.44
1:A:4423:LEU:HD13	1:A:4466:HIS:ND1	2.33	0.44
1:A:1464:LYS:HE3	1:A:1464:LYS:HB2	1.78	0.44
1:A:1599:ARG:HG3	1:A:1599:ARG:HH11	1.81	0.44
1:A:2204:VAL:O	1:A:2207:VAL:HG12	2.18	0.44
1:A:2798:GLU:HG3	1:A:2801:ARG:HH21	1.81	0.44
1:A:2938:VAL:O	1:A:2943:LYS:NZ	2.51	0.44
1:A:2439:HIS:HD2	1:A:2514:LEU:HD12	1.82	0.44
1:A:2778:THR:O	1:A:2782:GLU:HG3	2.17	0.44
1:A:4191:GLN:O	1:A:4194:LEU:HB2	2.18	0.44
1:A:4485:ARG:NH1	1:A:4513:GLY:O	2.51	0.44
1:A:1968:LEU:O	1:A:1972:SER:OG	2.26	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2460:SER:OG	1:A:2589:LYS:HD2	2.18	0.44
1:A:2915:VAL:HG13	1:A:2946:LEU:HD21	2.00	0.44
1:A:2620:LEU:HD11	1:A:2634:THR:HG21	2.00	0.44
1:A:4086:THR:HG23	1:A:4089:LYS:HZ3	1.83	0.44
1:A:4087:ALA:O	1:A:4091:GLY:N	2.51	0.44
1:A:4330:VAL:O	1:A:4333:THR:HG22	2.18	0.44
1:A:1974:GLN:O	1:A:1978:ILE:HG13	2.18	0.43
1:A:1350:PRO:O	1:A:1354:VAL:HG23	2.18	0.43
1:A:1409:LYS:O	1:A:1413:TRP:HD1	2.01	0.43
1:A:2288:ILE:HD13	1:A:2333:LEU:HD22	2.00	0.43
1:A:2895:ALA:O	1:A:2899:VAL:HG23	2.19	0.43
1:A:1646:ASN:ND2	1:A:1649:LYS:HE2	2.33	0.43
1:A:2309:PRO:HB3	1:A:2352:THR:CG2	2.49	0.43
1:A:3708:LEU:HD13	1:A:3829:LEU:HD11	1.99	0.43
1:A:2671:MET:HB3	1:A:2675:GLY:HA2	1.99	0.43
1:A:2828:GLU:OE1	1:A:2924:ARG:NH1	2.51	0.43
1:A:3008:MET:HE3	1:A:3011:LEU:HD23	2.01	0.43
1:A:2319:LEU:HD13	1:A:2359:CYS:SG	2.58	0.43
1:A:2923:ASP:OD1	1:A:2927:ARG:NH2	2.50	0.43
1:A:1408:LEU:O	1:A:1412:HIS:HB2	2.19	0.43
1:A:2221:MET:HE3	1:A:2343:PHE:CD2	2.48	0.43
1:A:2388:ASP:OD1	1:A:2389:GLU:N	2.52	0.43
1:A:3008:MET:HE2	1:A:3064:VAL:HG21	2.00	0.43
1:A:3884:ALA:HB1	1:A:4009:VAL:HG11	2.01	0.43
1:A:4096:LEU:HD13	1:A:4105:TRP:HH2	1.84	0.43
1:A:4324:PRO:HB2	1:A:4326:ASN:OD1	2.18	0.43
1:A:2762:LEU:HA	1:A:2765:TYR:HD2	1.83	0.43
1:A:3500:MET:HE2	1:A:3503:ILE:HD12	2.01	0.43
1:A:4097:LYS:HA	1:A:4127:THR:OG1	2.18	0.43
1:A:2175:MET:HE1	1:A:2211:TYR:HD2	1.84	0.43
1:A:4087:ALA:HB1	1:A:4092:ARG:O	2.18	0.43
1:A:1547:LEU:HD22	1:A:1608:LEU:HD22	2.00	0.43
1:A:2049:ILE:HD13	1:A:2090:LEU:HD21	2.00	0.43
1:A:2936:ILE:HG23	1:A:3093:TRP:CE3	2.54	0.43
1:A:3767:ILE:O	1:A:3771:GLU:HG2	2.19	0.43
1:A:3913:GLU:O	1:A:3914:ILE:C	2.62	0.43
1:A:4429:GLN:NE2	1:A:4433:ASP:OD1	2.48	0.43
1:A:1339:ILE:HG21	1:A:1386:VAL:HG11	2.01	0.43
1:A:1873:LEU:HD13	1:A:1921:HIS:HB3	2.00	0.43
1:A:2086:TYR:OH	1:A:2153:ASP:OD2	2.32	0.43
1:A:2232:MET:HE2	1:A:2232:MET:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2413:LEU:HG	1:A:2417:ARG:HE	1.84	0.43
1:A:2864:GLU:CD	1:A:2864:GLU:H	2.26	0.43
1:A:1878:LYS:HE3	1:A:1878:LYS:HB3	1.84	0.42
1:A:1927:VAL:HG22	1:A:1954:TRP:HB2	2.01	0.42
1:A:1980:GLU:O	1:A:1984:GLU:HG3	2.19	0.42
1:A:2071:PRO:O	1:A:2075:LEU:HG	2.20	0.42
1:A:3787:THR:O	1:A:3791:MET:HG3	2.19	0.42
1:A:2514:LEU:O	1:A:2518:ILE:HG12	2.19	0.42
1:A:2925:ILE:HD11	1:A:3090:VAL:HG11	2.00	0.42
1:A:4209:GLU:O	1:A:4213:ARG:HG3	2.19	0.42
1:A:1741:TRP:CH2	1:A:1750:VAL:HG13	2.54	0.42
1:A:2467:ARG:NH1	1:A:2587:GLU:OE2	2.51	0.42
1:A:4381:HIS:HB2	1:A:4438:CYS:HB3	2.00	0.42
1:A:4605:VAL:HB	1:A:4626:ILE:HD11	2.00	0.42
1:A:2219:GLY:HA2	1:A:2341:ILE:O	2.19	0.42
1:A:4169:ILE:HD12	1:A:4302:ARG:HE	1.85	0.42
1:A:1810:HIS:NE2	1:A:1876:GLN:O	2.52	0.42
1:A:1411:ARG:O	1:A:1415:GLN:HG3	2.18	0.42
1:A:2278:GLY:N	1:A:2281:THR:OG1	2.53	0.42
1:A:4505:LYS:NZ	1:A:4554:ASP:O	2.50	0.42
1:A:3518:GLY:O	1:A:3700:ASN:N	2.50	0.42
1:A:1952:GLY:HA2	1:A:2012:MET:HB3	2.01	0.42
1:A:4043:MET:HE2	1:A:4147:PHE:CE1	2.54	0.42
1:A:1838:TRP:CZ2	1:A:1843:ARG:HG2	2.55	0.42
1:A:1911:GLY:N	2:A:4701:ADP:O1B	2.47	0.42
1:A:2982:ARG:HA	1:A:2986:LYS:HD2	2.00	0.42
1:A:2999:VAL:HG13	1:A:3005:LEU:HD21	2.02	0.42
1:A:3581:LYS:HZ2	1:A:3582:ARG:HH11	1.65	0.42
1:A:4100:HIS:CD2	1:A:4129:GLU:HG2	2.54	0.42
1:A:4123:ARG:HD3	1:A:4123:ARG:HA	1.90	0.42
1:A:4346:MET:HE3	1:A:4346:MET:HB3	1.90	0.42
1:A:4496:ALA:HB2	1:A:4504:LEU:HD21	2.01	0.42
1:A:1414:LYS:O	1:A:1417:MET:HB3	2.20	0.42
1:A:1425:VAL:O	1:A:1429:LEU:N	2.53	0.42
1:A:1912:LYS:HE3	1:A:1912:LYS:HB2	1.84	0.42
1:A:4028:THR:HA	1:A:4058:LEU:HD11	2.02	0.42
1:A:3103:TYR:OH	1:A:3141:GLU:HG2	2.20	0.41
1:A:3645:LEU:HG	1:A:3649:LEU:HG	2.02	0.41
1:A:3648:VAL:HA	1:A:3662:ILE:HD11	2.01	0.41
1:A:4476:ILE:HD12	1:A:4476:ILE:H	1.85	0.41
1:A:2836:ARG:NH1	1:A:3091:LEU:HD12	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3607:ARG:HE	1:A:3607:ARG:HB3	1.67	0.41
1:A:4387:TRP:NE1	1:A:4479:VAL:HG21	2.35	0.41
1:A:4569:THR:HG23	1:A:4578:SER:HB2	2.02	0.41
1:A:4619:ILE:HG22	1:A:4620:PHE:HD1	1.84	0.41
1:A:1356:PRO:CB	1:A:1401:ILE:HG13	2.49	0.41
1:A:2333:LEU:HD23	1:A:2333:LEU:HA	1.95	0.41
1:A:2529:ALA:HB1	1:A:2532:ILE:HB	2.02	0.41
1:A:2593:LEU:HD12	1:A:2605:LEU:HG	2.02	0.41
1:A:3474:ARG:NE	1:A:3764:ASP:HB3	2.32	0.41
1:A:3740:LEU:O	1:A:3743:ARG:HG2	2.20	0.41
1:A:4609:VAL:HG22	1:A:4642:VAL:HB	2.02	0.41
1:A:1738:TYR:HE2	1:A:1792:LEU:HD21	1.86	0.41
1:A:1795:SER:O	1:A:1800:GLN:NE2	2.35	0.41
1:A:2673:LYS:NZ	1:A:2674:TYR:OH	2.53	0.41
1:A:3620:ARG:O	1:A:3624:GLU:HG3	2.20	0.41
1:A:4239:PRO:HB2	1:A:4242:ALA:HB3	2.03	0.41
1:A:1461:GLU:O	1:A:1465:GLN:HG3	2.21	0.41
1:A:2863:LYS:O	1:A:2867:MET:N	2.54	0.41
1:A:3033:CYS:HG	1:A:3053:TRP:HE3	1.68	0.41
1:A:3966:PRO:HD2	1:A:4000:ARG:HG3	2.03	0.41
1:A:1698:ILE:O	1:A:1702:LEU:HB2	2.20	0.41
1:A:2667:ASN:HB3	1:A:2720:ARG:HB3	2.02	0.41
1:A:2668:LEU:HD21	1:A:2720:ARG:HH11	1.85	0.41
1:A:4412:PHE:CZ	1:A:4520:TYR:HB2	2.55	0.41
1:A:3013:ALA:HB2	1:A:3088:ARG:NE	2.36	0.41
1:A:3158:ASN:OD1	1:A:3168:THR:HB	2.21	0.41
1:A:3508:LEU:HD22	1:A:3536:LEU:HD11	2.02	0.41
1:A:4248:ALA:O	1:A:4253:GLY:HA3	2.21	0.41
1:A:4601:LYS:HB2	1:A:4604:VAL:HG23	2.01	0.41
1:A:1493:LEU:HD21	1:A:1534:PHE:CD2	2.56	0.41
1:A:1910:THR:HG22	1:A:2044:PRO:HD3	2.02	0.41
1:A:2445:HIS:CD2	1:A:2449:LEU:HD22	2.56	0.41
1:A:2802:TRP:CZ2	1:A:2829:ALA:HB2	2.56	0.41
1:A:1339:ILE:HD11	1:A:1373:PHE:CE2	2.56	0.41
1:A:1899:ARG:HD3	1:A:1899:ARG:HA	1.86	0.41
1:A:2068:LYS:HG2	1:A:4537:GLU:OE2	2.20	0.41
1:A:2175:MET:O	1:A:2179:ARG:HG2	2.21	0.41
1:A:2518:ILE:O	1:A:2522:THR:HG22	2.21	0.41
1:A:2893:VAL:HG22	1:A:2953:MET:HE1	2.02	0.41
1:A:3523:GLN:HG2	1:A:3706:SER:CB	2.50	0.41
1:A:3983:ILE:HD12	1:A:3983:ILE:HA	1.91	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4085:ASN:HA	1:A:4088:VAL:HG12	2.03	0.41
1:A:4626:ILE:HG21	1:A:4630:GLU:O	2.21	0.41
1:A:1481:GLN:N	1:A:2271:ASN:O	2.51	0.41
1:A:2432:LEU:HD11	1:A:2518:ILE:HD12	2.03	0.41
1:A:3140:ARG:O	1:A:3144:VAL:HG23	2.20	0.41
1:A:3739:GLN:HB3	1:A:3743:ARG:HH21	1.85	0.41
1:A:1408:LEU:HD12	1:A:1408:LEU:HA	1.87	0.40
1:A:2214:THR:HG22	1:A:2220:LEU:HD21	2.03	0.40
1:A:2603:MET:SD	4:A:4703:ANP:H2'	2.62	0.40
1:A:3113:MET:HE2	1:A:3184:ALA:CA	2.48	0.40
1:A:3114:ASP:O	1:A:3140:ARG:NH2	2.54	0.40
1:A:3756:VAL:HG12	1:A:3760:ILE:HD13	2.03	0.40
1:A:4460:LEU:HD21	1:A:4465:SER:OG	2.20	0.40
1:A:4463:SER:O	1:A:4466:HIS:NE2	2.54	0.40
1:A:1776:ALA:HB3	1:A:1777:PRO:HD3	2.02	0.40
1:A:2047:GLN:HA	1:A:2070:VAL:HG21	2.03	0.40
1:A:2248:GLU:HG2	1:A:2297:LYS:HZ2	1.85	0.40
1:A:2571:THR:H	1:A:2574:THR:HB	1.85	0.40
1:A:1554:SER:HB3	1:A:1557:ILE:HG12	2.04	0.40
1:A:1629:PHE:HE2	1:A:1699:ASN:ND2	2.19	0.40
1:A:1876:GLN:HG2	1:A:1921:HIS:CD2	2.57	0.40
1:A:2434:THR:O	1:A:2438:GLU:HG2	2.21	0.40
1:A:2590:PRO:HA	1:A:2708:PHE:O	2.21	0.40
1:A:4307:GLN:O	1:A:4311:LEU:HG	2.21	0.40
1:A:2174:GLU:HG3	1:A:2176:THR:HG23	2.03	0.40
1:A:1354:VAL:HG21	1:A:1431:LEU:HB2	2.03	0.40
1:A:1454:GLN:NE2	1:A:3671:LEU:O	2.41	0.40
1:A:2115:LYS:HE2	1:A:2127:ILE:HD11	2.03	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	3026/4646 (65%)	2968 (98%)	53 (2%)	5 (0%)	44 75

