



# Full wwPDB EM Validation Report ⓘ

Jan 16, 2025 – 03:30 am GMT

PDB ID : 8RDE  
EMDB ID : EMD-19070  
Title : STRUCTURE OF THE MOUSE FCGBP DIMER PROTEIN IN ITS COMPACT CONFORMATION  
Authors : Gallego, P.; Hansson, G.C.; Johansson, M.E.V.  
Deposited on : 2023-12-08  
Resolution : 3.70 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](mailto: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>.

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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 : 1.8.4, CSD as541be (2020)  
MolProbity : 4.02b-467  
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

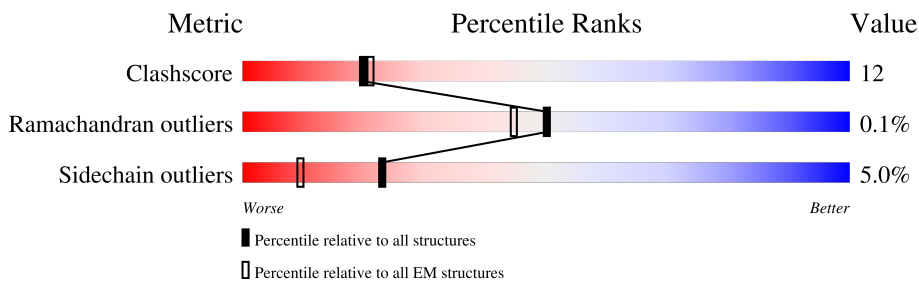
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.70 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  $\geq 3$ , 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	2587	
1	D	2587	

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 20050 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 Fc fragment of IgG binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1342	9937	6174	1721	1921	121	1	0
1	D	1342	9937	6174	1721	1921	121	1	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	2584	THR	-	expression tag	UNP E9Q0B5
A	2585	ARG	-	expression tag	UNP E9Q0B5
A	2586	THR	-	expression tag	UNP E9Q0B5
A	2587	ARG	-	expression tag	UNP E9Q0B5
D	2584	THR	-	expression tag	UNP E9Q0B5
D	2585	ARG	-	expression tag	UNP E9Q0B5
D	2586	THR	-	expression tag	UNP E9Q0B5
D	2587	ARG	-	expression tag	UNP E9Q0B5

- Molecule 2 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
2	A	1	Total 14	8	1	5	0
2	A	1	Total 14	8	1	5	0
2	A	1	Total 14	8	1	5	0
2	A	1	Total 14	8	1	5	0
2	A	1	Total 14	8	1	5	0
2	A	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0
2	D	1	Total 14	8	1	5	0

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>AltConf</b>
3	A	4	Total 4	Ca 4	0
3	D	4	Total 4	Ca 4	0



F2330	F2189	A2082	D1962	T1833	R1701	A1551	R1378	L1283	ASP
C2335	G2190	G2083	T1963	F1840	R1710	T1557	V1379	C1284	PRO
D2337	P2085	D2084	C1964	P1843	V1381	V1558	D1380	P1285	HIS
H2338	R2194	R2086	G1968	G1847	L1713	G1563	T1382	T1289	THR
F2339	A2195	R2087	Q1969	I1848	L1714	V1564	T1383	L1289	THR
L2340	L2200	T2091	C1970	I1849	Y1717	E1565	Y1387	P1294	PHE
L2341	G2201	V2096	G1971	T1850	G1718	G1566	P1294	F1295	ASP
Q2342	C2202	V2097	Y1974	A1851	L1719	G1567	C1392	T1296	ARG
H2343	G2202	G2098	Y1980	P1852	Q1726	D1570	C1395	V1297	PHE
G2344	P2208	L2099	V1985	E1853	R1729	D1571	G1396	K1300	ASP
Y2345	C2211	A2100	F1985	A1857	K1730	S1576	M1404	K1300	PHE
Q2350	P2212	R2101	Y1986	P1858	K1730	V1581	M1404	S1306	MET
D2351	G2213	A2102	P1987	C1859	E1736	P1582	V1407	S1306	GLY
C2352	C2214	Q2104	G1988	T1866	F1737	P1582	M1413	V1309	THR
Y2360	L2215	V2105	G1988	Q1867	L1740	C1589	M1413	V1309	VAL
F2361	Y2222	T2106	Q2002	F1869	P1741	Y1596	I1417	Q1314	GLU
D2362	M2226	G2109	A2009	F1869	F1742	Y1596	P1418	V1317	THR
N2363	P2234	E2110	D2010	A1876	H1743	R1611	P1418	T1318	ASP
N2364	Y2244	E2111	C2011	L1744	L1744	R1611	W1424	T1319	PRO
N2365	L2245	V2111	E2012	Q1880	K1747	C1612	W1434	I1324	THR
S2369	A2240	V2112	C2012	Q1880	K1747	C1612	W1434	I1324	THR
S2373	C2241	E2126	E2012	G1885	L1748	L1621	D1447	H1327	GLY
E2374	H2242	G2127	Y2013	G1885	S1749	L1621	D1447	H1327	THR
R2375	K2243	R2128	Y2014	P1888	V1750	C1623	R1448	K1328	ARG
C2376	V2244	L2132	I2019	A1889	Y1751	C1623	R1448	K1328	GLY
C2386	L2245	L2132	G2022	A1889	I1752	A1626	C1458	F1350	ILE
C2397	C2259	V2140	V2023	T1892	D1756	A1626	L1461	I1351	ARG
E2398	A2273	D2145	Q2024	Y1893	L1636	L1636	L1461	I1351	GLN
Y2403	T2276	P2153	C2031	E1906	I1642	I1642	F1469	V1334	ALA
C2406	A2277	S2154	L2045	K1909	A1654	A1654	F1469	V1334	ALA
Q2407	Q2280	F2156	D2046	P1910	W1655	W1655	L1499	L1343	PRO
I2415	W2289	R2157	L2052	P1914	G1656	G1656	C1500	P1344	PRO
S2416	R2290	G2158	H2053	P1914	D1657	D1657	Q1501	Y1345	VAL
G2418	T2291	R2159	G2054	C1917	P1658	P1658	A1502	Y1346	GLY
A2419	R2310	L2160	S2057	P1918	H1659	H1659	C1510	A1347	ALA
N2420	R2310	C2161	L2060	C1926	D1664	D1664	C1510	A1348	THR
T2423	C2316	C2164	K2067	P1935	D1664	D1664	C1510	A1348	THR
T2431	A2317	F2167	P2068	S1936	L1678	L1678	D1532	G1349	GLN
Y2437	L2319	N2170	G2068	L1937	L1678	L1678	D1532	G1349	GLN
E2438	S2320	D2173	D2070	T1946	P1695	P1695	M1533	D1366	ALA
L2439	L2322	G2324	F2073	G1947	P1695	P1695	M1533	D1366	ALA
S2440	T2323	V2176	L2077	R1948	T1689	T1689	E1537	Q1370	ASP
S2441	G2325	L2177	E2078	R1948	E1690	E1690	L1538	V1371	VAL
R2442	T2326	V2182	K2079	L1989	P1694	P1694	G1538	T1372	THR
			S2081	S1960	T1695	T1695	G1540	D1374	VAL
				G1961	T1695	T1695	P1548	Y1277	ALA







