



Full wwPDB EM Validation Report ⓘ

Dec 23, 2024 – 12:08 PM EST

PDB ID : 9CHO
EMDB ID : EMD-45591
Title : Autoinhibited full-length LRRK2(I2020T) on microtubules with MLI-2
Authors : Chen, S.; Villa, E.; Leschziner, A.E.
Deposited on : 2024-07-01
Resolution : 7.80 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.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

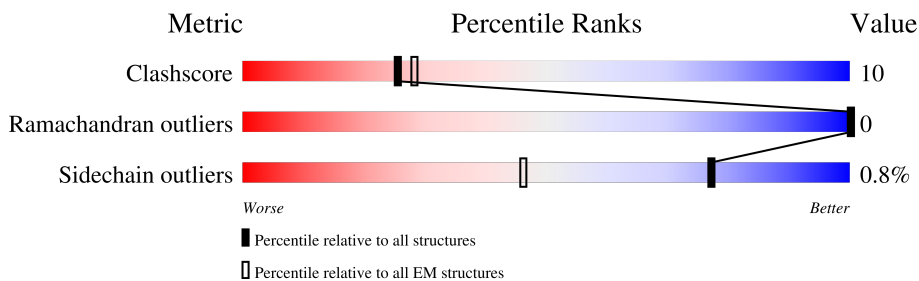
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 7.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	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 $\leq 5\%$. 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	1985	<p>68% 22% 10%</p>

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 26795 atoms, of which 12678 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.

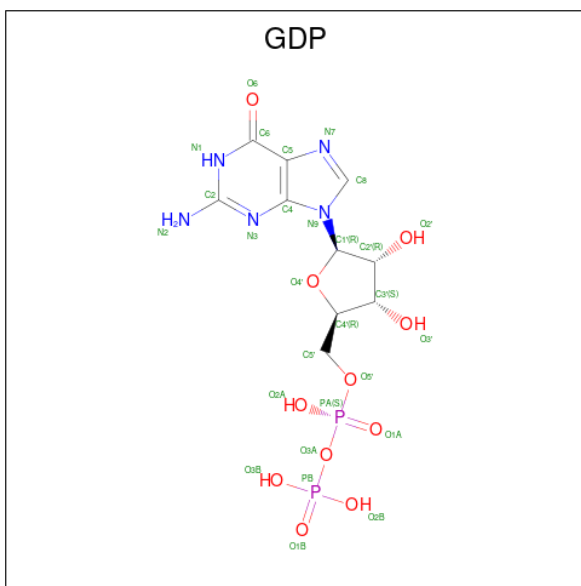
- Molecule 1 is a protein called Leucine-rich repeat serine/threonine-protein kinase 2.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
1	A	1792	26702	9000	12641	2421	2553	87	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	2020	THR	ILE	engineered mutation	UNP Q5S007

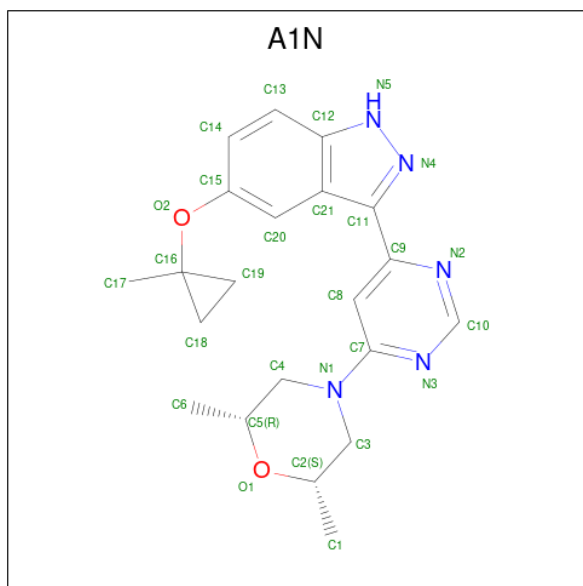
- Molecule 2 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
2	A	1	40	10	12	5	11	2	0

- Molecule 3 is (2 {R},6 {S})-2,6-dimethyl-4-[6-[5-(1-methylcyclopropyl)oxy-1 {H}-indazol-3-yl]pyrimidin-4-yl]morpholine (three-letter code: A1N) (formula: C₂₁H₂₅N₅O₂) (labeled as

"Ligand of Interest" by depositor).

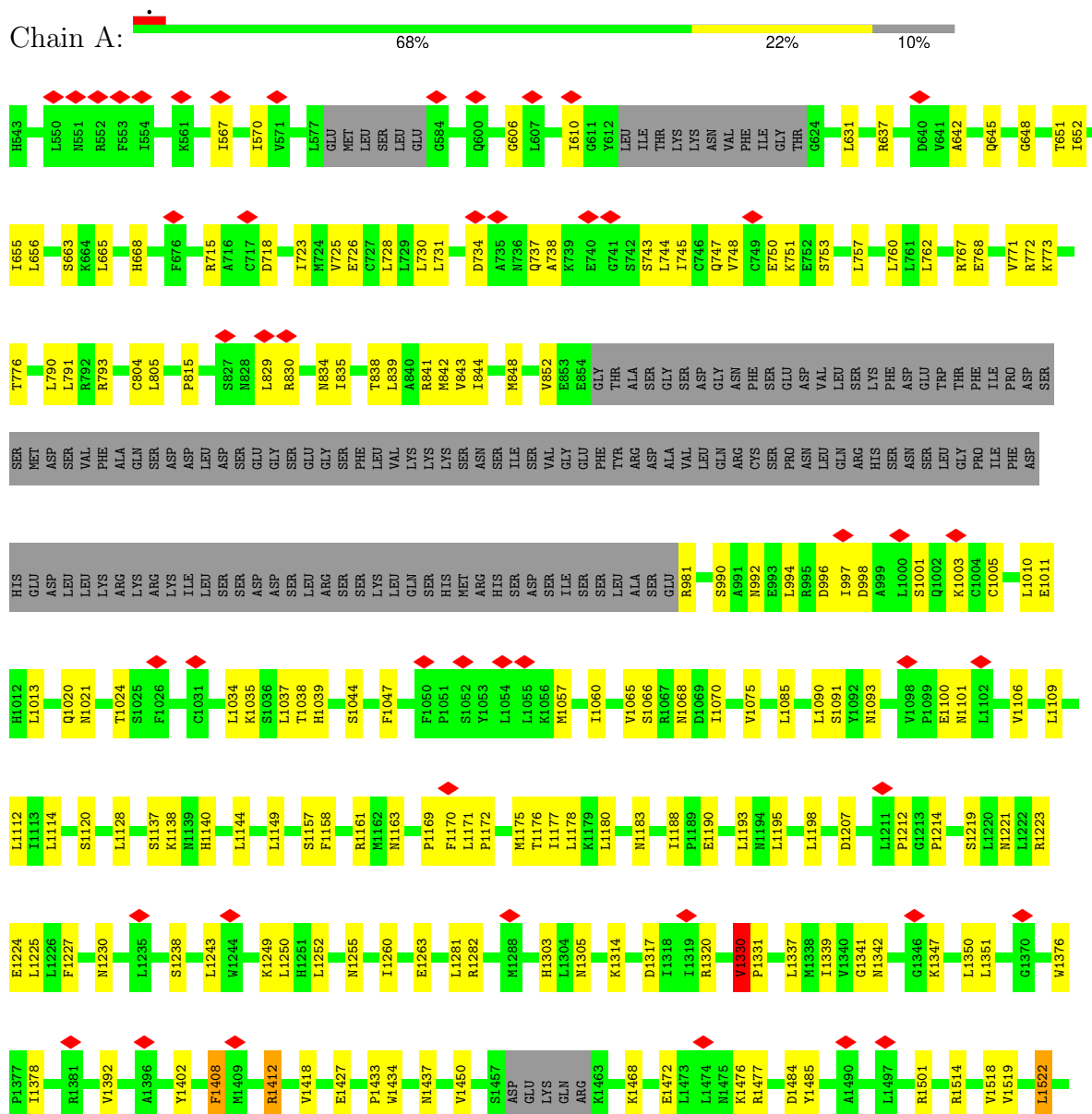


Mol	Chain	Residues	Atoms				AltConf	
			Total	C	H	N		O
3	A	1	53	21	25	5	2	0

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: Leucine-rich repeat serine/threonine-protein kinase 2



C1526	SER
E1531	LYS
V1541	ARG
F1545	LYS
P1546	PHE
V1547	P1642
L1554	Q1648
V1557	F1649
L1562	F1650
H1563	K1651
L1564	E1654
L1569	A1659
P1570	LEU
A1572	PRO
V1573	ILE
L1576	GLY
V1581	L1668
L1583	V1669
P1587	P1670
P1588	L1673
Y1596	L1673
P1600	P1683
K1601	H1684
M1602	C1685
K1605	E1686
Q1609	N1687
V1613	S1688
K1614	E1689
V1615	I1692
E1616	R1693
H1621	L1694
P1622	Y1695
K1623	M1702
G1624	G1703
I1625	F1704
D1630	W1705
VAL	L1708
GLU	I1709
LYS	L1713
PHE	G1624
LEU	L1720
	SEN
	GLY
	ARG
	GLU
	ARG
	A1726
W1734	L1730
G1737	L1733
T1848	L1807
I1738	L1808
Y1739	L1809
L1740	K1810
P1744	A1812
C1748	L1813
L1749	G1819
V1750	L1826
G1751	D1829
S1752	L1839
E1760	L1840
L1763	Y1841
T1766	M1842
R1771	Q1845
Q1779	
H1780	
V1781	
D1782	
H1783	
I1784	
E1789	
L1796	
I1800	
C1801	
G1802	
T1806	
L1807	
L1808	
K1809	
K1810	
A1812	
L1813	
G1819	
L1826	
D1829	
L1839	
L1840	
Y1841	
M1842	
Q1845	
P1846	
R1847	
L1848	
T1849	
I1852	
L1861	
E1874	
L1884	
L1885	
V1893	
Y1894	
R1895	
Y1898	
K1906	
N1909	
LYS	
H1911	
R1915	
C1925	
H1926	
H1929	
P1930	
S1931	
L1932	
P1941	
R1943	
M1947	
E1948	
L1949	
L1958	
S1965	
R1968	
R1973	
D1980	
G1981	
L1982	
M1989	
Y1992	
K1996	
P1997	
H1998	
L2002	
Y2006	
Y2018	
G2019	
THR	
ALA	
GLN	
TYR	
CYS	
ARG	
MET	
GLY	
ILE	
LYS	
THR	
SER	
GLU	
G2034	
R2045	
GLY	
ASN	
VAL	
ILE	
TYR	
ASN	
Q2062	
Y2064	
D2065	
T2069	
R2072	
E1948	
L1949	
S2125	
A2126	
Q2127	
V2128	
I2131	
R2142	
K2148	
I2151	
V2152	
E2153	
A2157	
T2158	
H2159	
S2162	
R2163	
N2164	
L2169	
H2173	
T2174	
D2175	
Q2178	
L2179	
S2180	
F2181	
D2183	
L2184	
Y2189	
T2190	
E2193	
V2194	
A2195	
D2196	
L2204	
W2205	
L2206	
L2207	
K2211	
S2213	
S2217	
W2214	
L2215	
V2216	
G2218	
V2226	
L2227	
N2228	
T2229	
G2232	
K2233	
K2234	
R2235	
L2238	
E2239	
K2240	
T2242	
V2245	
S2252	
F2253	
K2254	
K2255	
Q2256	
S2257	
K2258	
Q2259	
K2260	
L2263	
L2264	
V2265	
G2266	
T2267	
A2268	
D2269	
K2270	
K2271	
L2272	
A2273	
I2274	
V2280	
A2285	
A2286	
P2287	
L2288	
K2289	
I2290	
L2291	
N2292	
I2293	
G2294	
N2295	
T2298	
P2299	
L2300	
S2306	
E2311	
R2312	
N2313	
V2314	
H2315	
G2317	
G2318	
C2319	
G2320	
T2321	
K2322	
I2323	
F2324	
D2329	
F2330	
T2331	
T2332	
F2332	
D2332	
K2333	
K2334	
R2335	
L2338	
E2339	
K2340	
T2341	
K2342	
L2343	
L2344	
L2345	
R2456	
Q2462	
K2467	
N2468	
L2471	
V2472	
L2473	
G2474	
Y2475	
K2478	
E2481	
G2482	
T2483	
Q2484	
K2485	
E2488	
V2495	
I2498	
H2502	
E2508	
R2522	
S2525	
V2526	
E2527	
F2330	
T2331	
T2332	
F2332	
D2332	
K2333	
K2334	
R2335	
L2338	
E2339	
K2340	
T2341	
K2342	
L2343	
L2344	
L2345	
R2456	
Q2462	
K2467	
N2468	
L2471	
V2472	
L2473	
G2474	
Y2475	
K2478	
E2481	
G2482	
T2483	
Q2484	
K2485	
E2488	
V2495	
I2498	
H2502	
E2508	
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S2525	
V2526	
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K2342	
L2343	
L2344	
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R2456	
Q2462	
K2467	
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V2472	
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Q2484	
K2485	
E2488	
V2495	
I2498	
H2502	
E2508	
R2522	
S2525	
V2526	
E2527	