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3914	ILE
1	A	4586	PRO
1	A	4028	THR
1	A	4292	LYS
1	A	4130	ILE

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	2704/4122 (66%)	2702 (100%)	2 (0%)	92 97

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2295	LEU
1	A	2855	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1442	ASN
1	A	1482	ASN
1	A	1528	ASN
1	A	1646	ASN
1	A	1670	ASN
1	A	1817	HIS
1	A	1863	ASN
1	A	1876	GLN
1	A	1894	GLN

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Mol	Chain	Res	Type
1	A	1990	HIS
1	A	2051	GLN
1	A	2263	HIS
1	A	2282	HIS
1	A	2377	ASN
1	A	2482	GLN
1	A	2685	GLN
1	A	2752	ASN
1	A	2786	GLN
1	A	2834	GLN
1	A	2849	ASN
1	A	2886	GLN
1	A	3057	GLN
1	A	3139	HIS
1	A	3584	ASN
1	A	3799	GLN
1	A	3820	GLN
1	A	4012	ASN
1	A	4054	HIS
1	A	4078	ASN
1	A	4100	HIS
1	A	4174	ASN
1	A	4490	GLN
1	A	4506	ASN
1	A	4579	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	ANP	A	4704	5	29,33,33	2.51	6 (20%)	31,52,52	1.50	4 (12%)
4	ANP	A	4703	5	29,33,33	2.49	6 (20%)	31,52,52	1.45	3 (9%)
2	ADP	A	4701	-	24,29,29	0.88	0	29,45,45	1.22	2 (6%)
3	ATP	A	4702	5	28,33,33	0.72	0	34,52,52	0.58	1 (2%)

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
4	ANP	A	4704	5	-	8/14/38/38	0/3/3/3
4	ANP	A	4703	5	-	4/14/38/38	0/3/3/3
2	ADP	A	4701	-	-	3/12/32/32	0/3/3/3
3	ATP	A	4702	5	-	3/18/38/38	0/3/3/3

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	4704	ANP	PB-O3A	8.86	1.70	1.59
4	A	4703	ANP	PB-O3A	8.83	1.70	1.59
4	A	4703	ANP	PG-N3B	6.22	1.79	1.63
4	A	4704	ANP	PG-N3B	6.17	1.79	1.63
4	A	4704	ANP	PG-O1G	4.69	1.53	1.46
4	A	4703	ANP	PG-O1G	4.66	1.53	1.46
4	A	4704	ANP	PB-O1B	2.64	1.50	1.46
4	A	4703	ANP	PB-O1B	2.61	1.50	1.46
4	A	4703	ANP	C8-N7	-2.32	1.30	1.34
4	A	4704	ANP	C8-N7	-2.29	1.30	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	4703	ANP	PB-O2B	-2.23	1.50	1.56
4	A	4704	ANP	PB-O2B	-2.20	1.51	1.56

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	4703	ANP	O2B-PB-O1B	4.90	120.38	109.87
4	A	4704	ANP	O2B-PB-O1B	4.81	120.18	109.87
4	A	4704	ANP	O1G-PG-N3B	-4.09	105.75	111.77
4	A	4703	ANP	O1G-PG-N3B	-3.84	106.12	111.77
2	A	4701	ADP	N3-C2-N1	-3.69	123.67	128.67
2	A	4701	ADP	C4-C5-N7	-2.57	106.62	109.34
4	A	4704	ANP	O2G-PG-O3G	2.54	114.41	107.59
4	A	4703	ANP	O2G-PG-O3G	2.47	114.23	107.59
3	A	4702	ATP	C5-C6-N6	2.32	123.85	120.31
4	A	4704	ANP	C4'-O4'-C1'	-2.09	108.01	109.92