K2566	K2567	I2570	E2571	K2572	Q2573	R2574	D2577	R2587
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## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	184178	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 ( $e^-/\text{\AA}^2$ )	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.340	Depositor
Minimum map value	-0.132	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.0495	Depositor
Map size (Å)	302.72, 302.72, 302.72	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86, 0.86, 0.86	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: CA, NAG

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	0.34	2/10201 (0.0%)	0.56	2/13926 (0.0%)
1	D	0.34	2/10201 (0.0%)	0.56	1/13926 (0.0%)
All	All	0.34	4/20402 (0.0%)	0.56	3/27852 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1582	PRO	N-CD	9.10	1.60	1.47
1	D	1582	PRO	N-CD	9.07	1.60	1.47
1	A	2234	PRO	N-CD	-7.97	1.36	1.47
1	D	2234	PRO	N-CD	-7.96	1.36	1.47

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1582	PRO	CA-N-CD	-5.02	104.47	111.50
1	D	1582	PRO	CA-N-CD	-5.02	104.47	111.50
1	A	2234	PRO	CA-N-CD	5.01	118.72	111.70

There are no chirality outliers.

There are no planarity outliers.

### 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	9937	0	9279	233	0
1	D	9937	0	9279	239	0
2	A	84	0	78	7	0
2	D	84	0	78	7	0
3	A	4	0	0	0	0
3	D	4	0	0	0	0
All	All	20050	0	18714	471	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 12.