4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	60556	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	120	Depositor
Minimum defocus (nm)	3500	Depositor
Maximum defocus (nm)	5500	Depositor
Magnification	42000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	5.085	Depositor
Minimum map value	-2.635	Depositor
Average map value	0.185	Depositor
Map value standard deviation	0.233	Depositor
Recommended contour level	1	Depositor
Map size (Å)	414.912, 414.912, 414.912	wwPDB
Map dimensions	192, 192, 192	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.161, 2.161, 2.161	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GDP, A1N

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	0.44	1/14323 (0.0%)	0.76	21/19372 (0.1%)

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	10

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1943	ARG	CZ-NH1	-12.40	1.17	1.33

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1915	ARG	NE-CZ-NH2	8.28	124.44	120.30
1	A	1412	ARG	CA-CB-CG	8.02	131.05	113.40
1	A	1408	PHE	CB-CG-CD2	-7.95	115.24	120.80
1	A	1943	ARG	NE-CZ-NH1	7.94	124.27	120.30
1	A	1992	TYR	CB-CG-CD2	-7.91	116.25	121.00
1	A	1320	ARG	NE-CZ-NH2	7.90	124.25	120.30
1	A	1402	TYR	CB-CG-CD2	-7.47	116.52	121.00
1	A	1501	ARG	NE-CZ-NH1	7.32	123.96	120.30
1	A	1992	TYR	CB-CG-CD1	6.54	124.92	121.00
1	A	1943	ARG	CD-NE-CZ	6.53	132.74	123.60
1	A	715	ARG	NE-CZ-NH2	6.25	123.43	120.30
1	A	981	ARG	NE-CZ-NH2	6.04	123.32	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1330	VAL	CA-CB-CG2	5.95	119.82	110.90
1	A	1522	LEU	CB-CG-CD1	5.92	121.07	111.00
1	A	2072	ARG	NE-CZ-NH2	5.60	123.10	120.30
1	A	2142	ARG	NE-CZ-NH2	5.51	123.06	120.30
1	A	1519	VAL	CA-CB-CG2	5.49	119.14	110.90
1	A	1771	ARG	NE-CZ-NH2	5.17	122.88	120.30
1	A	1305	ASN	N-CA-C	-5.13	97.15	111.00
1	A	1514	ARG	NE-CZ-NH2	5.05	122.83	120.30
1	A	1602	TRP	CA-CB-CG	-5.02	104.15	113.70

There are no chirality outliers.