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	4703	ANP	PB-N3B-PG-O1G
4	A	4703	ANP	PA-O3A-PB-O2B
4	A	4704	ANP	PB-N3B-PG-O1G
4	A	4704	ANP	PG-N3B-PB-O1B
4	A	4704	ANP	C5'-O5'-PA-O2A
4	A	4704	ANP	C5'-O5'-PA-O3A
4	A	4704	ANP	O4'-C4'-C5'-O5'
4	A	4704	ANP	C3'-C4'-C5'-O5'
2	A	4701	ADP	O4'-C4'-C5'-O5'
3	A	4702	ATP	PB-O3B-PG-O1G
3	A	4702	ATP	PB-O3B-PG-O2G
2	A	4701	ADP	PB-O3A-PA-O2A
2	A	4701	ADP	PB-O3A-PA-O1A
4	A	4703	ANP	O4'-C4'-C5'-O5'
4	A	4704	ANP	PB-O3A-PA-O2A
4	A	4703	ANP	PA-O3A-PB-O1B
4	A	4704	ANP	PG-N3B-PB-O3A
3	A	4702	ATP	PG-O3B-PB-O2B

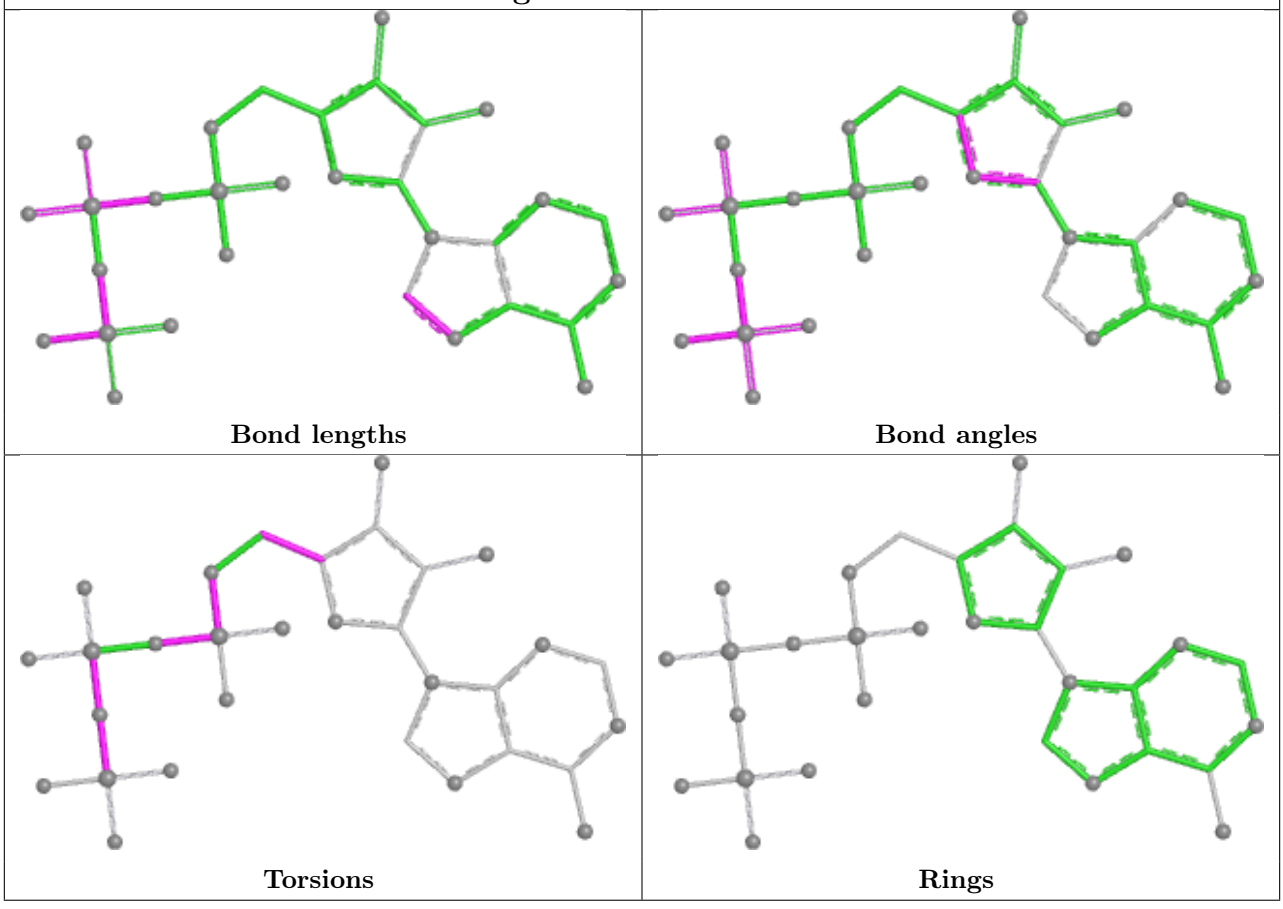
There are no ring outliers.

3 monomers are involved in 8 short contacts:

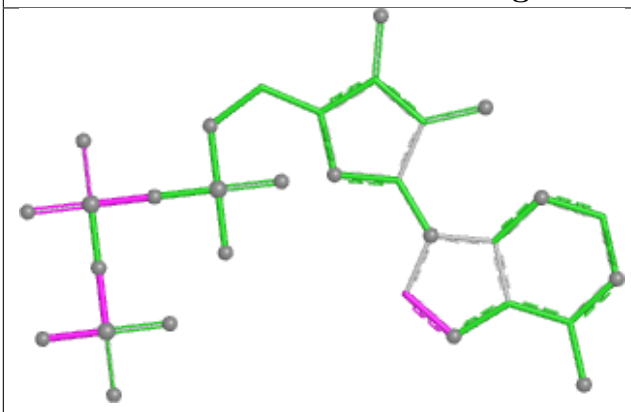
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	4703	ANP	4	0
2	A	4701	ADP	2	0
3	A	4702	ATP	2	0

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.