All (471) 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:2316:CYS:SG	1:A:2360:TYR:CE1	2.29	1.26
1:D:2316:CYS:SG	1:D:2360:TYR:CE1	2.28	1.26
1:A:1621:LEU:HD12	1:A:1621:LEU:O	1.50	1.11
1:D:1621:LEU:HD12	1:D:1621:LEU:O	1.50	1.10
1:D:2352:CYS:SG	1:D:2360:TYR:OH	2.27	0.92
1:A:2352:CYS:SG	1:A:2360:TYR:OH	2.27	0.92
1:A:1621:LEU:HD13	1:A:1623:CYS:HB2	1.56	0.88
1:A:2316:CYS:SG	1:A:2360:TYR:CZ	2.67	0.88
1:D:1621:LEU:HD13	1:D:1623:CYS:HB2	1.56	0.87
1:D:2316:CYS:SG	1:D:2360:TYR:CZ	2.67	0.87
1:D:2374:GLU:HG2	1:D:2375:ARG:HG2	1.66	0.78
1:A:1374:ASP:HB3	1:A:1378:ARG:HB2	1.66	0.77
1:A:2374:GLU:HG2	1:A:2375:ARG:HG2	1.66	0.76
1:D:1654:ALA:HB3	1:D:1775:VAL:HG12	1.68	0.75
1:D:1374:ASP:HB3	1:D:1378:ARG:HB2	1.66	0.75
1:A:1493:GLY:HA3	1:A:1968:GLY:HA3	1.70	0.74
1:D:1254:TRP:HB3	1:D:1262:ASN:HB3	1.68	0.74
1:A:2450:VAL:HG21	1:A:2542:LEU:HD11	1.70	0.73
1:D:2450:VAL:HG21	1:D:2542:LEU:HD11	1.70	0.73
1:D:2277:ALA:O	1:D:2280:GLN:HG2	1.90	0.72
1:A:2277:ALA:O	1:A:2280:GLN:HG2	1.90	0.71
1:A:1970:CYS:SG	1:A:1971:GLY:N	2.64	0.71
1:D:2491:VAL:HG21	1:D:2502:VAL:HG21	1.72	0.71
1:D:1970:CYS:SG	1:D:1971:GLY:N	2.64	0.70
1:D:1284:CYS:N	1:D:1392:CYS:SG	2.58	0.70
1:D:2446:LEU:HD13	1:D:2545:MET:HG3	1.73	0.70
1:A:2491:VAL:HG21	1:A:2502:VAL:HG21	1.71	0.70
1:D:1317:VAL:HG22	1:D:1324:ILE:HB	1.72	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1284:CYS:N	1:A:1392:CYS:SG	2.58	0.69
1:A:1317:VAL:HG22	1:A:1324:ILE:HB	1.72	0.69
1:A:2446:LEU:HD13	1:A:2545:MET:HG3	1.73	0.69
1:D:2352:CYS:SG	1:D:2360:TYR:CZ	2.86	0.69
1:A:1370:GLN:HB2	1:A:1382:THR:HB	1.75	0.69
1:D:1370:GLN:HB2	1:D:1382:THR:HB	1.75	0.69
1:A:1654:ALA:HB3	1:A:1775:VAL:HG12	1.74	0.69
1:A:2352:CYS:SG	1:A:2360:TYR:CZ	2.86	0.68
1:D:2157:ARG:HD3	1:D:2167:PHE:HB3	1.75	0.68
1:A:2108:ASP:HB2	1:A:2112:VAL:HG12	1.76	0.68
1:D:2108:ASP:HB2	1:D:2112:VAL:HG12	1.76	0.67
1:A:1740:LEU:HD22	1:A:1961:GLY:HA3	1.76	0.67
1:D:1740:LEU:HD22	1:D:1961:GLY:HA3	1.76	0.67
1:A:2352:CYS:SG	1:A:2360:TYR:CE1	2.88	0.67
1:D:1756:ASP:OD1	1:D:1948:ARG:NH2	2.29	0.66
1:D:2352:CYS:SG	1:D:2360:TYR:CE1	2.88	0.66
1:A:2101:ARG:CZ	1:A:2106:THR:HG21	2.25	0.66
1:D:2087:ARG:HG2	1:D:2100:ALA:HB1	1.75	0.66
1:D:2101:ARG:CZ	1:D:2106:THR:HG21	2.25	0.66
1:A:1253:CYS:SG	1:A:1395:CYS:HB2	2.34	0.66
1:A:2087:ARG:NH1	1:A:2087:ARG:O	2.28	0.66
1:A:2087:ARG:HG2	1:A:2100:ALA:HB1	1.75	0.66
1:A:2157:ARG:HD3	1:A:2167:PHE:HB3	1.75	0.66
1:D:1612:CYS:H	1:D:1623:CYS:HA	1.61	0.66
1:A:2212:PRO:HA	1:A:2215:LEU:HD13	1.77	0.65
1:A:1756:ASP:OD1	1:A:1948:ARG:NH2	2.29	0.65
1:A:2579:SER:O	1:D:2471:LYS:NZ	2.28	0.65
1:A:1362:VAL:HG11	1:A:1558:VAL:HG11	1.78	0.65
1:D:1255:LEU:HB3	1:D:1379:VAL:HB	1.78	0.65
1:D:2087:ARG:O	1:D:2087:ARG:NH1	2.28	0.65
1:D:2155:SER:O	1:D:2159:ARG:NH2	2.29	0.65
1:D:2012[A]:GLU:HG2	1:D:2013:PRO:HD2	1.78	0.65
1:D:1362:VAL:HG11	1:D:1558:VAL:HG11	1.78	0.65
1:A:2155:SER:O	1:A:2159:ARG:NH2	2.29	0.64
1:A:1612:CYS:H	1:A:1623:CYS:HA	1.61	0.64
1:D:2212:PRO:HA	1:D:2215:LEU:HD13	1.77	0.64
1:D:2420:ASN:HB2	2:D:5608:NAG:H2	1.80	0.64
1:A:2012[A]:GLU:HG2	1:A:2013:PRO:HD2	1.78	0.64
1:D:1621:LEU:O	1:D:1621:LEU:CD1	2.38	0.64
1:A:2416:SER:HB3	1:A:2419:ALA:HA	1.80	0.64
1:D:2416:SER:HB3	1:D:2419:ALA:HA	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2420:ASN:HB2	2:A:5608:NAG:H2	1.80	0.64
1:A:1695:THR:HG1	1:A:1713:THR:HG1	1.38	0.64
1:D:1283:LEU:HD12	1:D:1289:ALA:HB2	1.79	0.64
1:A:1283:LEU:HD12	1:A:1289:ALA:HB2	1.79	0.63
1:D:2351:ASP:OD1	1:D:2352:CYS:N	2.28	0.63