All (10) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1330	VAL	Mainchain
1	A	1408	PHE	Sidechain
1	A	1596	TYR	Sidechain
1	A	1941	ARG	Sidechain
1	A	1965	SER	Mainchain
1	A	1968	ARG	Sidechain
1	A	1992	TYR	Sidechain
1	A	2018	TYR	Sidechain
1	A	2064	TYR	Sidechain
1	A	2392	PHE	Mainchain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	14061	12641	14329	287	0
2	A	28	12	12	0	0
3	A	28	25	0	2	0
All	All	14117	12678	14341	287	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 (287) 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:1412:ARG:HG3	1:A:1518:VAL:HG11	1.51	0.93
1:A:815:PRO:HB2	1:A:1005:CYS:SG	2.12	0.89
1:A:631:LEU:HD21	1:A:652:ILE:HD11	1.60	0.83
1:A:1949:LEU:HD11	3:A:2701:A1N:C6	2.09	0.81
1:A:665:LEU:O	1:A:668:HIS:HB3	1.81	0.80
1:A:990:SER:O	1:A:1021:ASN:ND2	2.18	0.76
1:A:2369:ASN:HA	1:A:2413:ARG:HG3	1.69	0.75
1:A:2355:ILE:HG22	1:A:2356:THR:HG23	1.69	0.73
1:A:762:LEU:HD11	1:A:790:LEU:HD23	1.71	0.71
1:A:1694:LEU:HB2	1:A:1811:TRP:HB2	1.73	0.70
1:A:1925:CYS:O	1:A:1926:HIS:ND1	2.25	0.70
1:A:1034:LEU:HD11	1:A:1037:LEU:HD22	1.73	0.69
1:A:992:ASN:O	1:A:1021:ASN:ND2	2.26	0.69
1:A:1739:TYR:HA	1:A:1748:CYS:O	1.93	0.69
1:A:1670:PRO:HB3	1:A:1709:ILE:HD11	1.75	0.69
1:A:2417:LEU:HD12	1:A:2425:LEU:HD11	1.74	0.69
1:A:2272:LEU:HB2	1:A:2291:LEU:HB2	1.75	0.69
1:A:2183:ASP:OD1	1:A:2184:LEU:N	2.25	0.68
1:A:2314:VAL:HG13	1:A:2316:TRP:HE1	1.59	0.68
1:A:2271:LYS:HE3	1:A:2292:ASN:HB2	1.76	0.68
1:A:2213:SER:O	1:A:2229:THR:OG1	2.12	0.67
1:A:1195:LEU:O	1:A:1219:SER:OG	2.12	0.67
1:A:2365:ILE:HD13	1:A:2376:TRP:HD1	1.59	0.67
1:A:2321:THR:HG21	1:A:2339:ARG:HG3	1.77	0.67
1:A:2227:ILE:HD13	1:A:2235:ARG:HB3	1.76	0.66
1:A:1180:LEU:O	1:A:1183:ASN:ND2	2.29	0.66
1:A:2270:GLY:HA2	1:A:2300:LEU:HB2	1.76	0.66
1:A:815:PRO:CB	1:A:1005:CYS:SG	2.84	0.66
1:A:2471:LEU:HD22	1:A:2495:VAL:HG22	1.76	0.66
1:A:2462:GLN:HB2	1:A:2467:LYS:HD2	1.78	0.66
1:A:2438:ASP:HB2	1:A:2445:ILE:HD11	1.78	0.65
1:A:2318:GLY:HA3	1:A:2354:ILE:HD13	1.79	0.64
1:A:2478:LYS:HB2	1:A:2488:GLU:HB2	1.78	0.64
1:A:2293:ILE:HD12	1:A:2332:ILE:HD11	1.80	0.63
1:A:838:THR:HG22	1:A:841:ARG:HH11	1.64	0.63
1:A:1583:LEU:HD13	1:A:1600:PRO:HB3	1.78	0.63
1:A:2211:LYS:HE3	1:A:2211:LYS:HA	1.80	0.63
1:A:2392:PHE:HB3	1:A:2444:LEU:HD12	1.81	0.63
1:A:1011:GLU:OE2	1:A:1035:LYS:NZ	2.31	0.63
1:A:1433:PRO:O	1:A:1437:ASN:ND2	2.32	0.62
1:A:1614:LYS:HE3	1:A:1614:LYS:HA	1.79	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1929:HIS:HB3	1:A:1932:LEU:HG	1.81	0.62
1:A:1472:GLU:O	1:A:1477:ARG:NH1	2.33	0.62
1:A:1884:LEU:HA	1:A:1894:TYR:HA	1.82	0.62
1:A:1885:LEU:HD21	1:A:1895:ARG:HB3	1.82	0.61
1:A:1195:LEU:HD12	1:A:1198:LEU:HD12	1.80	0.61
1:A:2363:LEU:HB3	1:A:2365:ILE:HD11	1.80	0.61
1:A:1484:ASP:OD1	1:A:1485:TYR:N	2.33	0.60
1:A:1526:CYS:HB3	1:A:1564:LEU:HD11	1.83	0.60
1:A:2173:HIS:CD2	1:A:2174:THR:HG23	2.36	0.60
1:A:1958:LEU:HG	1:A:2002:LEU:HD22	1.84	0.60
1:A:1221:ASN:OD1	1:A:1223:ARG:NE	2.31	0.59
1:A:1845:GLN:OE1	1:A:1847:ARG:HG2	2.02	0.59
1:A:648:GLY:O	1:A:652:ILE:HD12	2.03	0.59
1:A:1695:TYR:HB2	1:A:1763:LEU:HB3	1.85	0.59
1:A:2245:VAL:HA	1:A:2267:THR:HA	1.83	0.59
1:A:1841:VAL:O	1:A:1849:THR:OG1	2.17	0.59
1:A:1813:LEU:HD21	1:A:1826:LEU:HD23	1.85	0.58
1:A:1602:TRP:CZ3	1:A:1605:LYS:HE3	2.38	0.58
1:A:1468:LYS:O	1:A:1472:GLU:N	2.36	0.58
1:A:2216:VAL:HG21	1:A:2263:LEU:HD11	1.84	0.58
1:A:1227:PHE:O	1:A:1230:ASN:ND2	2.37	0.57
1:A:1171:LEU:HD22	1:A:1175:MET:HE3	1.87	0.57
1:A:1260:ILE:HG12	1:A:1281:LEU:HD11	1.85	0.57
1:A:2441:THR:O	1:A:2443:ARG:NH2	2.39	0.56
1:A:753:SER:HB2	1:A:757:LEU:HD23	1.86	0.56
1:A:1760:GLU:N	1:A:1760:GLU:OE1	2.38	0.56
1:A:998:ASP:O	1:A:1001:SER:OG	2.25	0.55
1:A:1224:GLU:HG2	1:A:1249:LYS:HD3	1.86	0.55
1:A:1557:VAL:HG12	1:A:1562:LEU:HD12	1.87	0.55
1:A:1692:ILE:HG12	1:A:1766:THR:HG22	1.87	0.55
1:A:2266:GLY:HA2	1:A:2300:LEU:HD23	1.88	0.55
1:A:2339:ARG:HG2	1:A:2351:ASP:HA	1.88	0.55
1:A:1068:ASN:O	1:A:1093:ASN:ND2	2.39	0.55
1:A:2270:GLY:HA3	1:A:2294:GLY:H	1.71	0.55
1:A:1075:VAL:HG12	1:A:1100:GLU:HB2	1.89	0.55
1:A:1176:THR:HG22	1:A:1177:ILE:HG13	1.89	0.55
1:A:1734:TRP:CZ2	1:A:1737:GLY:HA3	2.42	0.55
1:A:2206:HIS:HA	1:A:2213:SER:HA	1.88	0.55
1:A:1412:ARG:CG	1:A:1518:VAL:HG11	2.33	0.55
1:A:2413:ARG:O	1:A:2430:GLY:N	2.34	0.55
1:A:1225:LEU:HD22	1:A:1227:PHE:HE2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1531:GLU:HB2	1:A:1576:LEU:HD11	1.90	0.54
1:A:1252:LEU:O	1:A:1255:ASN:ND2	2.41	0.54
1:A:1708:LEU:HD11	1:A:1784:ILE:HG12	1.89	0.54
1:A:2065:ASP:O	1:A:2069:THR:N	2.33	0.54
1:A:2295:ASN:N	1:A:2298:THR:OG1	2.36	0.54
1:A:1161:ARG:O	1:A:1163:ASN:ND2	2.41	0.53
1:A:606:GLY:O	1:A:610:ILE:HG12	2.07	0.53
1:A:2289:LYS:HE3	1:A:2291:LEU:HD21	1.90	0.53
1:A:2348:ALA:HA	1:A:2351:ASP:HB3	1.90	0.53
1:A:1038:THR:HG23	1:A:1039:HIS:ND1	2.23	0.53
1:A:1800:ILE:H	1:A:1800:ILE:HD12	1.74	0.53
1:A:1190:GLU:HA	1:A:1193:LEU:HD13	1.91	0.53
1:A:2153:GLU:N	1:A:2153:GLU:OE1	2.42	0.53
1:A:2152:VAL:HG21	1:A:2169:LEU:HB3	1.91	0.53
1:A:726:GLU:HB2	1:A:760:LEU:HD13	1.91	0.53
1:A:1779:GLN:O	1:A:1783:HIS:ND1	2.32	0.53
1:A:2163:ARG:HG3	1:A:2164:ASN:H	1.75	0.52
1:A:2311:GLU:HG3	1:A:2314:VAL:HG12	1.92	0.52
1:A:731:LEU:HD21	1:A:843:VAL:HG11	1.92	0.52
1:A:996:ASP:OD1	1:A:997:ILE:N	2.42	0.52
1:A:1090:LEU:HB2	1:A:1114:LEU:HD23	1.91	0.52
1:A:2159:HIS:O	1:A:2162:SER:OG	2.25	0.52
1:A:2356:THR:OG1	1:A:2417:LEU:HD23	2.10	0.52
1:A:791:LEU:HD22	1:A:805:LEU:HD21	1.92	0.52
1:A:2437:LEU:HA	1:A:2443:ARG:O	2.10	0.52
1:A:2151:ILE:HG12	1:A:2173:HIS:HB3	1.91	0.52
1:A:2271:LYS:HA	1:A:2292:ASN:HA	1.92	0.51
1:A:1342:ASN:ND2	1:A:1427:GLU:OE2	2.40	0.51
1:A:1341:GLY:O	1:A:1434:TRP:NE1	2.43	0.51
1:A:2204:LEU:HA	1:A:2215:ILE:HD12	1.92	0.51
1:A:738:ALA:HB3	1:A:743:SER:HA	1.92	0.51
1:A:1739:TYR:HB2	1:A:1749:LEU:HD13	1.93	0.51
1:A:2312:ARG:O	1:A:2312:ARG:HG3	2.11	0.51
1:A:804:CYS:HG	1:A:2006:TYR:HD1	1.58	0.51
1:A:1648:GLN:HA	1:A:1651:LYS:HB2	1.93	0.51
1:A:848:MET:O	1:A:852:VAL:HG22	2.10	0.50
1:A:1149:LEU:HB3	1:A:1172:PRO:HD3	1.92	0.50
1:A:2468:ASN:ND2	1:A:2498:ILE:HG21	2.26	0.50
1:A:835:ILE:O	1:A:839:LEU:HG	2.10	0.50
1:A:1709:ILE:HB	1:A:1738:ILE:HD11	1.93	0.50
1:A:838:THR:O	1:A:842:MET:HG3	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2346:TYR:HE2	1:A:2348:ALA:HB3	1.77	0.49
1:A:2238:LEU:HD22	1:A:2285:ALA:H	1.77	0.49
1:A:745:ILE:HD12	1:A:745:ILE:H	1.78	0.49
1:A:1347:LYS:HG3	1:A:1418:VAL:HG21	1.94	0.49
1:A:2319:CYS:HB2	1:A:2324:PHE:CE2	2.48	0.49
1:A:2329:ASP:OD2	1:A:2331:THR:OG1	2.26	0.49
1:A:804:CYS:SG	1:A:2006:TYR:HD1	2.34	0.49
1:A:1569:LEU:HA	1:A:1572:ALA:HB3	1.93	0.49
1:A:1929:HIS:NE2	1:A:1980:ASP:OD1	2.40	0.49
1:A:2127:GLN:O	1:A:2131:ILE:HG12	2.13	0.49
1:A:2481:GLU:OE1	1:A:2484:GLN:NE2	2.45	0.49
1:A:734:ASP:OD1	1:A:734:ASP:N	2.45	0.48
1:A:1893:VAL:HA	1:A:1906:LYS:HA	1.95	0.48
1:A:2125:SER:HA	1:A:2128:VAL:HG22	1.94	0.48
1:A:1670:PRO:HA	1:A:1673:LEU:HD22	1.94	0.48
1:A:2390:VAL:O	1:A:2394:ARG:HD3	2.14	0.48
1:A:1047:PHE:HB2	1:A:1068:ASN:HB3	1.95	0.48
1:A:1376:TRP:CH2	1:A:1378:ILE:HD11	2.49	0.48
1:A:1193:LEU:HD21	1:A:1212:PRO:HG2	1.95	0.48
1:A:567:ILE:HA	1:A:570:ILE:HG22	1.95	0.48
1:A:1576:LEU:HD12	1:A:1581:VAL:HG21	1.96	0.48
1:A:2151:ILE:H	1:A:2173:HIS:HB3	1.78	0.48
1:A:1207:ASP:OD1	1:A:1207:ASP:N	2.44	0.47
1:A:1339:ILE:HD12	1:A:1351:LEU:HD13	1.95	0.47
1:A:1702:MET:HG3	1:A:1703:GLY:H	1.79	0.47
1:A:2323:ILE:HG23	1:A:2336:ILE:HB	1.96	0.47
1:A:1238:SER:HA	1:A:1263:GLU:HG2	1.95	0.47
1:A:1925:CYS:SG	1:A:1926:HIS:N	2.87	0.47
1:A:1085:LEU:HD23	1:A:1106:VAL:HG11	1.96	0.47
1:A:2207:LEU:HD13	1:A:2214:TRP:HD1	1.78	0.47
1:A:1011:GLU:HA	1:A:1034:LEU:HA	1.96	0.47
1:A:2241:MET:HG3	1:A:2242:THR:H	1.80	0.47
1:A:2264:LEU:HG	1:A:2274:ILE:HD12	1.96	0.47
1:A:2228:ASN:OD1	1:A:2229:THR:N	2.48	0.47
1:A:1687:ASN:HB3	1:A:1819:GLY:HA2	1.97	0.47
1:A:1188:ILE:HD12	1:A:1212:PRO:HD2	1.96	0.46
1:A:1695:TYR:OH	1:A:1781:VAL:HG23	2.14	0.46
1:A:1709:ILE:O	1:A:1713:LEU:HB2	2.15	0.46
1:A:2300:LEU:HD12	1:A:2318:GLY:O	2.15	0.46
1:A:1350:LEU:HD11	1:A:1450:VAL:HG11	1.97	0.46
1:A:2287:PRO:HB2	1:A:2290:ILE:HG12	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1650:PHE:O	1:A:1654:GLU:HG3	2.15	0.46
1:A:1545:PHE:CE2	1:A:1547:VAL:HB	2.51	0.46
1:A:1810:LYS:O	1:A:1829:ASP:HB2	2.15	0.46
1:A:2316:TRP:CE3	1:A:2363:LEU:HD21	2.51	0.46
1:A:1602:TRP:CH2	1:A:1605:LYS:HE3	2.50	0.46
1:A:2254:SER:HA	1:A:2260:LYS:HB3	1.97	0.46
1:A:2429:THR:HG21	1:A:2433:HIS:HB2	1.98	0.46
1:A:747:GLN:HA	1:A:750:GLU:HB2	1.97	0.46
1:A:992:ASN:O	1:A:994:LEU:N	2.46	0.46
1:A:1263:GLU:OE1	1:A:1263:GLU:N	2.42	0.46
1:A:768:GLU:OE2	1:A:772:ARG:NH2	2.49	0.46
1:A:1214:PRO:O	1:A:1243:LEU:HD23	2.16	0.46
1:A:1013:LEU:HD12	1:A:1013:LEU:HA	1.76	0.45
1:A:1109:LEU:HD21	1:A:1112:LEU:HB2	1.97	0.45
1:A:726:GLU:O	1:A:730:LEU:HG	2.16	0.45
1:A:652:ILE:O	1:A:656:LEU:HG	2.16	0.45
1:A:2180:SER:HB2	1:A:2189:TYR:CE2	2.51	0.45
1:A:2267:THR:HG22	1:A:2268:ALA:N	2.32	0.45
1:A:2347:ALA:O	1:A:2351:ASP:N	2.45	0.45
1:A:767:ARG:O	1:A:771:VAL:HG23	2.16	0.45
1:A:829:LEU:HD23	1:A:830:ARG:O	2.17	0.45
1:A:1689:GLU:N	1:A:1689:GLU:OE1	2.49	0.45
1:A:1605:LYS:HB2	1:A:1605:LYS:HE2	1.68	0.45
1:A:2175:ASP:OD1	1:A:2175:ASP:N	2.47	0.45
1:A:2181:PHE:HB3	1:A:2190:THR:OG1	2.16	0.45
1:A:2256:GLN:HG2	1:A:2260:LYS:HD2	1.98	0.45
1:A:1740:LEU:HD12	1:A:1740:LEU:C	2.37	0.45
1:A:2419:LEU:HG	1:A:2420:GLN:O	2.17	0.45
1:A:744:LEU:O	1:A:748:VAL:HG23	2.17	0.45
1:A:1839:LEU:O	1:A:1852:ILE:HB	2.17	0.44
1:A:1137:SER:OG	1:A:1138:LYS:HG3	2.17	0.44
1:A:737:GLN:N	1:A:737:GLN:OE1	2.51	0.44
1:A:1476:LYS:C	1:A:1477:ARG:HD3	2.38	0.44
1:A:2218:GLY:HA3	1:A:2245:VAL:HG11	1.98	0.44
1:A:2152:VAL:HG13	1:A:2473:LEU:HD11	1.99	0.44
1:A:2241:MET:HG3	1:A:2242:THR:N	2.33	0.44
1:A:773:LYS:O	1:A:776:THR:OG1	2.27	0.44
1:A:1120:SER:HA	1:A:1140:HIS:O	2.18	0.44
1:A:1128:LEU:HD23	1:A:1128:LEU:HA	1.83	0.44
1:A:1789:GLU:HB3	1:A:1796:LEU:HD21	2.00	0.44
1:A:737:GLN:HE22	1:A:744:LEU:HD21	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1554:LEU:HA	1:A:1557:VAL:HG22	2.00	0.44
1:A:1737:GLY:HA2	1:A:1750:VAL:O	2.18	0.44
1:A:2232:GLY:O	1:A:2235:ARG:NH1	2.51	0.43
1:A:1282:ARG:NH2	1:A:1303:HIS:H	2.16	0.43
1:A:1314:LYS:H	1:A:1317:ASP:HB2	1.84	0.43
1:A:2321:THR:HG22	1:A:2321:THR:O	2.18	0.43
1:A:1683:PRO:HG3	1:A:1744:PRO:HA	2.01	0.43
1:A:1796:LEU:O	1:A:1796:LEU:HD12	2.19	0.43
1:A:1282:ARG:HA	1:A:1303:HIS:O	2.19	0.43
1:A:1341:GLY:N	1:A:1347:LYS:HD3	2.34	0.43
1:A:1996:LYS:HD2	1:A:1998:HIS:HB2	2.00	0.43
1:A:1621:HIS:HB3	1:A:1625:ILE:HG23	2.01	0.43
1:A:1705:TRP:CZ2	1:A:1752:SER:HB2	2.54	0.43
1:A:2319:CYS:HB2	1:A:2324:PHE:HE2	1.84	0.43
1:A:2337:GLU:OE2	1:A:2339:ARG:HB2	2.19	0.43
1:A:2377:ASP:OD1	1:A:2379:LYS:N	2.50	0.43
1:A:642:ALA:O	1:A:645:GLN:NE2	2.52	0.43
1:A:2364:TYR:CD2	1:A:2375:VAL:HG22	2.54	0.43
1:A:2456:ARG:HG3	1:A:2475:TYR:CZ	2.53	0.43
1:A:656:LEU:HD22	1:A:663:SER:HB2	2.00	0.43
1:A:2478:LYS:N	1:A:2488:GLU:O	2.36	0.43
1:A:1705:TRP:CZ3	1:A:1708:LEU:HD23	2.53	0.42
1:A:2322:LYS:HG2	1:A:2337:GLU:HG2	2.02	0.42
1:A:1158:PHE:O	1:A:1178:LEU:HD12	2.19	0.42
1:A:1330:VAL:O	1:A:1522:LEU:HA	2.19	0.42
1:A:2148:LYS:NZ	1:A:2488:GLU:HB3	2.35	0.42
1:A:728:LEU:HD23	1:A:728:LEU:HA	1.85	0.42
1:A:744:LEU:HA	1:A:747:GLN:NE2	2.34	0.42
1:A:1569:LEU:O	1:A:1573:VAL:HG12	2.18	0.42
1:A:1170:PHE:O	1:A:1170:PHE:CG	2.73	0.42
1:A:1331:PRO:N	1:A:1522:LEU:HD13	2.35	0.42
1:A:2438:ASP:HB3	1:A:2442:ARG:O	2.20	0.42
1:A:2522:ARG:O	1:A:2525:SER:OG	2.34	0.42
1:A:723:ILE:H	1:A:723:ILE:HD12	1.84	0.42
1:A:1157:SER:HA	1:A:1177:ILE:O	2.19	0.42
1:A:725:VAL:HG11	1:A:757:LEU:HD12	2.02	0.41
1:A:1250:LEU:HG	1:A:1252:LEU:HD23	2.02	0.41
1:A:2178:GLN:HA	1:A:2193:GLU:HA	2.02	0.41
1:A:2427:ILE:HB	1:A:2435:LEU:HB2	2.02	0.41
1:A:2267:THR:HG22	1:A:2268:ALA:H	1.85	0.41
1:A:2423:THR:HG21	1:A:2502:HIS:CE1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:815:PRO:HB2	1:A:1005:CYS:HG	1.84	0.41
1:A:1066:SER:HB2	1:A:1091:SER:HB2	2.02	0.41
1:A:1569:LEU:N	1:A:1570:PRO:HD2	2.34	0.41
1:A:2178:GLN:HE21	1:A:2193:GLU:N	2.18	0.41
1:A:1929:HIS:ND1	1:A:1930:PRO:HD2	2.35	0.41
1:A:2346:TYR:CE2	1:A:2348:ALA:HB3	2.54	0.41
1:A:1915:ARG:HD3	1:A:1915:ARG:C	2.41	0.41
1:A:2233:LYS:HB3	1:A:2233:LYS:HE2	1.80	0.41
1:A:2306:SER:HA	1:A:2359:VAL:HG11	2.02	0.41
1:A:2382:LYS:HE3	1:A:2382:LYS:HB3	1.88	0.41
1:A:1003:LYS:HD3	1:A:1003:LYS:HA	1.84	0.41
1:A:1057:MET:SD	1:A:1060:ILE:HD12	2.61	0.41
1:A:1024:THR:HA	1:A:1047:PHE:CD1	2.56	0.41
1:A:1144:LEU:HB2	1:A:1169:PRO:HG3	2.03	0.41
1:A:1171:LEU:HD22	1:A:1175:MET:CE	2.51	0.41
1:A:718:ASP:HA	1:A:751:LYS:HZ1	1.85	0.41
1:A:1337:LEU:HD22	1:A:1392:VAL:HG12	2.03	0.41
1:A:1623:LYS:O	1:A:1673:LEU:HD12	2.21	0.41
1:A:1874:GLU:HG2	1:A:1898:TYR:CE1	2.56	0.41
1:A:1929:HIS:CG	1:A:1930:PRO:HD2	2.56	0.41
1:A:2216:VAL:HG12	1:A:2226:VAL:HG22	2.02	0.41
1:A:2388:ASP:OD1	1:A:2390:VAL:HG22	2.20	0.41
1:A:844:ILE:O	1:A:848:MET:HG3	2.21	0.41
1:A:1010:LEU:HD23	1:A:1010:LEU:HA	1.90	0.41
1:A:1065:VAL:O	1:A:1065:VAL:HG23	2.21	0.41
1:A:1609:GLN:O	1:A:1613:VAL:HG13	2.21	0.41
1:A:2372:VAL:HG23	1:A:2388:ASP:HA	2.03	0.41
1:A:2394:ARG:HD3	1:A:2394:ARG:H	1.85	0.41
1:A:725:VAL:HG11	1:A:757:LEU:CD1	2.52	0.40
1:A:1070:ILE:HB	1:A:1093:ASN:HB3	2.03	0.40
1:A:1806:THR:O	1:A:1808:LEU:N	2.54	0.40
1:A:1845:GLN:HA	1:A:1846:PRO:HD3	1.88	0.40
1:A:1895:ARG:HH11	3:A:2701:A1N:C6	2.34	0.40
1:A:2488:GLU:N	1:A:2488:GLU:OE1	2.54	0.40
1:A:651:THR:O	1:A:655:ILE:HG13	2.22	0.40
1:A:1020:GLN:HA	1:A:1044:SER:HB2	2.03	0.40
1:A:1225:LEU:HD23	1:A:1225:LEU:HA	1.89	0.40
1:A:1587:ASP:HA	1:A:1588:PRO:HD3	2.01	0.40
1:A:834:ASN:N	1:A:834:ASN:OD1	2.53	0.40
1:A:1906:LYS:H	1:A:1947:MET:HE1	1.87	0.40
1:A:2214:TRP:HH2	1:A:2234:LYS:HG3	1.87	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	1770/1985 (89%)	1545 (87%)	225 (13%)	0	100 100