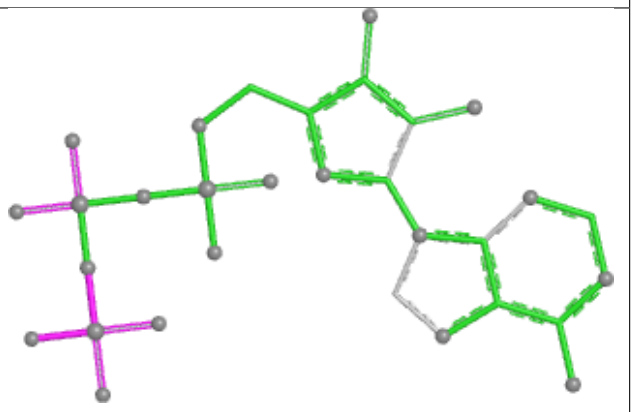
Ligand ANP A 4704



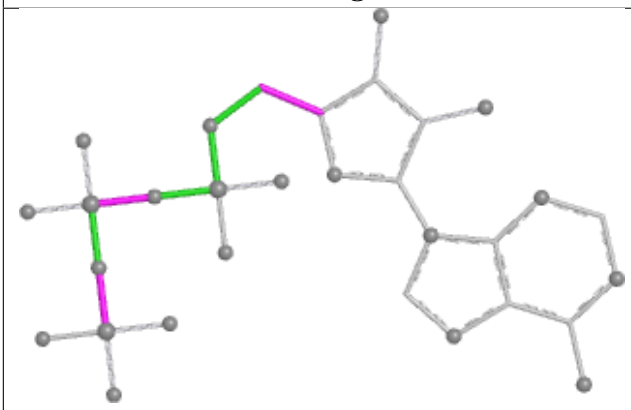
Ligand ANP A 4703



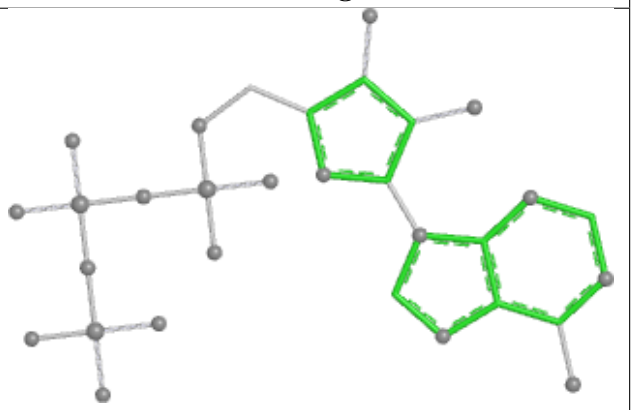
Bond lengths



Bond angles

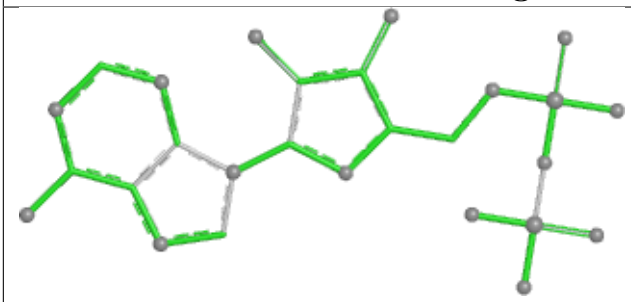


Torsions

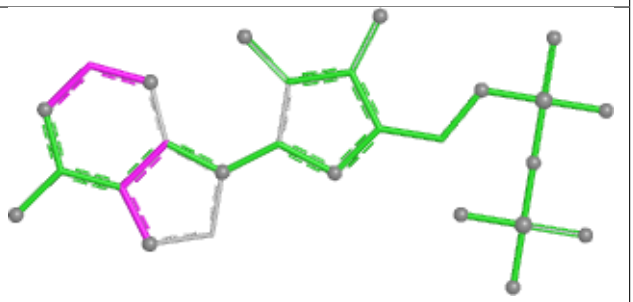


Rings

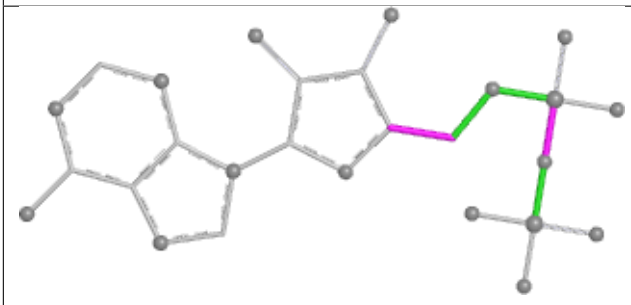
Ligand ADP A 4701



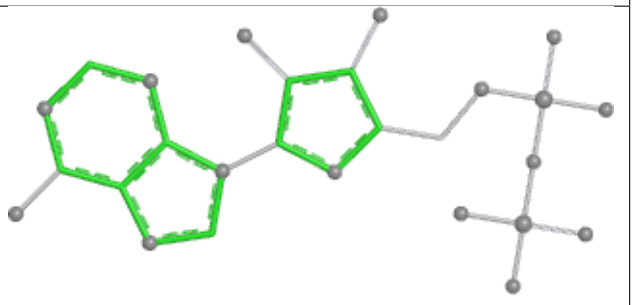
Bond lengths



Bond angles

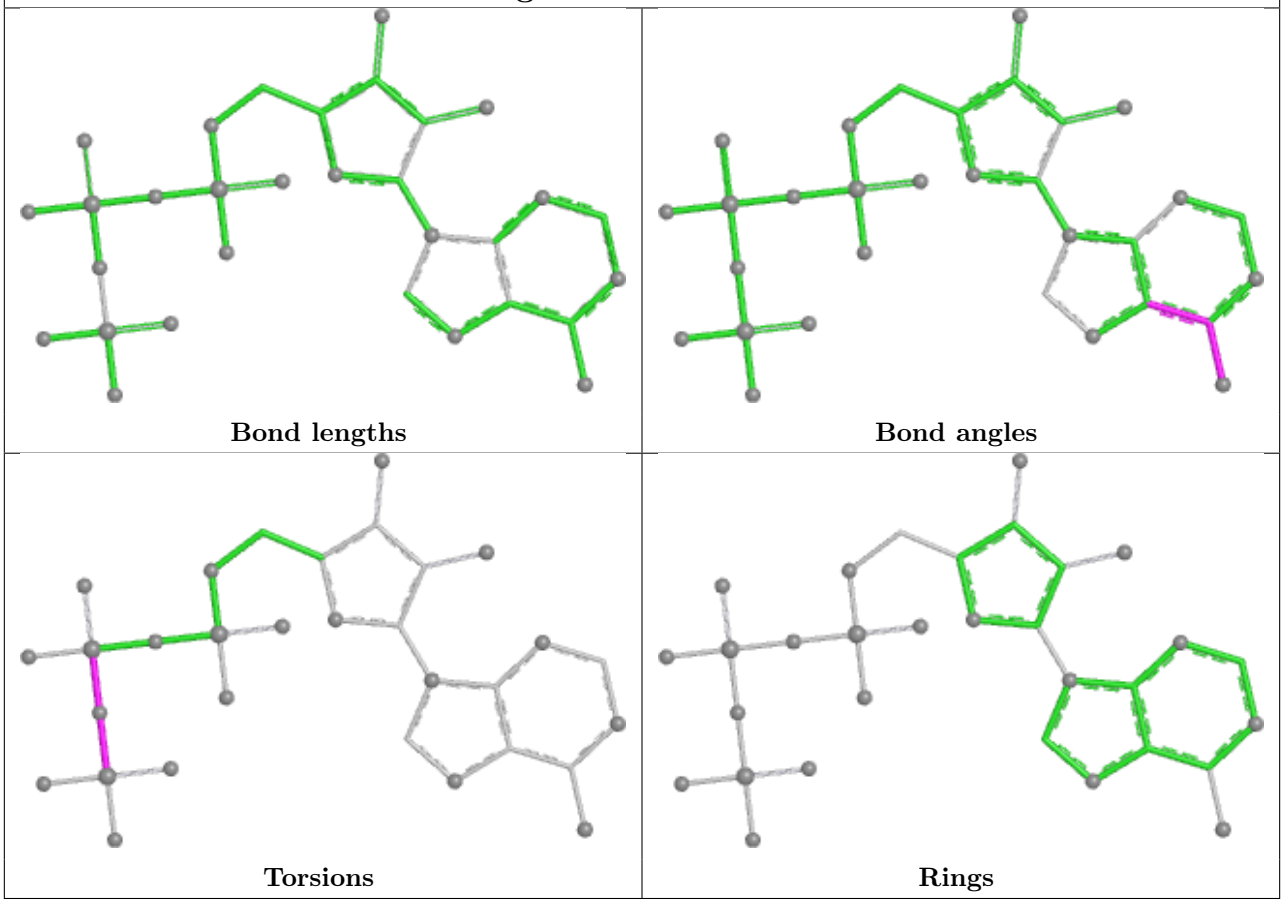


Torsions



Rings

Ligand ATP A 4702



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

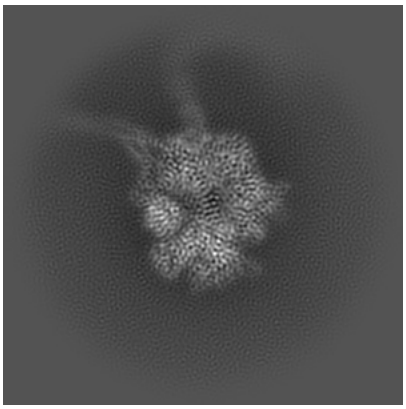
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-46843. These allow visual inspection of the internal detail of the map and identification of artifacts.

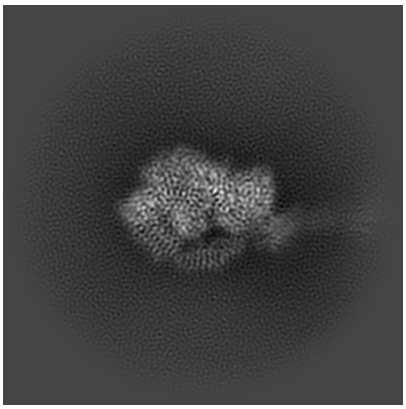
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