1:D:1363:LEU:HB3	1:D:1371:VAL:HG13	1.80	0.63
1:A:1363:LEU:HB3	1:A:1371:VAL:HG13	1.80	0.62
1:A:1621:LEU:O	1:A:1621:LEU:CD1	2.38	0.62
1:D:1284:CYS:SG	1:D:1285:PRO:HD3	2.39	0.62
1:A:1284:CYS:SG	1:A:1285:PRO:HD3	2.39	0.62
1:D:2398:GLU:OE1	1:D:2407:GLN:NE2	2.33	0.62
1:A:1826:GLU:HG2	1:A:1829:PRO:HG3	1.82	0.61
1:A:2398:GLU:OE1	1:A:2407:GLN:NE2	2.33	0.61
1:A:1458:CYS:H	1:A:1499:LEU:HD11	1.66	0.61
1:A:2351:ASP:OD1	1:A:2352:CYS:N	2.28	0.61
1:D:1293:THR:N	1:D:1387:TYR:OH	2.34	0.61
1:A:1293:THR:N	1:A:1387:TYR:OH	2.34	0.60
1:D:1253:CYS:SG	1:D:1395:CYS:HB2	2.40	0.60
1:A:2363:VAL:HG21	2:A:5607:NAG:H82	1.83	0.60
1:A:1657:ASP:OD1	1:A:1671:GLN:NE2	2.33	0.60
1:D:1826:GLU:HG2	1:D:1829:PRO:HG3	1.82	0.60
1:D:1959:LEU:HD21	1:D:1980:VAL:HG13	1.83	0.60
1:D:2363:VAL:HG21	2:D:5607:NAG:H82	1.83	0.60
1:D:1458:CYS:H	1:D:1499:LEU:HD11	1.66	0.60
1:A:1959:LEU:HD21	1:A:1980:VAL:HG13	1.83	0.59
1:A:1843:PRO:HA	1:A:1847:GLY:HA3	1.84	0.59
1:D:1654:ALA:HB3	1:D:1775:VAL:CG1	2.33	0.59
1:A:1610:LYS:HB3	1:A:1623:CYS:SG	2.43	0.58
1:A:2437:TYR:OH	1:A:2574:ARG:NH2	2.37	0.58
1:A:1254:TRP:HH2	1:A:1378:ARG:HH21	1.49	0.58
1:D:1959:LEU:HD13	1:D:1965:VAL:HG11	1.85	0.58
1:D:1493:GLY:HA3	1:D:1968:GLY:HA3	1.83	0.58
1:A:1959:LEU:HD13	1:A:1965:VAL:HG11	1.85	0.58
1:A:2423:THR:HB	1:A:2550:CYS:O	2.03	0.58
1:D:2077:LEU:HB3	1:D:2086:GLN:HG2	1.85	0.58
1:A:1345:VAL:HG13	1:A:1354:VAL:HB	1.86	0.58
1:A:2458:ASP:OD1	1:A:2460:GLN:NE2	2.35	0.58
1:A:1832:CYS:SG	1:A:1833:THR:N	2.77	0.58
1:A:1740:LEU:HD13	1:A:1961:GLY:HA3	1.85	0.58
1:A:2077:LEU:HB3	1:A:2086:GLN:HG2	1.85	0.58
1:D:1314:GLN:OE1	1:D:1327:HIS:NE2	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1345:VAL:HG13	1:D:1354:VAL:HB	1.86	0.58
1:D:1843:PRO:HA	1:D:1847:GLY:HA3	1.84	0.57
1:D:2191:THR:O	1:D:2194:ARG:NH1	2.32	0.57
1:D:2423:THR:HB	1:D:2550:CYS:O	2.03	0.57
1:A:1295:PHE:HA	1:A:1319:THR:HG22	1.86	0.57
1:D:1295:PHE:HA	1:D:1319:THR:HG22	1.86	0.57
1:A:1372:THR:CG2	1:A:1380:ASP:HB3	2.35	0.57
1:D:1610:LYS:HB3	1:D:1623:CYS:SG	2.43	0.57
1:A:1314:GLN:OE1	1:A:1327:HIS:NE2	2.37	0.57
1:D:2458:ASP:OD1	1:D:2460:GLN:NE2	2.35	0.57
1:D:1249:TYR:CZ	1:D:1400:LYS:HG2	2.39	0.57
1:D:1372:THR:CG2	1:D:1380:ASP:HB3	2.35	0.57
1:D:1740:LEU:HD22	1:D:1961:GLY:CA	2.35	0.57
1:D:2437:TYR:OH	1:D:2574:ARG:NH2	2.37	0.56
1:A:2323:THR:HB	1:A:2326:THR:HA	1.86	0.56
1:A:1275:CYS:HA	1:A:1300:LYS:HE2	1.88	0.56
1:A:2320:SER:HB3	1:A:2322:LEU:HG	1.88	0.56
1:D:1740:LEU:HD13	1:D:1961:GLY:HA3	1.85	0.56
1:D:2108:ASP:HA	1:D:2112:VAL:HA	1.87	0.56
1:A:2081:SER:H	1:A:2084:ASP:HB2	1.69	0.56
1:D:1611:ARG:NH1	1:D:1626:ALA:O	2.37	0.56
1:D:1832:CYS:SG	1:D:1833:THR:N	2.77	0.56
1:D:1275:CYS:HA	1:D:1300:LYS:HE2	1.88	0.56
1:D:2081:SER:H	1:D:2084:ASP:HB2	1.69	0.56
1:D:2323:THR:HB	1:D:2326:THR:HA	1.86	0.56
1:A:1740:LEU:HD22	1:A:1961:GLY:CA	2.35	0.56
1:A:1868:TYR:HD2	1:A:1893:TYR:HD1	1.53	0.55
1:A:2052:LEU:HD23	1:A:2054:GLY:H	1.72	0.55
1:D:2316:CYS:HA	1:D:2340:LEU:HD22	1.88	0.55
1:A:2108:ASP:HA	1:A:2112:VAL:HA	1.87	0.55
1:A:2316:CYS:SG	1:A:2360:TYR:CD1	2.96	0.55
1:A:2316:CYS:HA	1:A:2340:LEU:HD22	1.88	0.55
1:D:2442:ARG:HD3	1:D:2450:VAL:HB	1.89	0.55
1:A:2108:ASP:OD1	1:A:2109:GLY:N	2.40	0.55
1:A:2442:ARG:HD3	1:A:2450:VAL:HB	1.89	0.55
1:D:2320:SER:HB3	1:D:2322:LEU:HG	1.88	0.55
1:A:2108:ASP:CA	1:A:2112:VAL:HA	2.37	0.55
1:A:2369:SER:HB3	1:A:2373:SER:HB2	1.89	0.55
1:D:1868:TYR:HD2	1:D:1893:TYR:HD1	1.53	0.55
1:D:1853:GLU:HA	1:D:1857:ALA:HB2	1.88	0.55