There are no Ramachandran outliers to report.

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	1563/1790 (87%)	1550 (99%)	13 (1%)	79 85

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	637	ARG
1	A	793	ARG
1	A	1101	ASN
1	A	1771	ARG
1	A	1915	ARG
1	A	1943	ARG
1	A	1973	ARG
1	A	1989	MET
1	A	1992	TYR
1	A	2086	LEU

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Mol	Chain	Res	Type
1	A	2394	ARG
1	A	2413	ARG
1	A	2508	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	992	ASN
1	A	1012	HIS
1	A	1101	ASN
1	A	1183	ASN
1	A	1230	ASN
1	A	1571	HIS
1	A	1586	GLN
1	A	1998	HIS
1	A	2178	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](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 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	A1N	A	2701	-	27,32,32	3.90	13 (48%)	33,48,48	2.32	10 (30%)
2	GDP	A	2601	-	25,30,30	1.12	2 (8%)	30,47,47	1.51	4 (13%)

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	A1N	A	2701	-	-	0/10/29/29	0/5/5/5
2	GDP	A	2601	-	-	3/12/32/32	0/3/3/3

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	2701	A1N	C11-N4	-10.97	1.14	1.35
3	A	2701	A1N	O1-C2	-6.54	1.33	1.44
3	A	2701	A1N	C20-C21	-6.38	1.29	1.42
3	A	2701	A1N	O1-C5	-6.33	1.33	1.44
3	A	2701	A1N	C8-C7	-6.06	1.30	1.39
3	A	2701	A1N	C13-C12	-5.47	1.32	1.41
3	A	2701	A1N	C7-N3	-4.76	1.23	1.34
3	A	2701	A1N	C10-N3	-4.28	1.26	1.33
3	A	2701	A1N	N5-N4	-3.91	1.30	1.37
3	A	2701	A1N	C8-C9	-2.71	1.35	1.39
3	A	2701	A1N	C14-C15	-2.70	1.33	1.38
3	A	2701	A1N	C13-C14	-2.69	1.30	1.36
3	A	2701	A1N	C21-C12	-2.42	1.36	1.42
2	A	2601	GDP	C8-N7	-2.35	1.31	1.34
2	A	2601	GDP	PB-O2B	-2.00	1.47	1.54

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	2701	A1N	C10-N3-C7	7.31	121.08	114.95
3	A	2701	A1N	C11-C9-N2	4.90	123.13	117.34
2	A	2601	GDP	O6-C6-N1	-4.62	115.14	120.62
3	A	2701	A1N	N3-C10-N2	-4.37	121.97	128.58
3	A	2701	A1N	C4-N1-C3	3.74	123.09	113.38
2	A	2601	GDP	O6-C6-C5	3.55	131.36	124.32
3	A	2701	A1N	C13-C12-N5	3.32	135.60	130.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	2701	A1N	C8-C7-N1	-3.20	118.49	122.35
2	A	2601	GDP	O2A-PA-O3A	2.92	115.16	107.27
3	A	2701	A1N	C14-C13-C12	-2.84	117.40	120.80
3	A	2701	A1N	C8-C9-C11	-2.49	117.78	120.99
3	A	2701	A1N	C8-C9-N2	-2.41	119.09	122.13
2	A	2601	GDP	O2A-PA-O1A	2.25	122.90	112.44
3	A	2701	A1N	C3-N1-C7	-2.20	114.54	120.41

There are no chirality outliers.

All (3) torsion outliers are listed below:

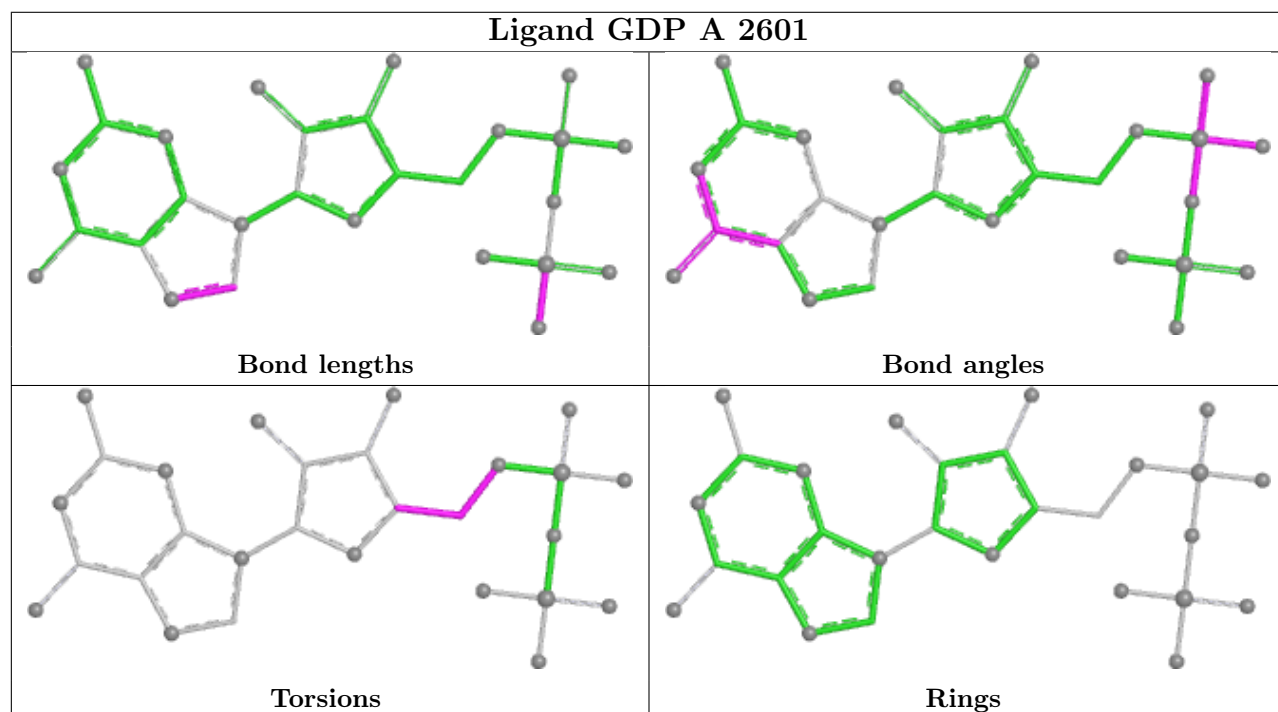
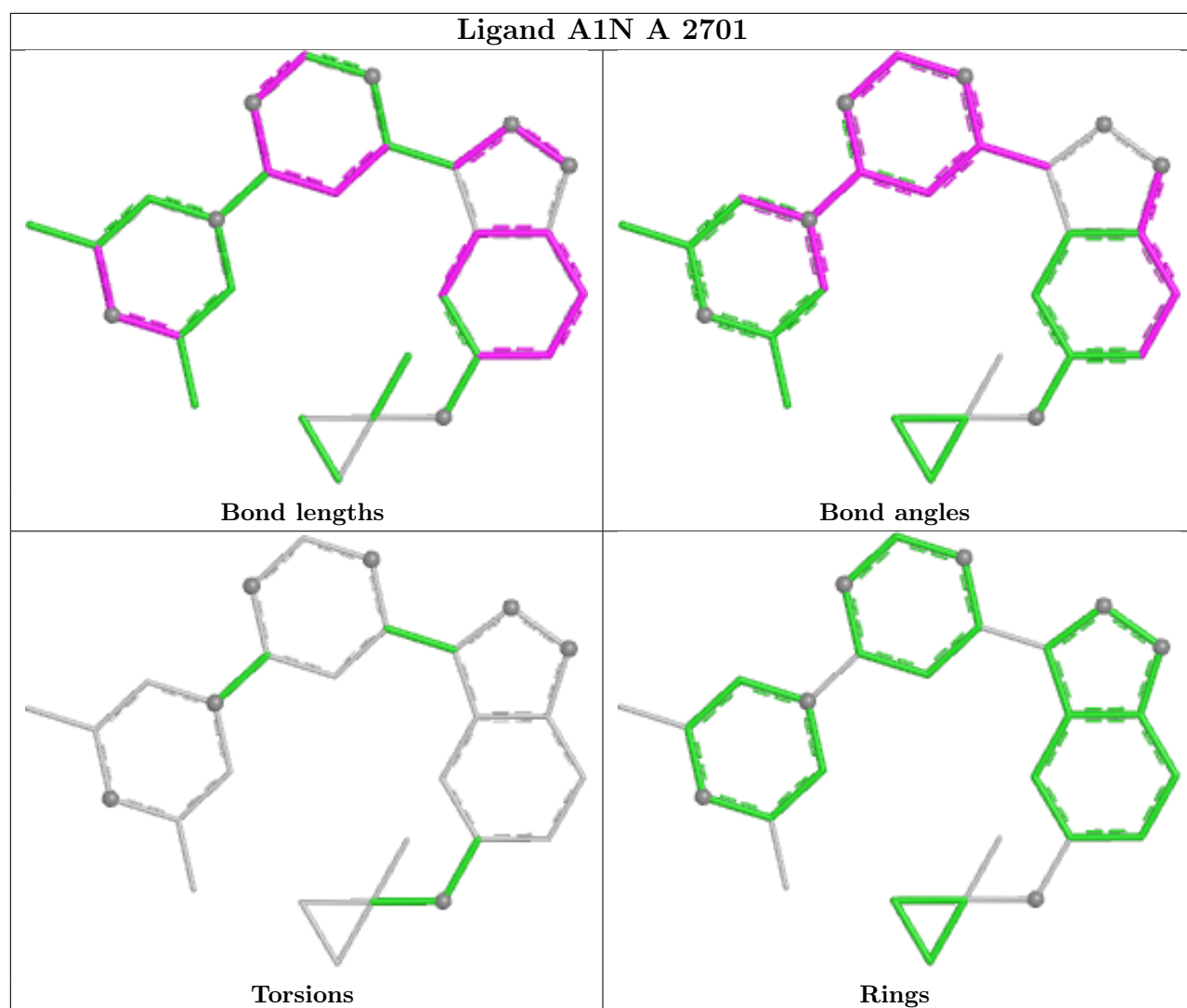
Mol	Chain	Res	Type	Atoms
2	A	2601	GDP	C3'-C4'-C5'-O5'
2	A	2601	GDP	O4'-C4'-C5'-O5'
2	A	2601	GDP	C4'-C5'-O5'-PA

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	2701	A1N	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 than 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.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

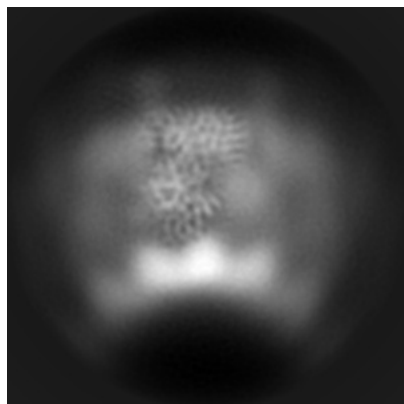
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-45591. These allow visual inspection of the internal detail of the map and identification of artifacts.

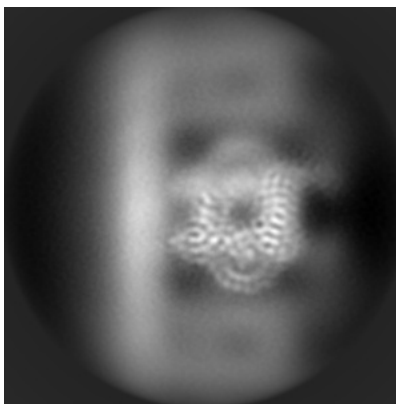
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

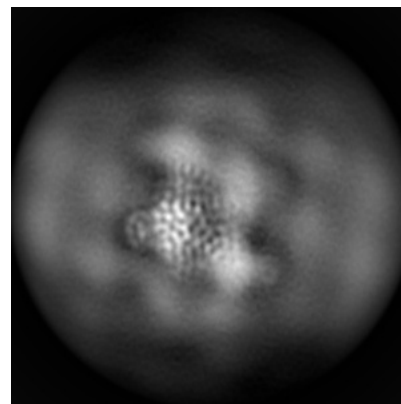
6.1.1 Primary map



X

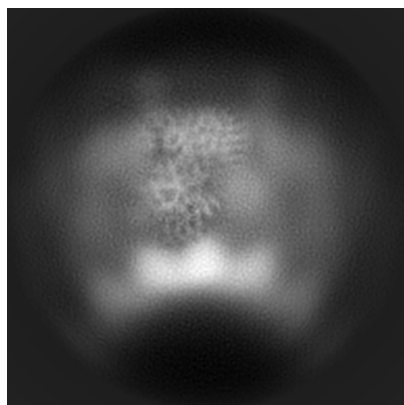


Y

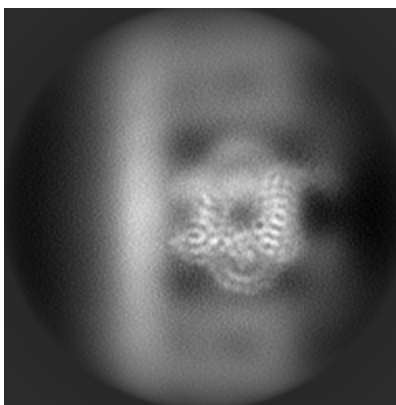


Z

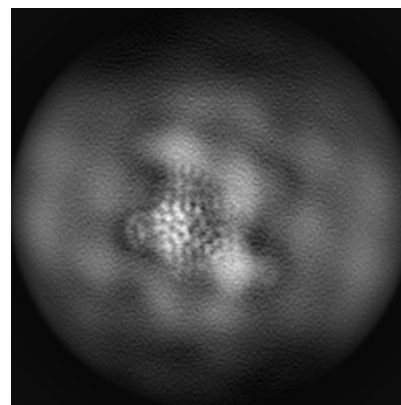
6.1.2 Raw map



X



Y

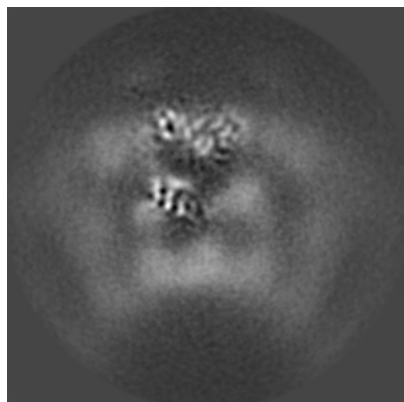


Z

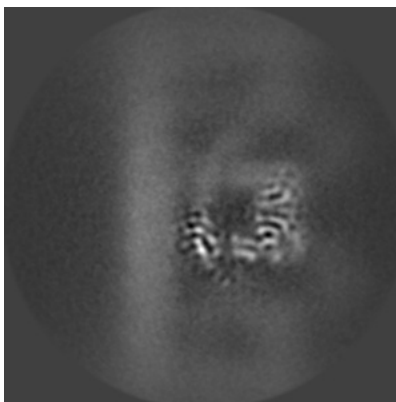
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

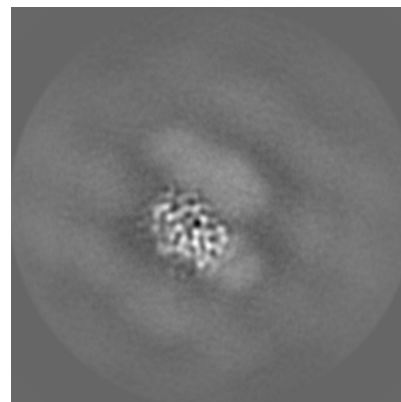
6.2.1 Primary map



X Index: 96

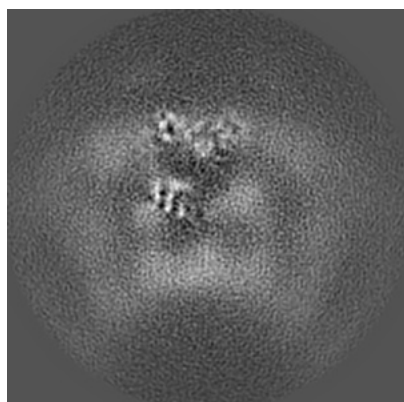


Y Index: 96

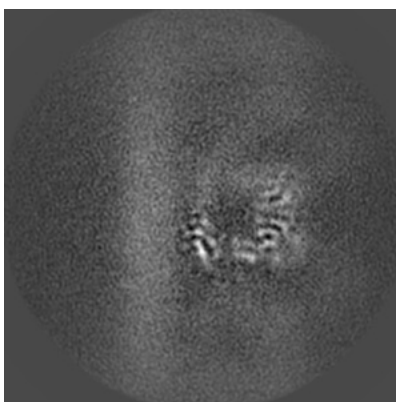


Z Index: 96

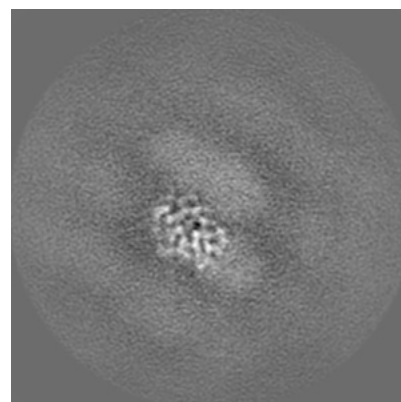
6.2.2 Raw map



X Index: 96



Y Index: 96

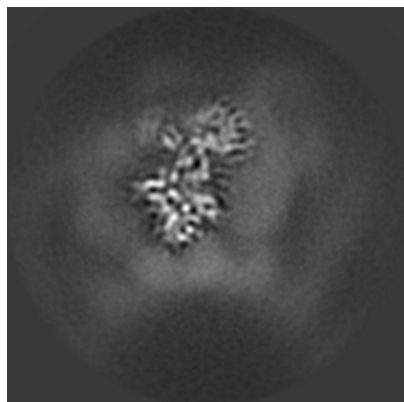


Z Index: 96

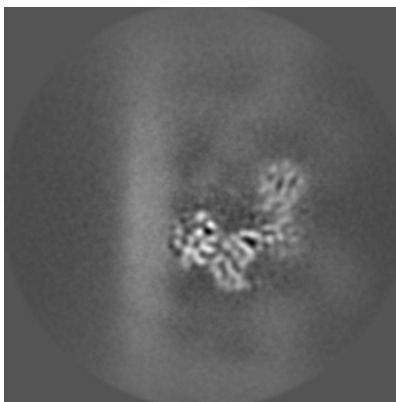
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