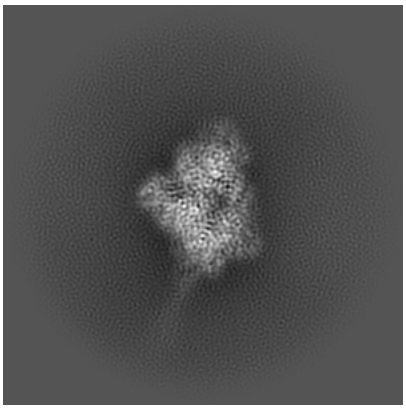
6.1.1 Primary map



X

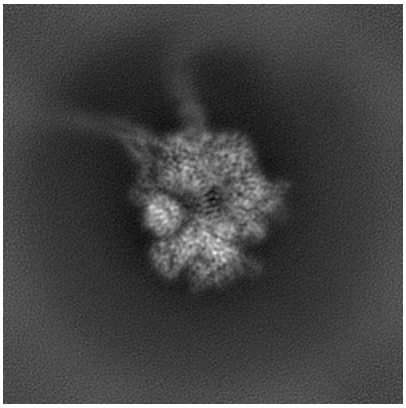


Y

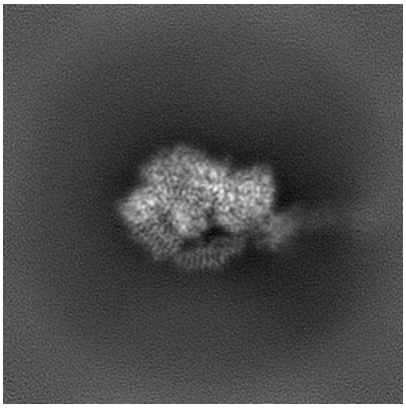


Z

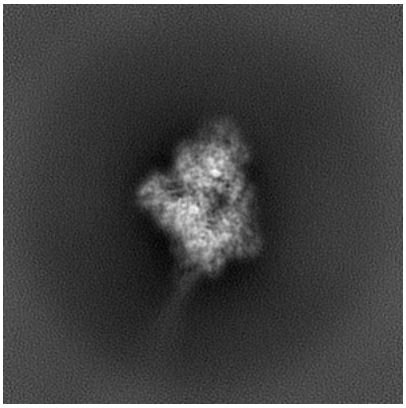
6.1.2 Raw map



X



Y

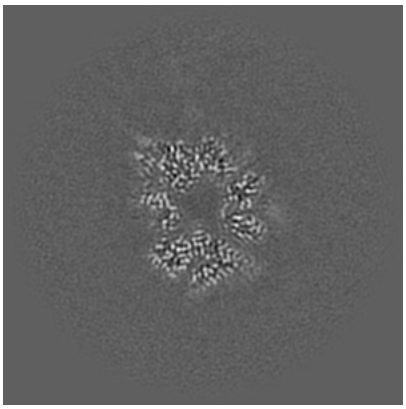


Z

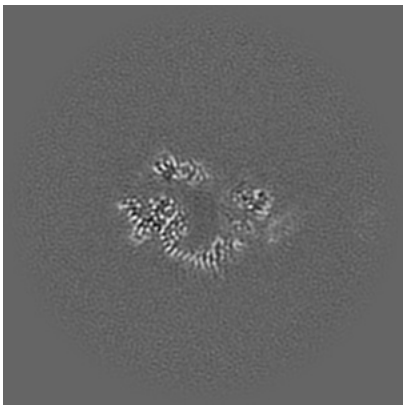
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

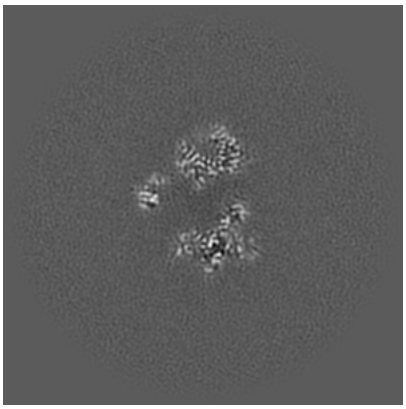
6.2.1 Primary map



X Index: 128

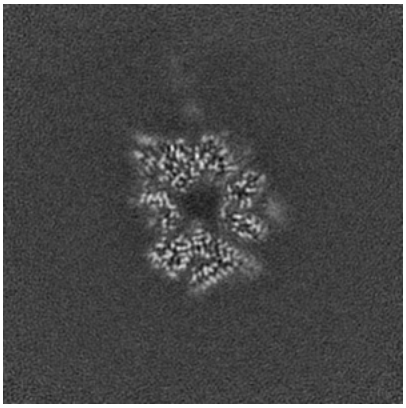


Y Index: 128

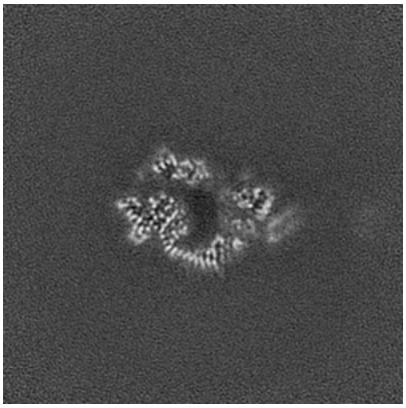


Z Index: 128

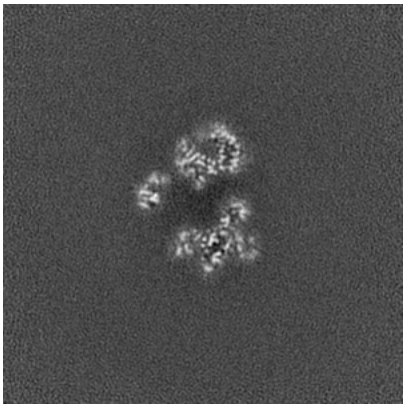
6.2.2 Raw map



X Index: 128



Y Index: 128

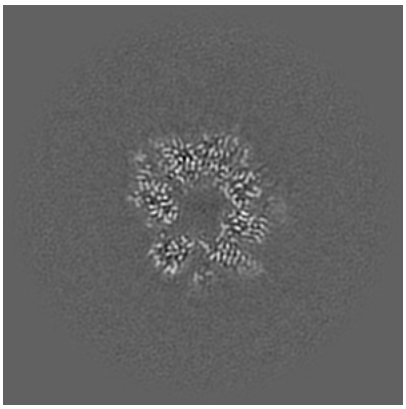


Z Index: 128

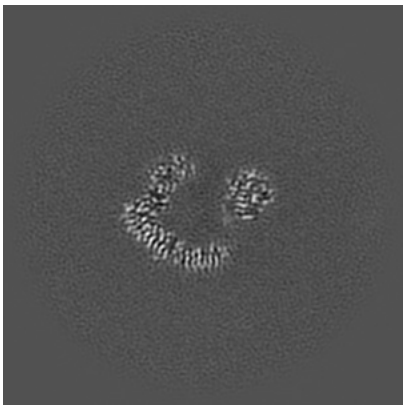
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

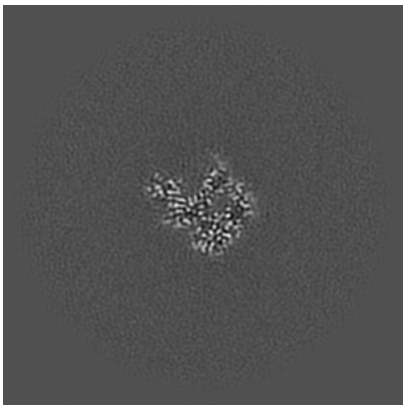
6.3.1 Primary map



X Index: 132

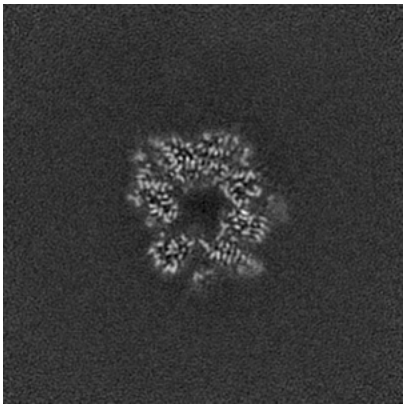


Y Index: 136

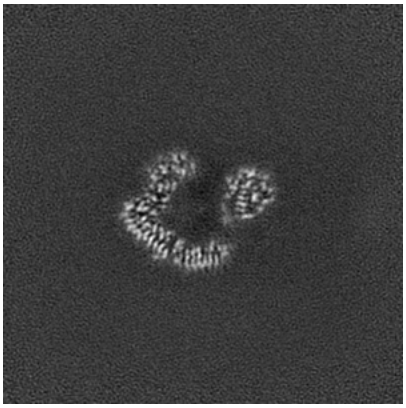


Z Index: 101

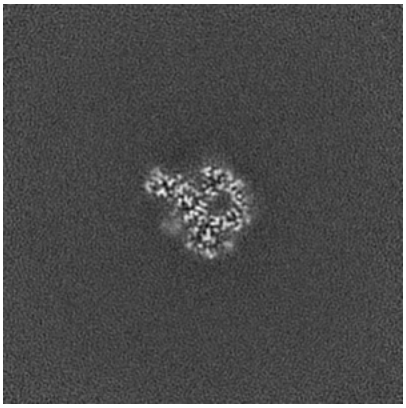
6.3.2 Raw map



X Index: 132



Y Index: 136

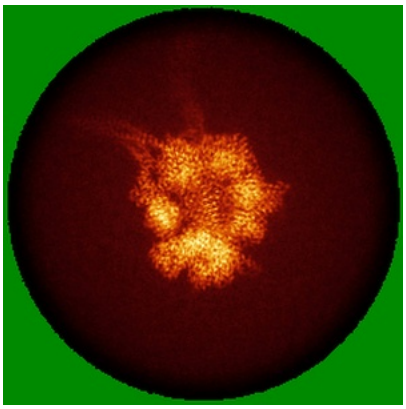


Z Index: 97

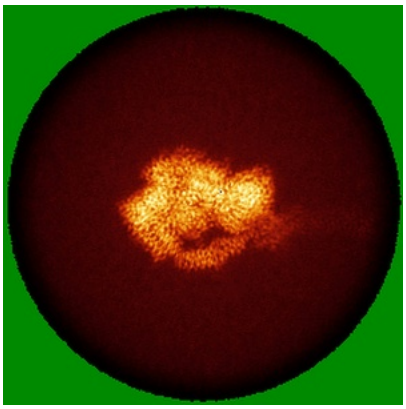
The images above show the largest variance slices of the map in three orthogonal directions.