1:A:2158:GLY:H	1:A:2167:PHE:HB2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1621:LEU:CD1	1:A:1623:CYS:HB2	2.33	0.54
1:D:2158:GLY:H	1:D:2167:PHE:HB2	1.72	0.54
1:A:1880:GLN:O	1:A:1880:GLN:HG3	2.08	0.54
1:A:2108:ASP:CB	1:A:2112:VAL:HA	2.38	0.54
1:D:2415:ILE:HG23	1:D:2416:SER:H	1.72	0.54
1:A:2415:ILE:HG23	1:A:2416:SER:H	1.72	0.54
1:D:1589:CYS:HB2	1:D:1596:TYR:HB2	1.89	0.54
1:D:2060:LEU:HD12	1:D:2163:LEU:HB2	1.89	0.54
1:A:1853:GLU:HA	1:A:1857:ALA:HB2	1.88	0.54
1:D:2108:ASP:CA	1:D:2112:VAL:HA	2.37	0.54
1:D:2369:SER:HB3	1:D:2373:SER:HB2	1.89	0.54
1:D:1880:GLN:O	1:D:1880:GLN:HG3	2.08	0.54
1:A:1255:LEU:HB3	1:A:1379:VAL:HB	1.89	0.54
1:A:1589:CYS:HB2	1:A:1596:TYR:HB2	1.89	0.54
1:A:1654:ALA:HB3	1:A:1775:VAL:CG1	2.37	0.54
1:D:1655:TRP:HZ3	1:D:1889:ALA:HA	1.73	0.54
1:A:2060:LEU:HD12	1:A:2163:LEU:HB2	1.89	0.54
1:A:2191:THR:O	1:A:2194:ARG:NH1	2.32	0.54
1:D:2108:ASP:OD1	1:D:2109:GLY:N	2.40	0.54
1:D:2316:CYS:SG	1:D:2360:TYR:CD1	2.96	0.53
1:A:1655:TRP:HZ3	1:A:1889:ALA:HA	1.72	0.53
1:D:2052:LEU:HD23	1:D:2054:GLY:H	1.72	0.53
1:D:2108:ASP:CB	1:D:2112:VAL:HA	2.38	0.53
1:D:2128:ARG:HH22	1:D:2145:ASP:HB2	1.74	0.53
1:D:1685:PRO:HB2	1:D:1689:THR:HB	1.90	0.53
1:A:2240:ALA:HA	1:A:2243:LYS:HE2	1.89	0.53
1:A:1710:ARG:HH12	1:A:1726:GLN:HB3	1.73	0.53
1:A:1694:VAL:HG22	1:A:1714:LEU:HD13	1.91	0.53
1:D:2240:ALA:HA	1:D:2243:LYS:HE2	1.89	0.53
1:A:2490:TRP:NE1	1:A:2495:ARG:HG2	2.25	0.52
1:A:1611:ARG:NH1	1:A:1626:ALA:O	2.37	0.52
1:D:1710:ARG:HH12	1:D:1726:GLN:HB3	1.73	0.52
1:A:1685:PRO:HB2	1:A:1689:THR:HB	1.90	0.52
1:D:1694:VAL:HG22	1:D:1714:LEU:HD13	1.91	0.52
1:A:1273:GLY:HA3	1:A:1277:TYR:HE2	1.75	0.52
1:A:2485:PRO:HD3	1:A:2528:LEU:HD21	1.90	0.52
1:D:1636:LEU:HA	1:D:1642:ILE:HG22	1.92	0.52
1:D:2490:TRP:NE1	1:D:2495:ARG:HG2	2.25	0.52
1:D:1372:THR:HG22	1:D:1380:ASP:HB3	1.92	0.52
1:A:2014:TYR:HE1	1:A:2157:ARG:HH21	1.58	0.51
1:D:2126:GLU:HG3	1:D:2330:PHE:CE1	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1589:CYS:H	1:D:1596:TYR:H	1.59	0.51
1:A:1417:ILE:N	1:A:1418:PRO:HD2	2.25	0.51
1:D:1621:LEU:CD1	1:D:1623:CYS:HB2	2.33	0.51
1:D:2485:PRO:HD3	1:D:2528:LEU:HD21	1.90	0.51
1:A:2126:GLU:HG3	1:A:2330:PHE:CE1	2.46	0.51
1:A:2455:VAL:HG12	1:A:2474:ILE:HG23	1.92	0.51
1:D:2108:ASP:HB2	1:D:2112:VAL:HA	1.92	0.51
1:D:2177:LEU:HD23	1:D:2182:VAL:HA	1.92	0.51
1:A:1372:THR:HG22	1:A:1380:ASP:HB3	1.92	0.51
1:D:1306:SER:HB2	1:D:1309:VAL:HG22	1.92	0.51
1:D:1678:LEU:N	1:D:1694:VAL:O	2.44	0.51
1:A:2101:ARG:HD3	1:A:2106:THR:HG22	1.93	0.51
1:A:2177:LEU:HD23	1:A:2182:VAL:HA	1.92	0.51
1:A:1254:TRP:HB3	1:A:1262:ASN:HB3	1.91	0.51
1:A:1589:CYS:H	1:A:1596:TYR:H	1.59	0.51
1:A:1636:LEU:HA	1:A:1642:ILE:HG22	1.93	0.51
1:A:1678:LEU:N	1:A:1694:VAL:O	2.44	0.51
1:D:1273:GLY:HA3	1:D:1277:TYR:HE2	1.75	0.51
1:D:1417:ILE:N	1:D:1418:PRO:HD2	2.25	0.51
1:D:2101:ARG:HD3	1:D:2106:THR:HG22	1.93	0.50
1:D:2509:ARG:NH2	1:D:2511:MET:SD	2.77	0.50
1:A:1333:LYS:HA	1:A:1340:LEU:HA	1.94	0.50
1:D:2014:TYR:HE1	1:D:2157:ARG:HH21	1.58	0.50
1:A:1306:SER:HB2	1:A:1309:VAL:HG22	1.92	0.50
1:A:1730:LYS:HA	1:A:1740:LEU:HD11	1.94	0.50
1:A:2128:ARG:HH22	1:A:2145:ASP:HB2	1.74	0.50
1:A:2108:ASP:HB2	1:A:2112:VAL:HA	1.92	0.50
1:D:2031:CYS:HA	1:D:2153:PRO:HA	1.93	0.50
1:A:1324:ILE:HG23	1:A:1334:VAL:HB	1.94	0.50
1:A:1384:PRO:HB3	2:A:5601:NAG:H62	1.93	0.50
1:D:1730:LYS:HA	1:D:1740:LEU:HD11	1.94	0.50
1:D:1750:VAL:HG13	1:D:1759:VAL:HG12	1.93	0.50
1:D:2455:VAL:HG12	1:D:2474:ILE:HG23	1.92	0.50
1:A:1548:PRO:HB2	1:A:1551:ALA:HA	1.94	0.49
1:D:2577:ASP:OD1	1:D:2577:ASP:N	2.45	0.49