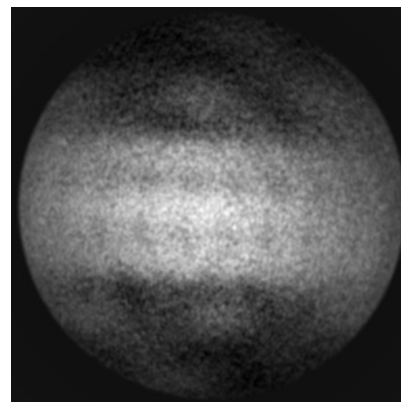
6.3.1 Primary map



X Index: 80

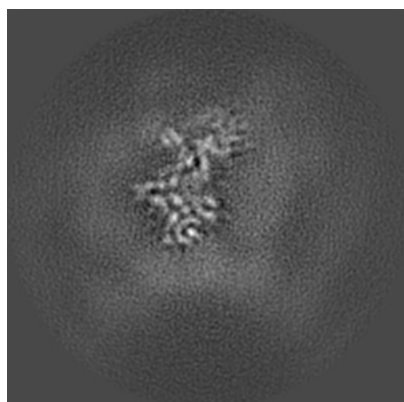


Y Index: 91

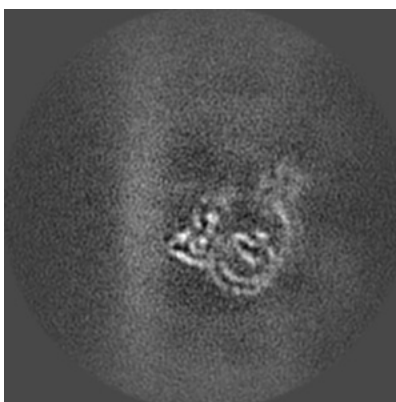


Z Index: 66

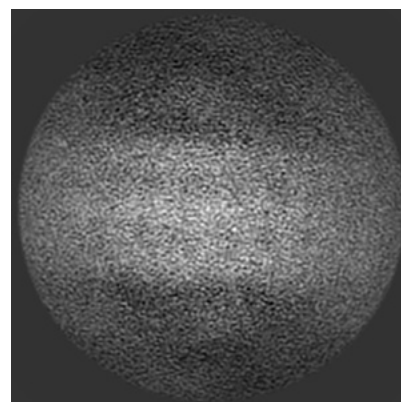
6.3.2 Raw map



X Index: 79



Y Index: 86

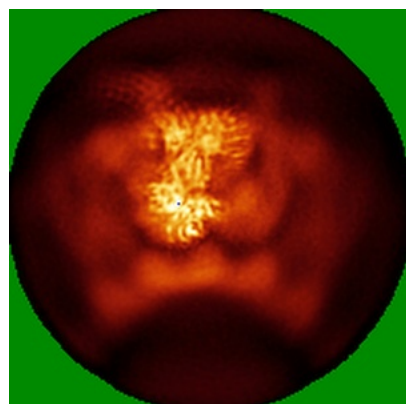


Z Index: 66

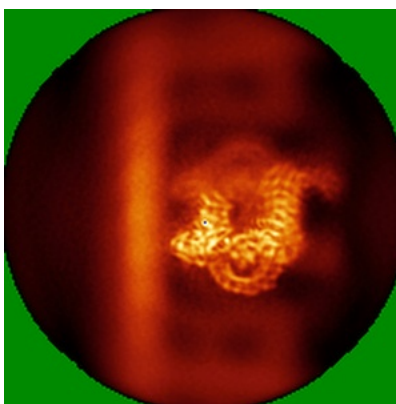
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

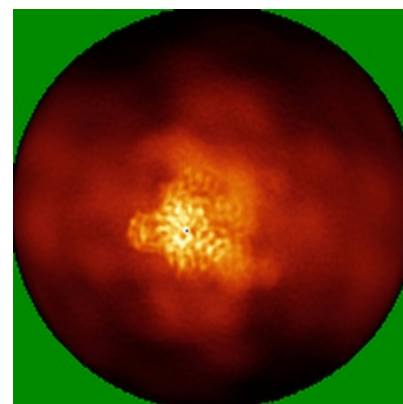
6.4.1 Primary map



X

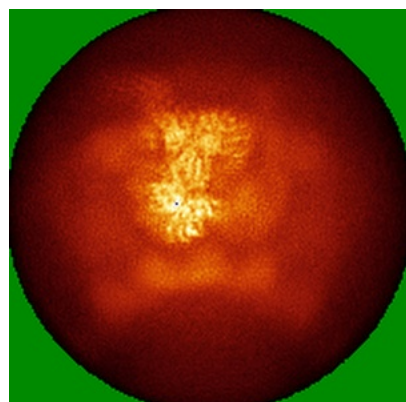


Y

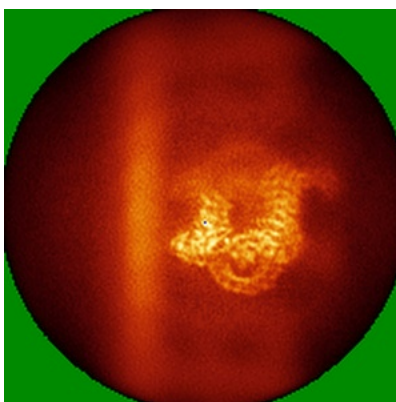


Z

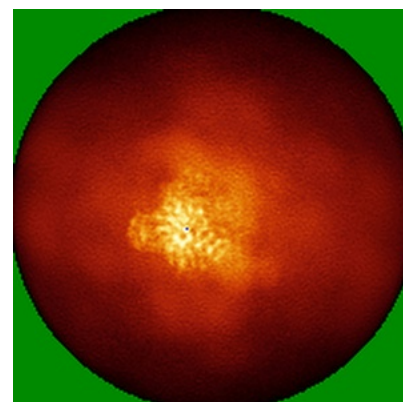
6.4.2 Raw map



X



Y

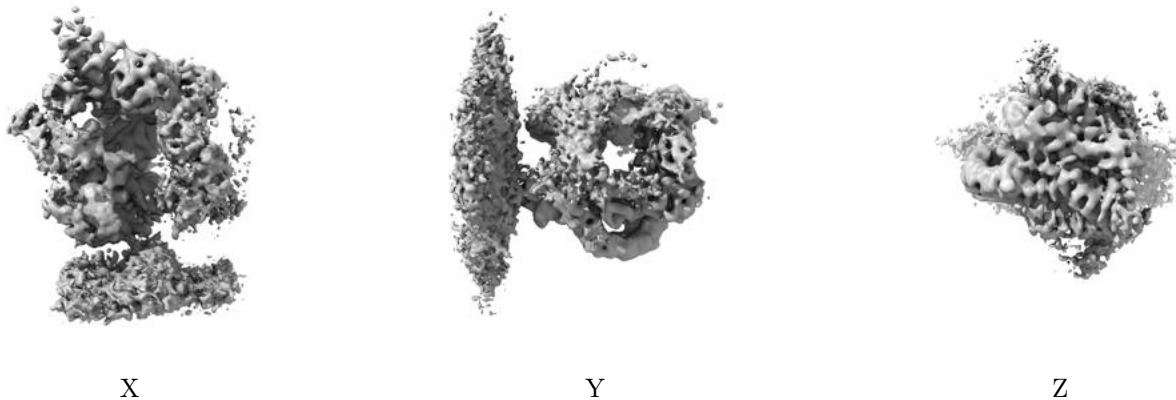


Z

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.

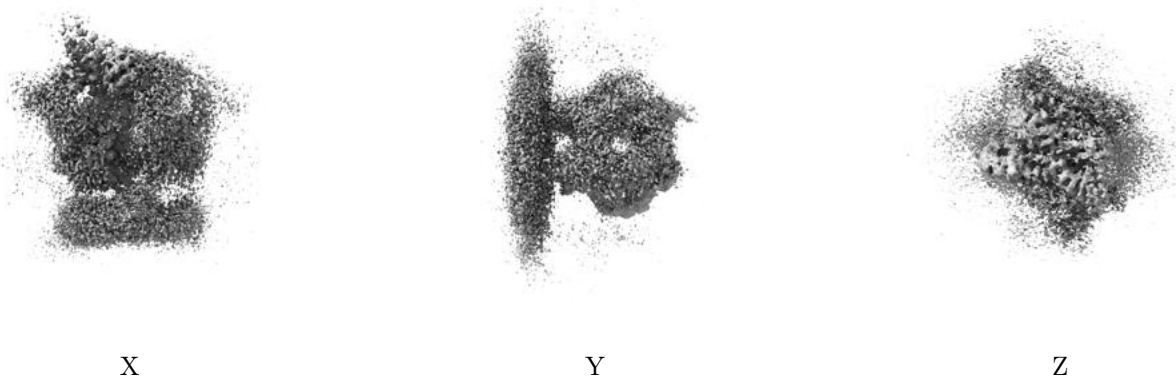
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 1.0. 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