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

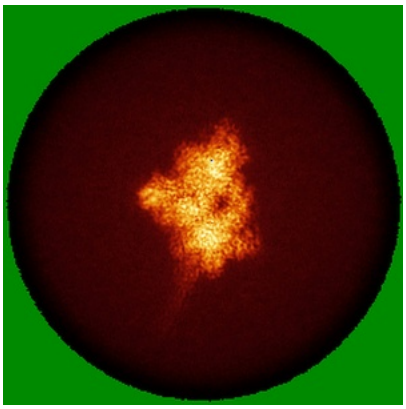
6.4.1 Primary map



X

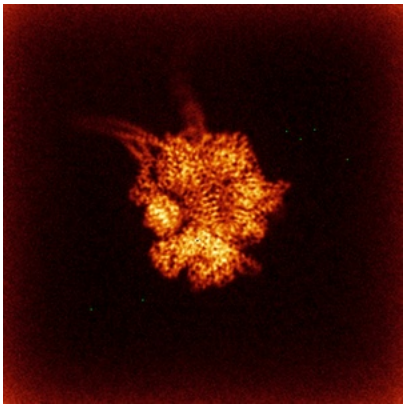


Y

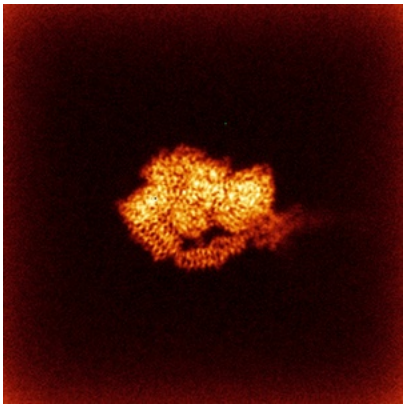


Z

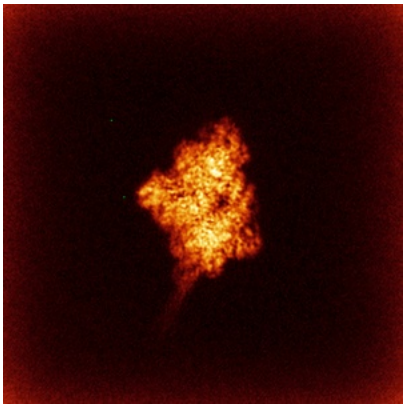
6.4.2 Raw map



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

6.5.2 Raw map

X Y Z

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

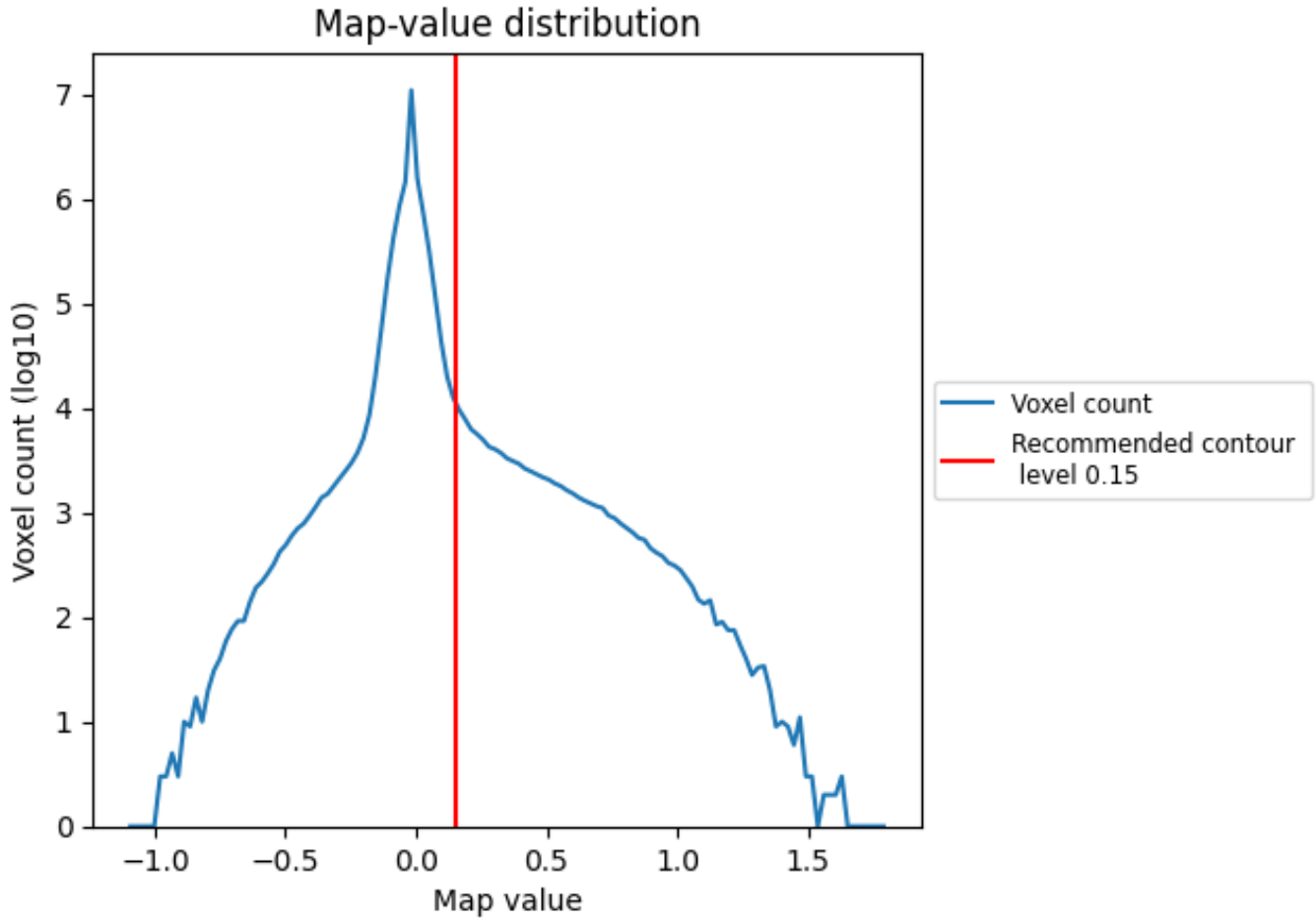
6.6 Mask visualisation (i)

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

7 Map analysis

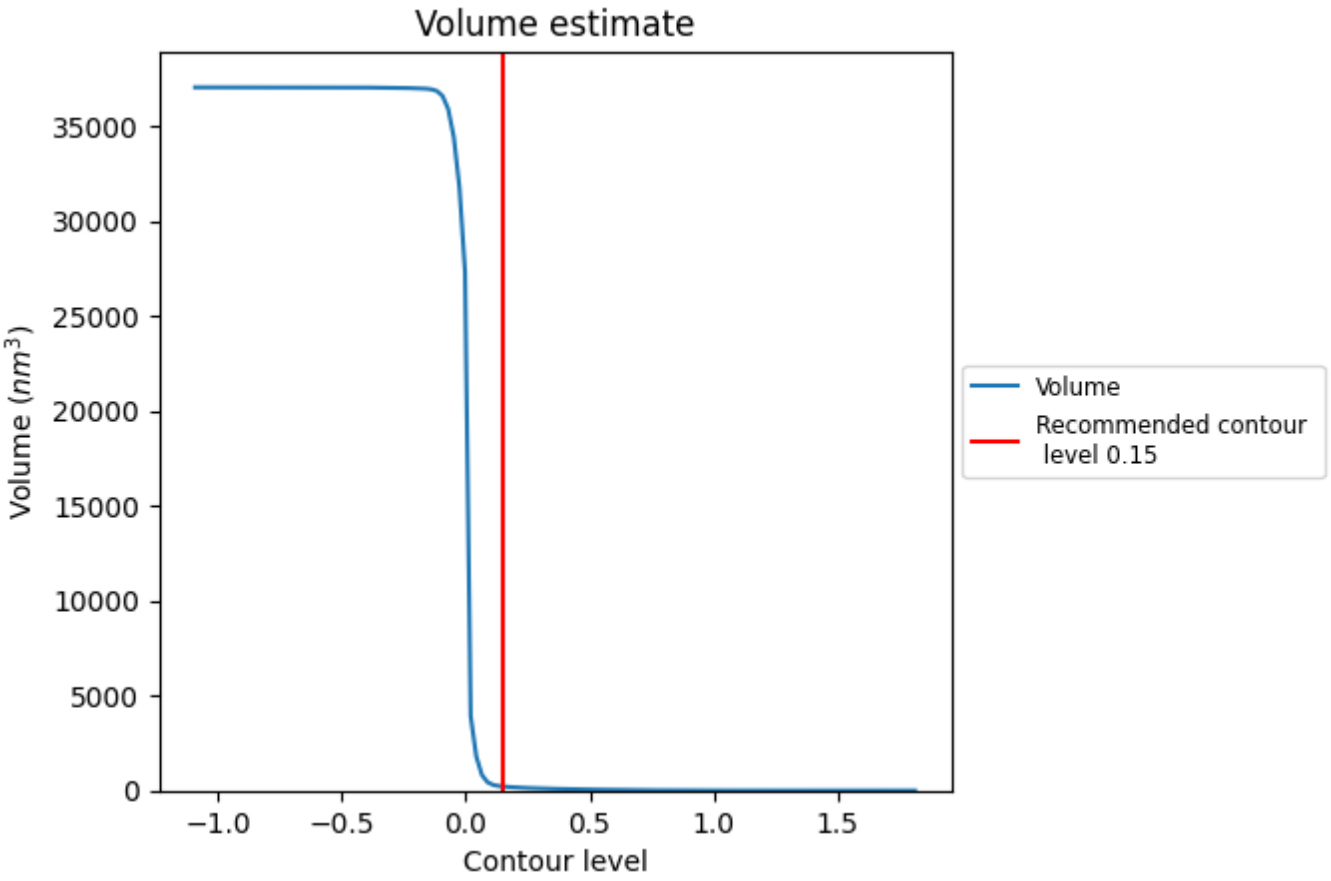
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