1:A:1737:PHE:HD1	1:A:2022:GLY:HA3	1.77	0.49
1:A:1750:VAL:HG13	1:A:1759:VAL:HG12	1.93	0.49
1:A:2031:CYS:HA	1:A:2153:PRO:HA	1.93	0.49
1:D:1548:PRO:HB2	1:D:1551:ALA:HA	1.94	0.49
1:D:1737:PHE:HD1	1:D:2022:GLY:HA3	1.77	0.49
1:D:2565:GLN:HG3	1:D:2572:LYS:HD3	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1906:GLU:O	1:A:1909:LYS:NZ	2.45	0.49
1:A:2091:THR:HG22	1:A:2096:VAL:HG22	1.95	0.49
1:A:2397:CYS:SG	1:A:2406:CYS:HB3	2.52	0.49
1:A:2577:ASP:OD1	1:A:2577:ASP:N	2.45	0.49
1:D:1906:GLU:O	1:D:1909:LYS:NZ	2.45	0.49
1:A:1655:TRP:HB2	1:A:1659:HIS:O	2.11	0.49
1:A:1910:PRO:HA	1:A:1914:PRO:HB3	1.94	0.49
1:D:1324:ILE:HG23	1:D:1334:VAL:HB	1.94	0.49
1:A:1866:THR:HG23	1:A:1867:GLN:N	2.28	0.49
1:D:1333:LYS:HA	1:D:1340:LEU:HA	1.94	0.49
1:D:2335:CYS:HB3	1:D:2339:PHE:CD2	2.47	0.49
1:A:2509:ARG:NH2	1:A:2511:MET:SD	2.77	0.49
1:D:1880:GLN:HE21	1:D:2350:GLN:HG3	1.78	0.49
1:A:2335:CYS:HB3	1:A:2339:PHE:CD2	2.47	0.49
1:D:2352:CYS:HA	1:D:2360:TYR:CE1	2.48	0.49
1:A:1729:ARG:HH22	1:A:1962:ASP:HA	1.79	0.48
1:A:1880:GLN:HE21	1:A:2350:GLN:HG3	1.78	0.48
1:A:2019:ILE:HB	1:A:2024:GLN:HG2	1.95	0.48
1:A:2364:ASN:HD22	2:A:5607:NAG:H62	1.78	0.48
1:A:1823:CYS:SG	1:A:1828:CYS:N	2.86	0.48
1:A:2352:CYS:HA	1:A:2360:TYR:CE1	2.48	0.48
1:D:1655:TRP:HZ2	1:D:1868:TYR:CG	2.31	0.48
1:D:2091:THR:HG22	1:D:2096:VAL:HG22	1.95	0.48
1:A:2565:GLN:HG3	1:A:2572:LYS:HD3	1.95	0.48
1:D:1823:CYS:SG	1:D:1828:CYS:N	2.86	0.48
1:A:2362:PRO:O	1:A:2365:SER:OG	2.29	0.48
1:A:1998:GLY:HA3	1:A:2002:GLN:HG3	1.95	0.48
1:D:1998:GLY:HA3	1:D:2002:GLN:HG3	1.95	0.48
1:D:1910:PRO:HA	1:D:1914:PRO:HB3	1.94	0.48
1:D:2019:ILE:HB	1:D:2024:GLN:HG2	1.95	0.48
1:D:2397:CYS:SG	1:D:2406:CYS:HB3	2.52	0.48
1:A:2322:LEU:HB2	1:A:2325:CYS:H	1.78	0.48
1:D:1274:THR:OG1	1:D:1434:TRP:O	2.27	0.48
1:D:1249:TYR:OH	1:D:1400:LYS:HG2	2.14	0.47
1:A:2498:LEU:HD13	1:A:2510:ARG:HE	1.79	0.47
1:D:1273:GLY:HA3	1:D:1277:TYR:CE2	2.50	0.47
1:D:1729:ARG:HH22	1:D:1962:ASP:HA	1.79	0.47
1:D:2364:ASN:HD22	2:D:5607:NAG:H62	1.78	0.47
1:A:1324:ILE:HD12	1:A:1334:VAL:HB	1.96	0.47
1:A:1610:LYS:HD2	1:A:1623:CYS:SG	2.55	0.47
1:D:1324:ILE:HD12	1:D:1334:VAL:HB	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1866:THR:HG23	1:D:1867:GLN:N	2.28	0.47
1:D:1610:LYS:HD2	1:D:1623:CYS:SG	2.55	0.47
1:D:2322:LEU:HB2	1:D:2325:CYS:H	1.78	0.47
1:A:1274:THR:OG1	1:A:1434:TRP:O	2.27	0.47
1:D:2310:ARG:HG3	1:D:2325:CYS:SG	2.55	0.47
1:D:2398:GLU:HB3	1:D:2407:GLN:HE22	1.80	0.47
1:A:2415:ILE:HG23	1:A:2416:SER:N	2.30	0.47
1:A:2471:LYS:NZ	1:D:2577:ASP:O	2.43	0.47
1:D:1775:VAL:HG13	1:D:1775:VAL:O	2.15	0.47
1:A:1366:ASP:OD1	1:A:1366:ASP:N	2.48	0.47
1:A:2132:LEU:HB3	1:A:2140:VAL:HG13	1.97	0.47
1:D:1469:PHE:HB3	1:D:1517:ILE:HG23	1.97	0.47
1:A:2310:ARG:HG3	1:A:2325:CYS:SG	2.55	0.46
1:D:2415:ILE:HG21	1:D:2534:LEU:HB3	1.96	0.46
1:A:1740:LEU:O	1:A:1742:PHE:N	2.45	0.46
1:D:2086:GLN:N	1:D:2086:GLN:OE1	2.48	0.46
1:D:2111:VAL:HG13	1:D:2403:VAL:HA	1.97	0.46
1:D:2277:ALA:O	1:D:2280:GLN:CG	2.60	0.46
1:D:2415:ILE:HG23	1:D:2416:SER:N	2.30	0.46
1:D:2498:LEU:HD13	1:D:2510:ARG:HE	1.79	0.46
1:D:2132:LEU:HB3	1:D:2140:VAL:HG13	1.97	0.46
1:A:2277:ALA:O	1:A:2280:GLN:CG	2.60	0.46
1:A:2352:CYS:CB	1:A:2360:TYR:HE1	2.28	0.46
1:D:1366:ASP:OD1	1:D:1366:ASP:N	2.48	0.46
1:D:2352:CYS:CB	1:D:2360:TYR:HE1	2.28	0.46
1:A:1273:GLY:HA3	1:A:1277:TYR:CE2	2.50	0.46
1:A:1820:CYS:SG	1:A:1821:ASP:N	2.89	0.46
1:A:2415:ILE:HG21	1:A:2534:LEU:HB3	1.96	0.46
1:D:1327:HIS:HB2	1:D:1329:ASN:ND2	2.31	0.46