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

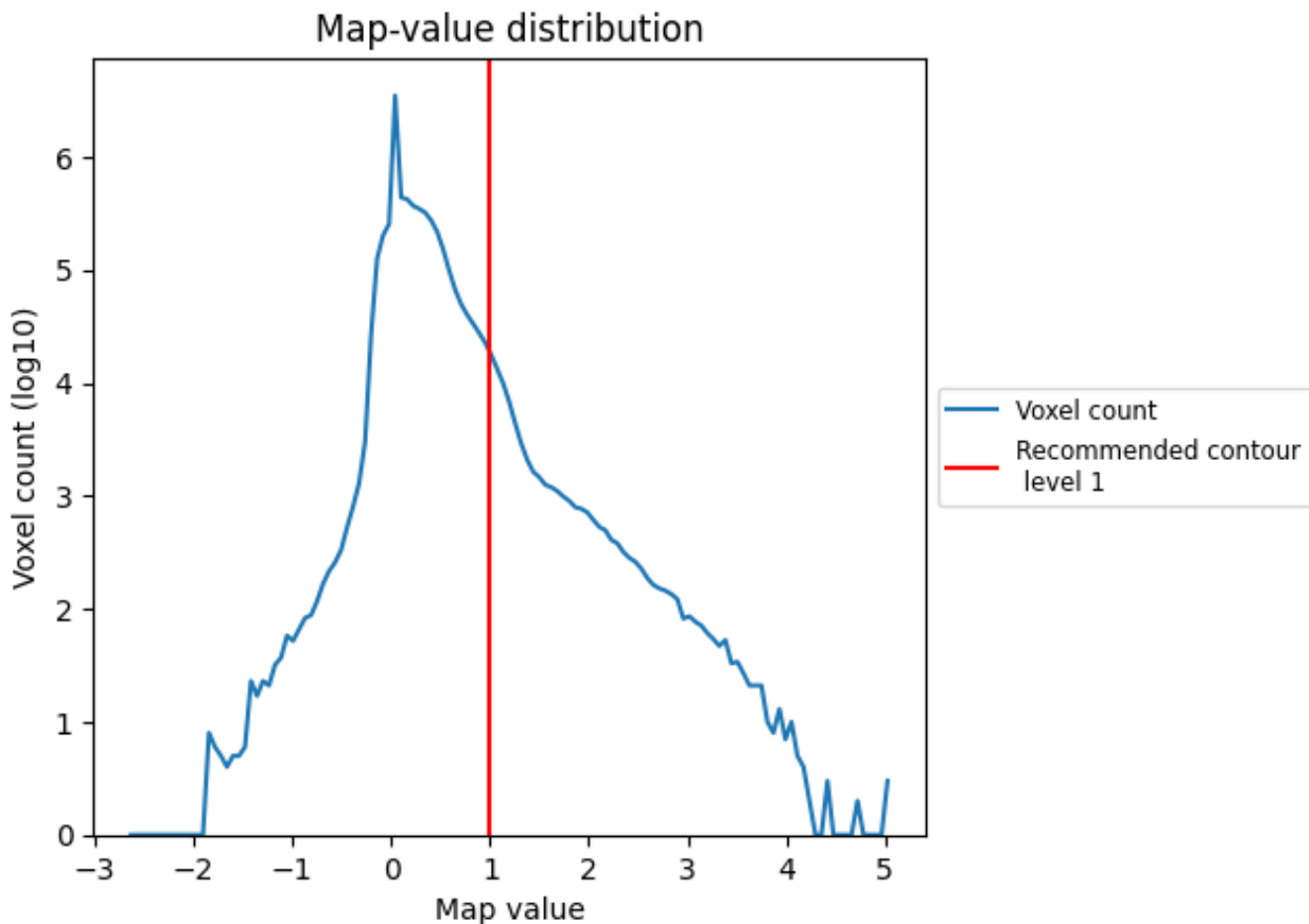
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

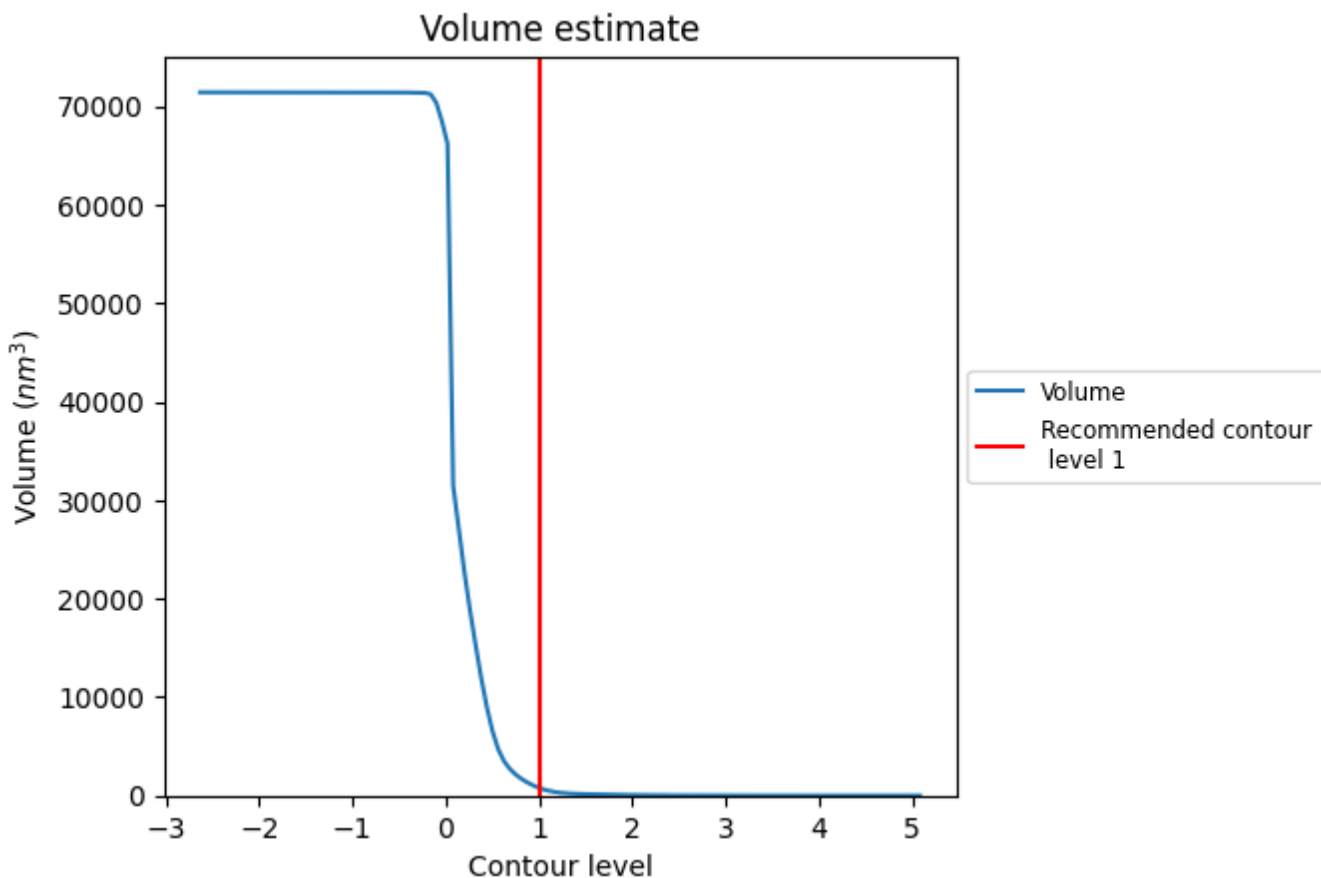
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

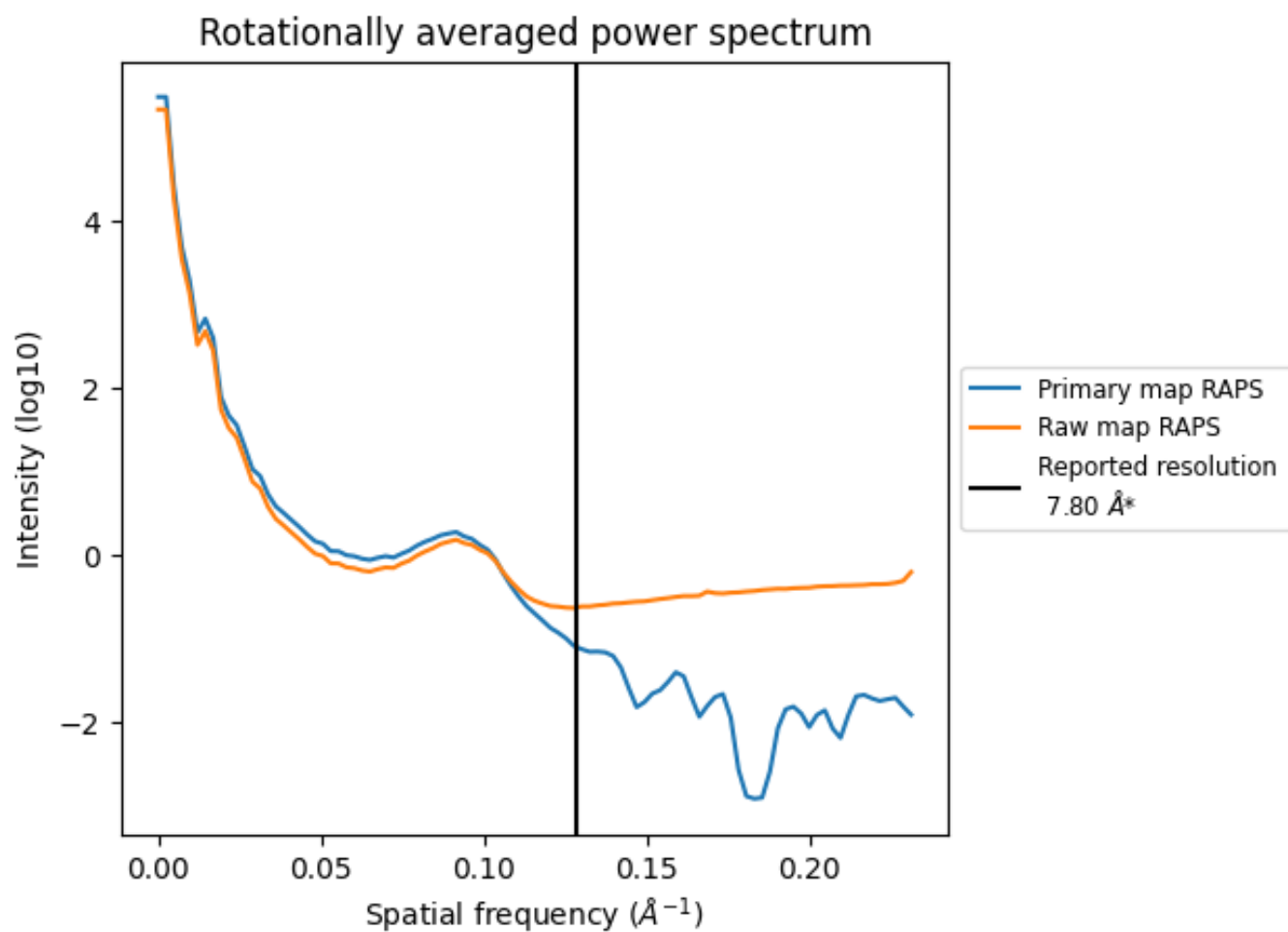
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 785 nm³; this corresponds to an approximate mass of 710 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](#)