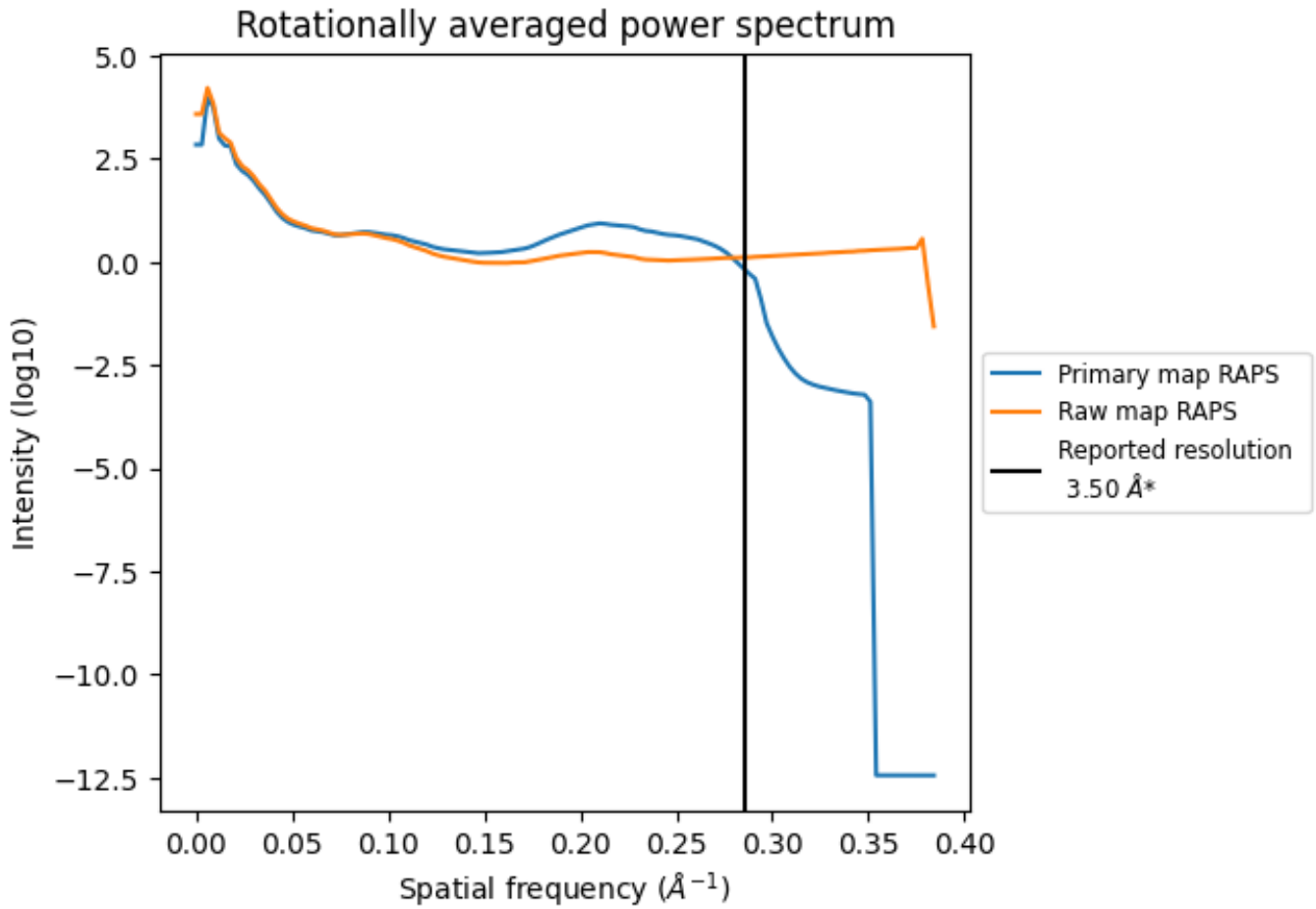
7.2 Volume estimate



The volume at the recommended contour level is 215 nm^3; this corresponds to an approximate mass of 194 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)

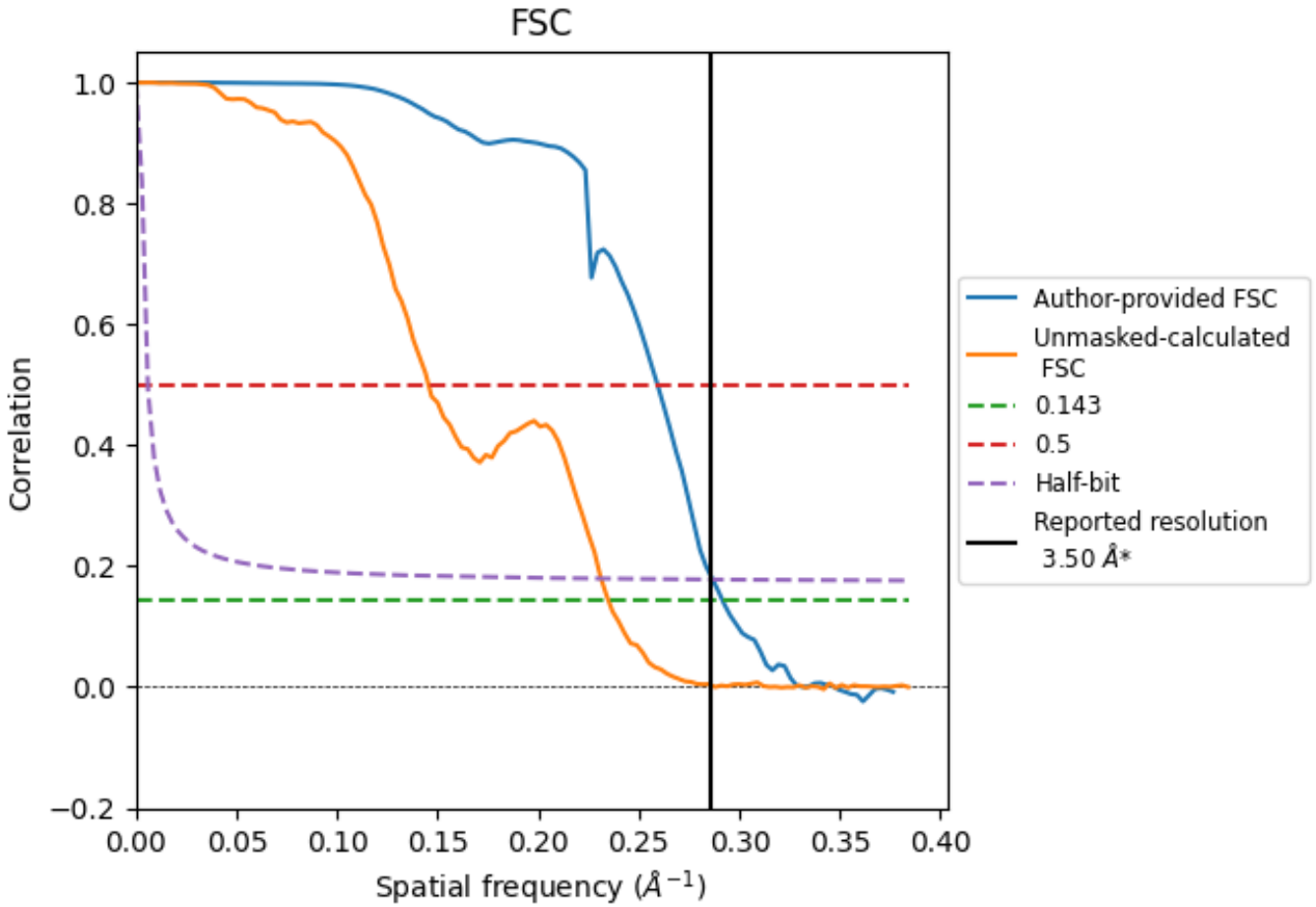


*Reported resolution corresponds to spatial frequency of 0.286 $Å^{-1}$

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 0.286 Å^{-1}

8.2 Resolution estimates (i)

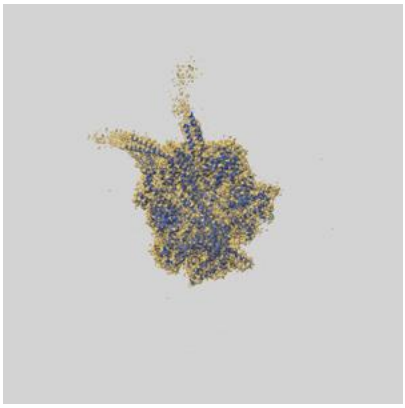
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.43	3.86	3.49
Unmasked-calculated*	4.26	6.87	4.32