1:A:1327:HIS:HB2	1:A:1329:ASN:ND2	2.31	0.46
1:A:1750:VAL:HG22	1:A:1759:VAL:HG12	1.98	0.46
1:A:2053:HIS:O	1:A:2053:HIS:ND1	2.49	0.46
1:A:2111:VAL:HG13	1:A:2403:VAL:HA	1.97	0.46
1:A:2214:CYS:SG	1:A:2259:CYS:N	2.89	0.46
1:D:1740:LEU:O	1:D:1742:PHE:N	2.45	0.46
1:A:2086:GLN:OE1	1:A:2086:GLN:N	2.48	0.46
1:A:2491:VAL:HG21	1:A:2502:VAL:HG11	1.98	0.45
1:D:1373:TYR:HD1	1:D:1379:VAL:HG22	1.81	0.45
1:D:1536:TYR:OH	1:D:1565:GLU:OE2	2.26	0.45
1:A:1880:GLN:HE22	1:A:2350:GLN:NE2	2.15	0.45
1:A:2073:PHE:HA	1:A:2091:THR:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1540:GLY:N	1:D:1563:CYS:SG	2.90	0.45
1:D:1808:LYS:HG2	1:D:1810:GLU:H	1.82	0.45
1:A:1373:TYR:HD1	1:A:1379:VAL:HG22	1.81	0.45
1:A:1469:PHE:HB3	1:A:1517:ILE:HG23	1.97	0.45
1:A:1655:TRP:HB2	1:A:1659:HIS:HB2	1.97	0.45
1:A:2045:LEU:N	1:A:2164:CYS:O	2.47	0.45
1:D:2053:HIS:O	1:D:2053:HIS:ND1	2.49	0.45
1:D:2173:ASP:O	1:D:2176:VAL:HG22	2.17	0.45
1:D:2214:CYS:SG	1:D:2259:CYS:N	2.89	0.45
1:D:1880:GLN:HE22	1:D:2350:GLN:NE2	2.15	0.45
1:D:2491:VAL:HG21	1:D:2502:VAL:HG11	1.98	0.45
1:A:1540:GLY:N	1:A:1563:CYS:SG	2.90	0.45
1:A:1744:LEU:HD12	1:A:1744:LEU:HA	1.91	0.45
1:A:2398:GLU:HB3	1:A:2407:GLN:HE22	1.80	0.45
1:D:1750:VAL:HG22	1:D:1759:VAL:HG12	1.98	0.45
1:A:2090:VAL:HB	1:A:2097:VAL:HG13	1.98	0.45
1:A:1796:LYS:HD3	1:A:1796:LYS:HA	1.53	0.45
1:A:1917:CYS:SG	1:A:1918:PRO:HD2	2.57	0.45
1:D:1347:LEU:HD23	1:D:1349:GLY:H	1.82	0.45
1:A:1775:VAL:O	1:A:1775:VAL:HG13	2.15	0.44
1:D:1820:CYS:SG	1:D:1821:ASP:N	2.89	0.44
1:D:2431:ILE:HG23	1:D:2570:ILE:HG21	1.99	0.44
1:A:2156:PHE:HB3	1:A:2160:LEU:HB2	2.00	0.44
1:A:2173:ASP:HB3	2:A:5609:NAG:H82	1.99	0.44
1:D:1917:CYS:SG	1:D:1918:PRO:HD2	2.57	0.44
1:A:1808:LYS:HG2	1:A:1810:GLU:H	1.82	0.44
1:D:1929:SER:HB2	1:D:1946:ILE:O	2.17	0.44
1:A:1347:LEU:HD23	1:A:1349:GLY:H	1.82	0.44
1:A:2431:ILE:HG23	1:A:2570:ILE:HG21	1.99	0.44
1:D:1796:LYS:HA	1:D:1796:LYS:HD3	1.53	0.44
1:D:1850:THR:OG1	1:D:1869:PHE:HB2	2.18	0.44
1:A:1929:SER:HB2	1:A:1946:ILE:O	2.17	0.44
1:D:1719:LEU:HD23	1:D:1748:LEU:HD13	2.00	0.44
1:D:1774:PHE:CE2	1:D:1892:THR:HG23	2.53	0.44
1:A:2173:ASP:O	1:A:2176:VAL:HG22	2.17	0.44
1:D:2073:PHE:HA	1:D:2091:THR:O	2.16	0.44
1:A:2418:GLY:HA3	2:A:5608:NAG:H83	1.99	0.44
1:D:2156:PHE:HB3	1:D:2160:LEU:HB2	1.99	0.44
1:D:2242:HIS:HA	1:D:2245:LEU:O	2.18	0.44
1:D:2418:GLY:HA3	2:D:5608:NAG:H83	1.99	0.44
1:A:1570:ASP:OD1	1:A:1570:ASP:N	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1962:ASP:N	1:D:1962:ASP:OD1	2.51	0.44
1:A:1719:LEU:HD23	1:A:1748:LEU:HD13	2.00	0.44
1:A:1848:ILE:O	1:A:1852:PRO:HG3	2.18	0.44
1:A:1850:THR:OG1	1:A:1869:PHE:HB2	2.18	0.44
1:D:1717:TYR:CD2	1:D:1747:LYS:HD3	2.53	0.44
1:D:2090:VAL:HB	1:D:2097:VAL:HG13	1.98	0.44
1:A:2242:HIS:HA	1:A:2245:LEU:O	2.18	0.43
1:D:1826:GLU:OE1	1:D:1826:GLU:N	2.41	0.43
1:D:1880:GLN:HE22	1:D:2350:GLN:HE21	1.66	0.43
1:D:2045:LEU:N	1:D:2164:CYS:O	2.47	0.43
1:D:1535:HIS:ND1	1:D:1537:GLU:HG3	2.33	0.43
1:D:1657:ASP:HB3	1:D:1708:TYR:HE1	1.83	0.43
1:D:2173:ASP:HB3	2:D:5609:NAG:H82	1.98	0.43
1:A:1331:ILE:HD13	1:A:1340:LEU:HB2	2.01	0.43
1:A:2439:LEU:HB2	1:A:2455:VAL:HG23	2.00	0.43
1:D:1662:THR:OG1	1:D:1666:HIS:N	2.48	0.43
1:A:1535:HIS:ND1	1:A:1537:GLU:HG3	2.33	0.43
1:A:1880:GLN:HE22	1:A:2350:GLN:HE21	1.66	0.43
1:D:1848:ILE:O	1:D:1852:PRO:HG3	2.18	0.43
1:D:2079:LYS:HD3	1:D:2083:GLY:HA2	2.01	0.43
1:D:2101:ARG:NH1	1:D:2106:THR:HG21	2.33	0.43
1:A:2101:ARG:NH1	1:A:2106:THR:HG21	2.33	0.43
1:D:1935:PRO:O	1:D:1937:LEU:N	2.51	0.43