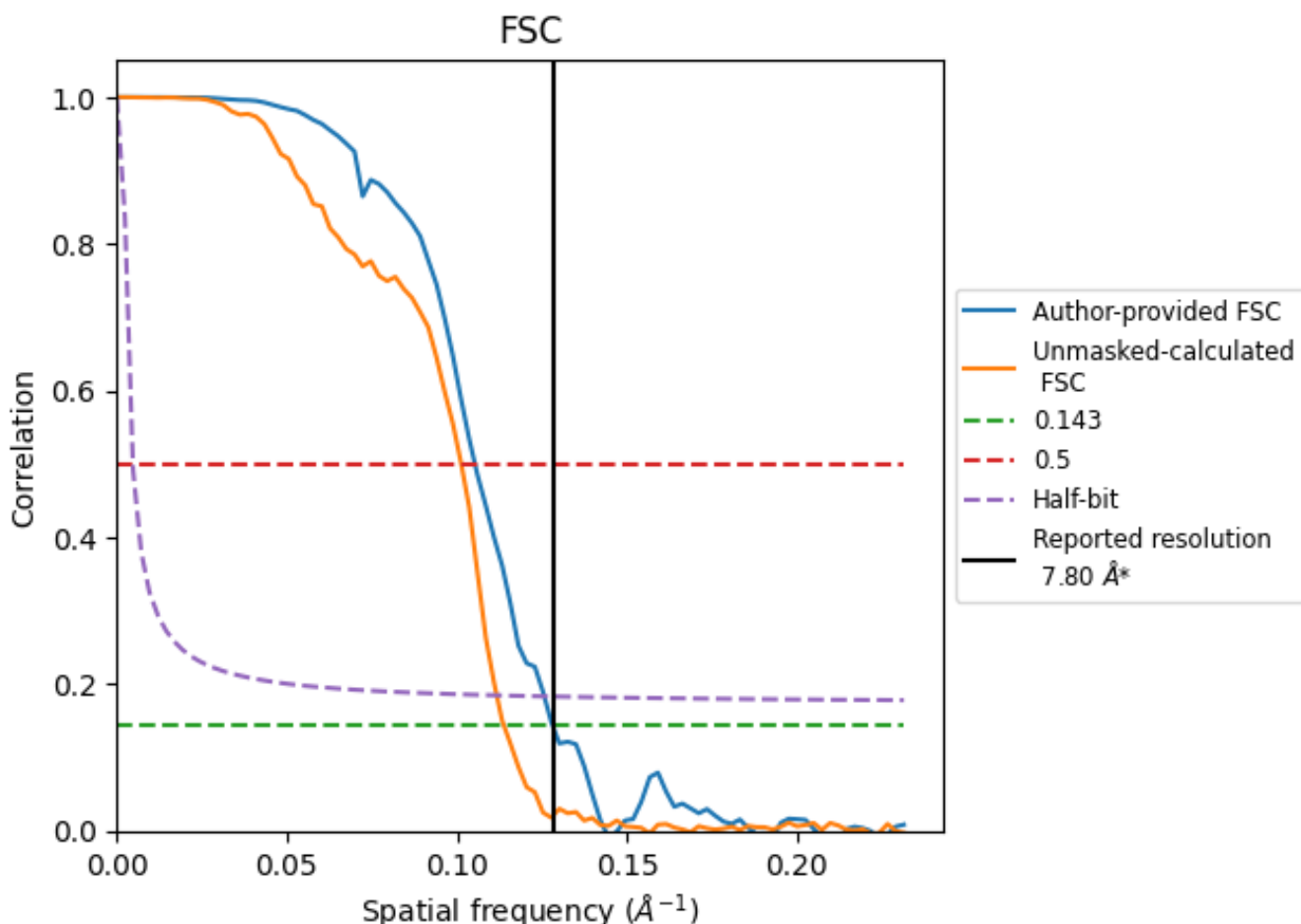


*Reported resolution corresponds to spatial frequency of 0.128 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.128 Å⁻¹

8.2 Resolution estimates [i](#)

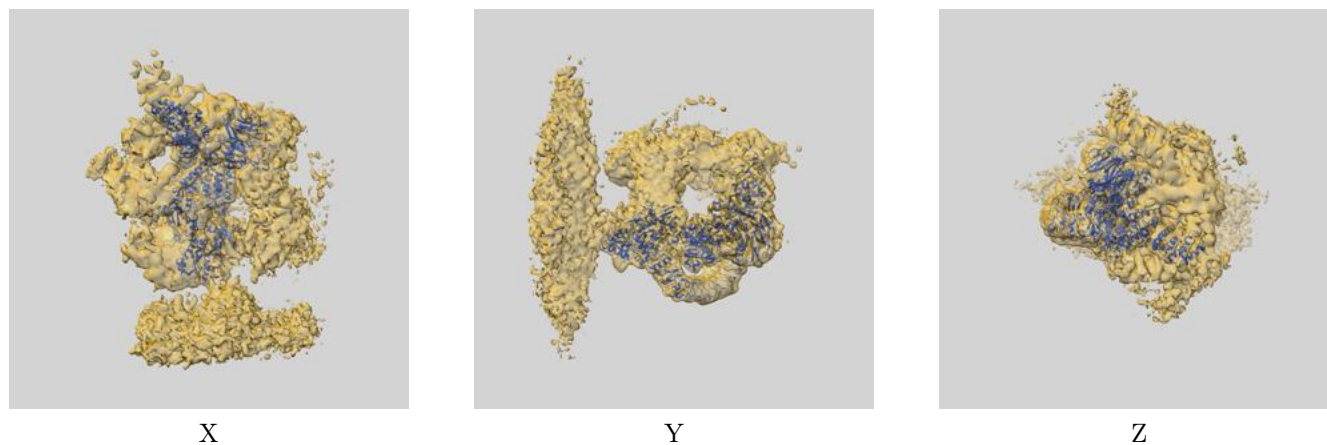
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	7.80	-	-
Author-provided FSC curve	7.80	9.50	7.96
Unmasked-calculated*	8.79	9.87	8.95

*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 8.79 differs from the reported value 7.8 by more than 10 %

9 Map-model fit [i](#)

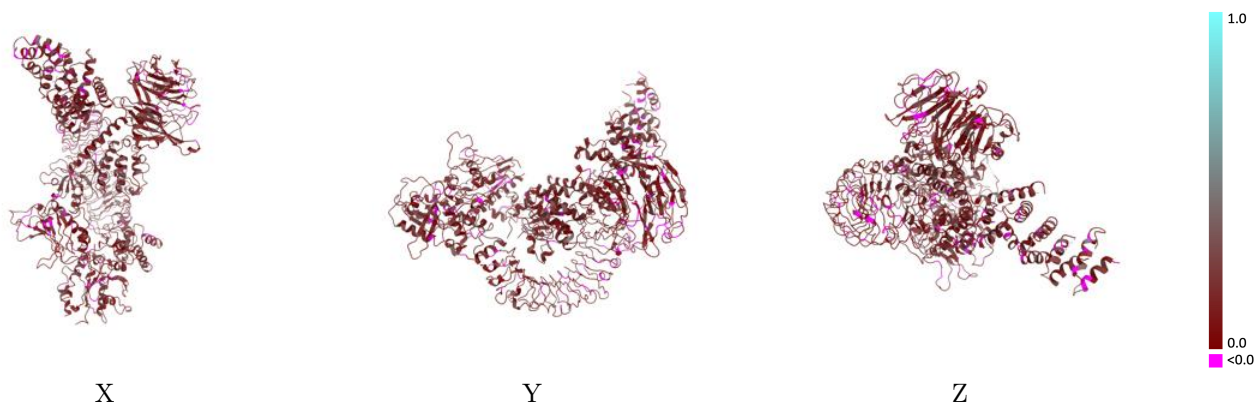
This section contains information regarding the fit between EMDB map EMD-45591 and PDB model 9CHO. Per-residue inclusion information can be found in section [3](#) on page [5](#).

9.1 Map-model overlay [i](#)



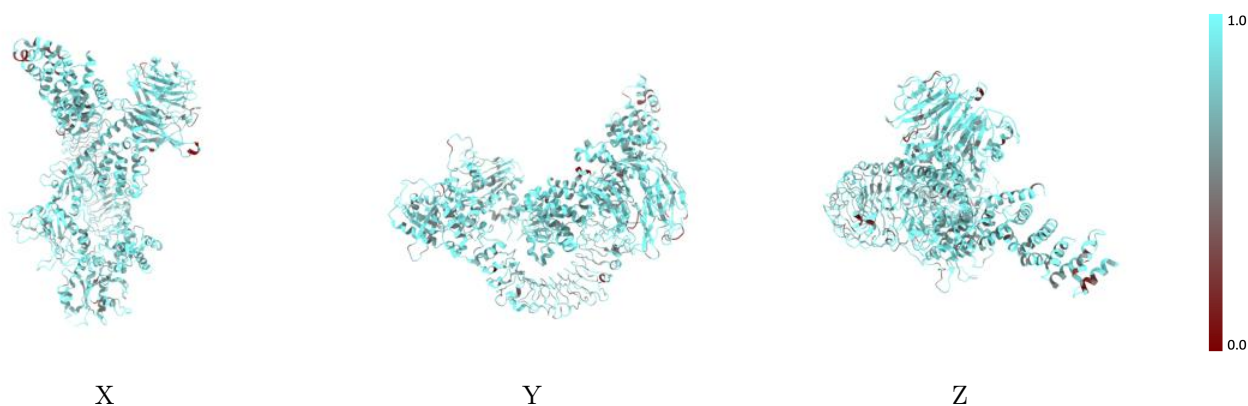
The images above show the 3D surface view of the map at the recommended contour level 1.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [\(i\)](#)



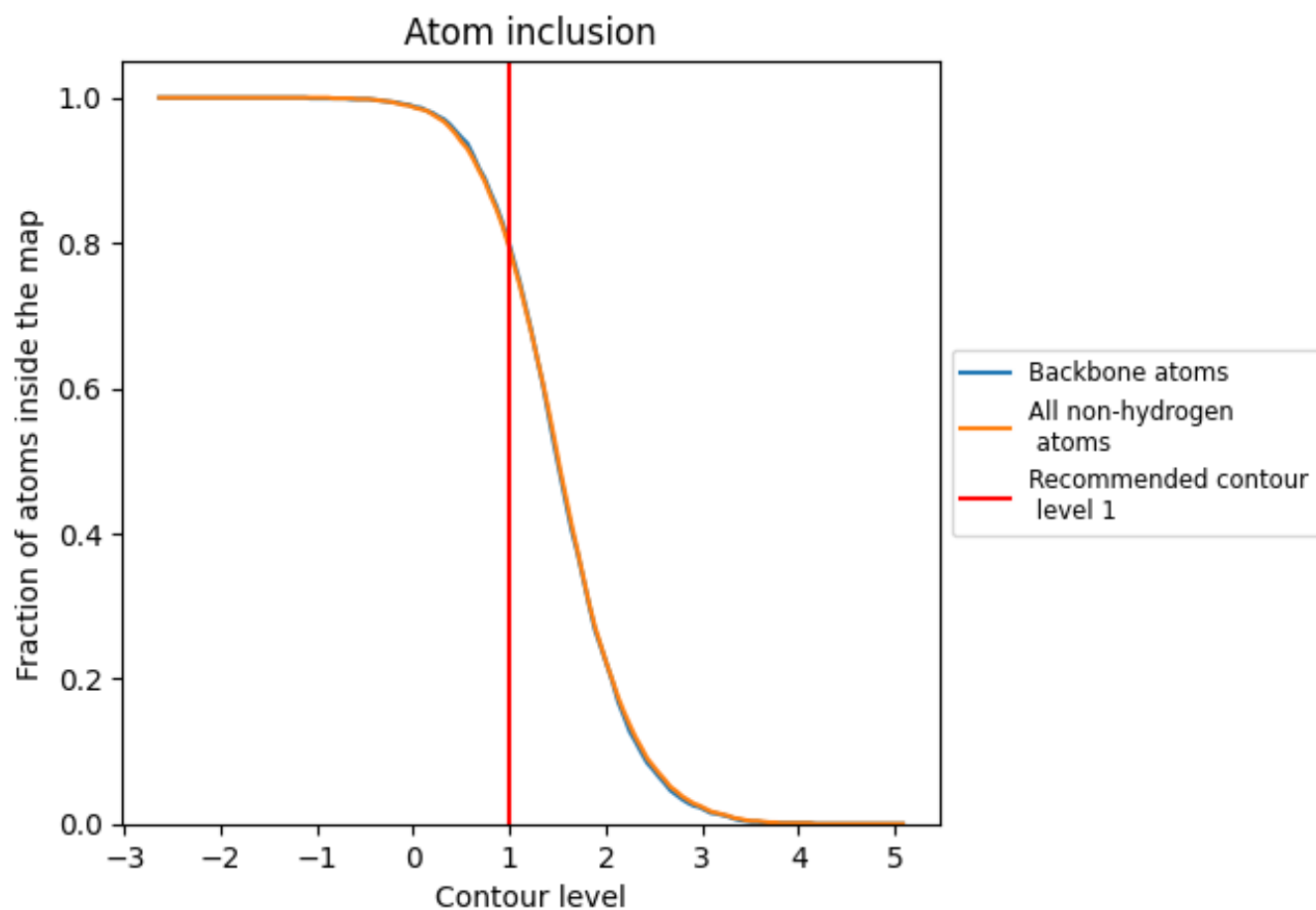
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 [\(i\)](#)



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 (1).





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 (1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7930	 0.1590
A	 0.8030	 0.1590