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.26 differs from the reported value 3.5 by more than 10 %

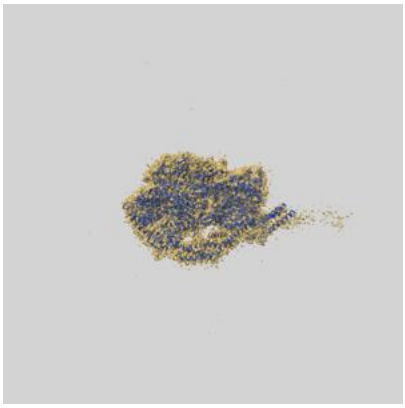
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-46843 and PDB model 9DGP. Per-residue inclusion information can be found in section 3 on page 6.

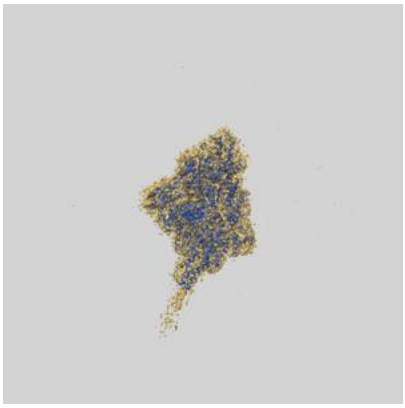
9.1 Map-model overlay



X



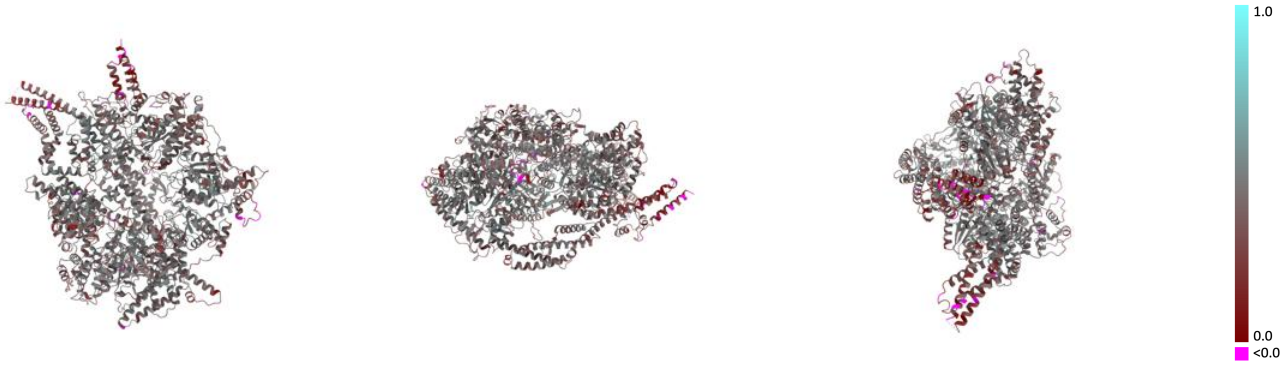
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.15 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.

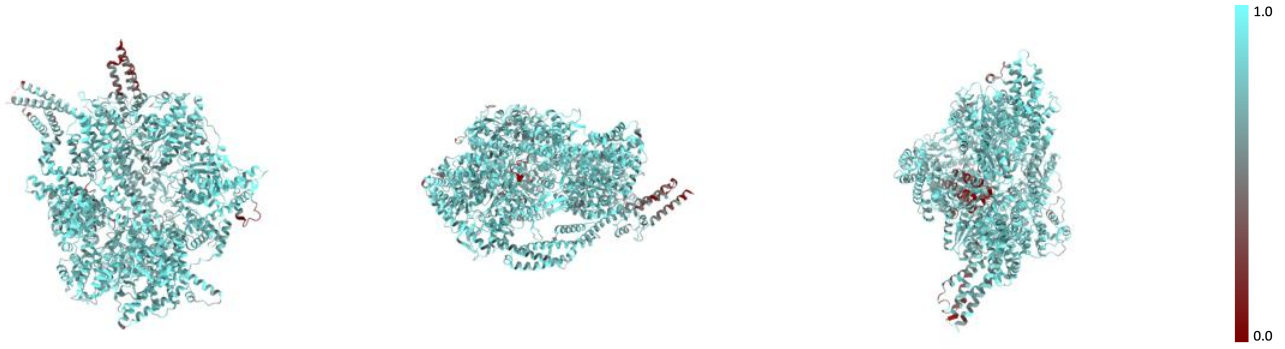
9.2 Q-score mapped to coordinate model (i)



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.

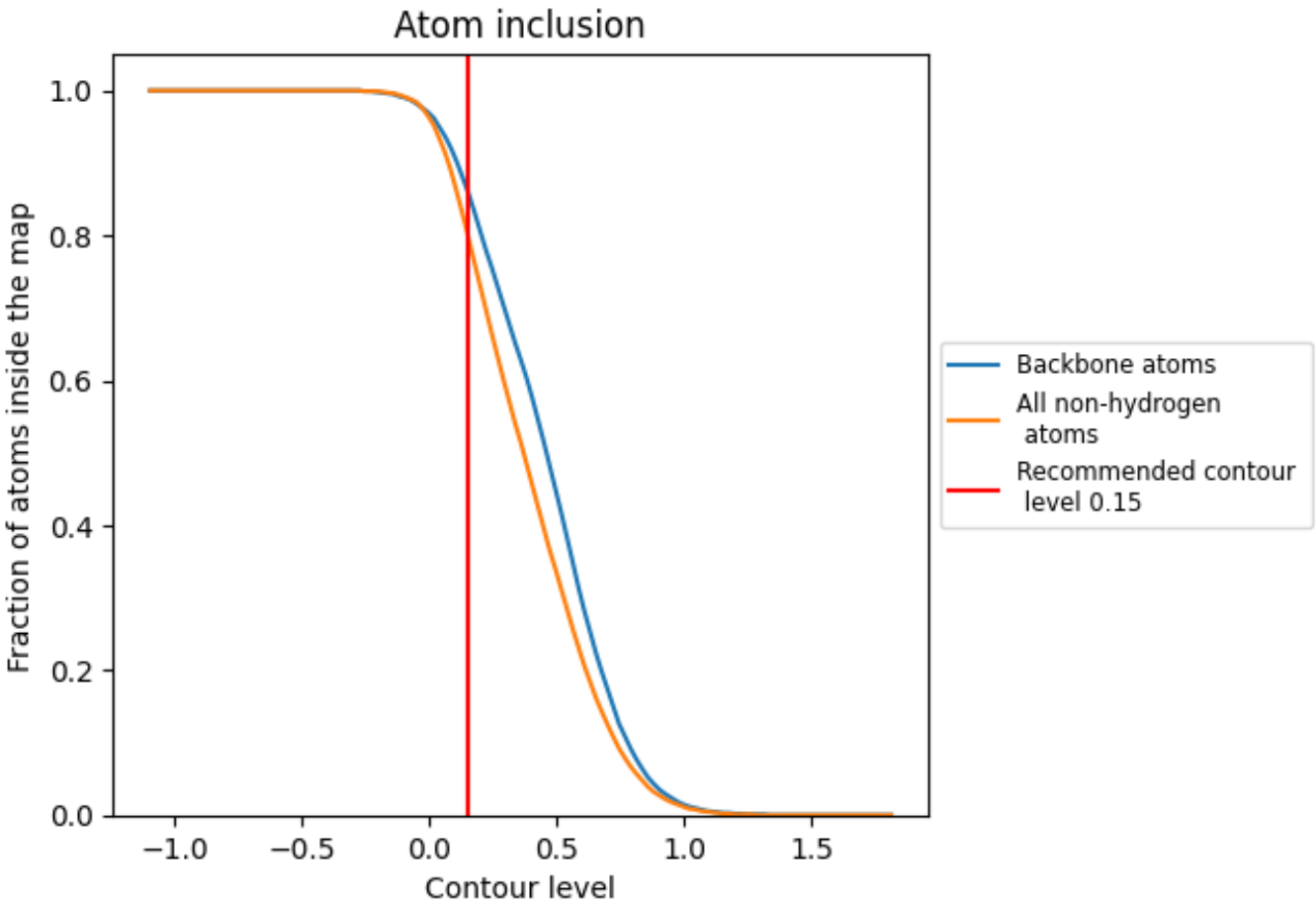
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.15).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 80% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8050	0.4120
A	0.8050	0.4120