1:A:1935:PRO:O	1:A:1937:LEU:N	2.51	0.43
2:D:5608:NAG:O7	2:D:5608:NAG:O4	2.25	0.43
1:A:1263:SER:HA	1:A:1395:CYS:HB3	2.01	0.43
1:A:1297:VAL:HG12	1:A:1317:VAL:HG12	2.00	0.43
1:A:1774:PHE:CE2	1:A:1892:THR:HG23	2.53	0.43
1:A:1962:ASP:N	1:A:1962:ASP:OD1	2.51	0.43
1:D:1263:SER:HA	1:D:1395:CYS:HB3	2.01	0.43
1:D:1297:VAL:HG12	1:D:1317:VAL:HG12	2.00	0.43
1:D:1621:LEU:HD13	1:D:1623:CYS:CB	2.39	0.43
1:D:2364:ASN:ND2	2:D:5607:NAG:H62	2.34	0.43
1:D:2439:LEU:HB2	1:D:2455:VAL:HG23	2.01	0.43
1:A:1407:VAL:HA	1:A:1413:MET:HA	2.01	0.42
1:D:2337:ASP:OD1	1:D:2338:HIS:N	2.53	0.42
1:A:1532:ASP:HB3	1:A:1533:ASN:H	1.71	0.42
1:A:1717:TYR:CD2	1:A:1747:LYS:HD3	2.53	0.42
1:A:2057:SER:HB2	1:A:2195:ALA:HB3	2.02	0.42
1:A:2222:TYR:O	1:A:2225:ASN:ND2	2.52	0.42
1:D:1331:ILE:HD13	1:D:1340:LEU:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:2222:TYR:O	1:D:2225:ASN:ND2	2.52	0.42
1:A:1518:GLU:OE1	1:A:1518:GLU:N	2.53	0.42
1:A:1533:ASN:HB2	1:A:1569:CYS:HA	2.01	0.42
1:D:1370:GLN:HE21	1:D:1370:GLN:HB3	1.65	0.42
1:D:1533:ASN:HB2	1:D:1569:CYS:HA	2.01	0.42
1:D:2057:SER:HB3	1:D:2078:GLU:HG3	2.01	0.42
1:A:2067:LYS:HD2	1:A:2068:PRO:HD2	2.02	0.42
1:A:2342:SER:O	1:A:2343:HIS:ND1	2.52	0.42
1:A:2337:ASP:OD1	1:A:2338:HIS:N	2.53	0.42
1:D:1840:PHE:CD2	1:D:1876:ALA:HB1	2.55	0.42
1:D:2570:ILE:HD12	1:D:2570:ILE:H	1.85	0.42
1:A:1392:CYS:HB3	1:A:1424:TRP:HZ3	1.85	0.42
1:A:1736:GLU:HA	1:A:2022:GLY:HA2	2.01	0.42
1:A:2376:CYS:HA	1:A:2386:CYS:HA	2.01	0.42
1:A:2570:ILE:HD12	1:A:2570:ILE:H	1.85	0.42
1:D:1407:VAL:HA	1:D:1413:MET:HA	2.01	0.42
1:D:1701:ARG:HH21	1:D:2318:ALA:HB2	1.85	0.42
1:A:1826:GLU:OE1	1:A:1826:GLU:N	2.41	0.42
1:A:2057:SER:HB3	1:A:2078:GLU:HG3	2.01	0.42
1:D:1570:ASP:N	1:D:1570:ASP:OD1	2.51	0.42
1:D:1985:PHE:CE2	1:D:1987:PRO:HG3	2.55	0.42
1:A:1372:THR:HG23	1:A:1380:ASP:HB3	2.01	0.41
1:A:1701:ARG:HH21	1:A:2318:ALA:HB2	1.85	0.41
1:A:1985:PHE:CE2	1:A:1987:PRO:HG3	2.55	0.41
1:D:1576:SER:HB2	1:D:1581:VAL:HG11	2.02	0.41
1:D:2342:SER:O	1:D:2343:HIS:ND1	2.52	0.41
1:A:2079:LYS:HD3	1:A:2083:GLY:HA2	2.01	0.41
1:D:1664:ASP:OD1	1:D:1664:ASP:N	2.52	0.41
1:D:1736:GLU:HA	1:D:2022:GLY:HA2	2.01	0.41
1:A:2276:THR:HG21	1:A:2289:TRP:CD1	2.55	0.41
1:D:1372:THR:HG23	1:D:1380:ASP:HB3	2.01	0.41
1:D:1392:CYS:HB3	1:D:1424:TRP:HZ3	1.85	0.41
1:A:1740:LEU:HD23	1:A:1752:ILE:HB	2.02	0.41
1:D:2057:SER:HB2	1:D:2195:ALA:HB3	2.02	0.41
1:D:1655:TRP:HE3	1:D:1656:GLY:H	1.68	0.41
1:D:2276:THR:HG21	1:D:2289:TRP:CD1	2.55	0.41
1:A:1447:ASP:OD1	1:A:1448:ARG:N	2.54	0.41
1:D:1710:ARG:NH2	1:D:1726:GLN:OE1	2.49	0.41
1:A:2364:ASN:ND2	2:A:5607:NAG:H62	2.34	0.41
1:D:2472:VAL:HG23	1:D:2528:LEU:HD22	2.02	0.41
1:A:1576:SER:HB2	1:A:1581:VAL:HG11	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1885:GLY:O	1:A:1888:PRO:HD2	2.20	0.41
1:A:2441:SER:HA	1:A:2453:TYR:O	2.21	0.41
1:D:1885:GLY:O	1:D:1888:PRO:HD2	2.20	0.41
1:D:2316:CYS:SG	1:D:2360:TYR:HE1	2.23	0.41
1:A:1840:PHE:CD2	1:A:1876:ALA:HB1	2.55	0.41
1:A:2078:GLU:OE1	1:A:2078:GLU:N	2.54	0.41
1:D:1343:LEU:HB3	1:D:1344:PRO:HD3	2.02	0.41
1:D:1518:GLU:OE1	1:D:1518:GLU:N	2.53	0.41
1:D:1519:ASP:HA	1:D:1538:LEU:HD21	2.03	0.41
1:D:1565:GLU:HG2	1:D:1566:GLY:N	2.36	0.41
1:D:1991:CYS:N	1:D:2017:CYS:SG	2.94	0.41
1:D:2067:LYS:HD2	1:D:2068:PRO:HD2	2.02	0.41
1:D:2376:CYS:HA	1:D:2386:CYS:HA	2.01	0.41
1:A:1519:ASP:HA	1:A:1538:LEU:HD21	2.03	0.41
1:A:1565:GLU:HG2	1:A:1566:GLY:N	2.36	0.40
1:D:2397:CYS:HA	1:D:2406:CYS:HA	2.04	0.40
1:D:2473:HIS:HB3	1:D:2480:LEU:HD11	2.03	0.40
1:A:1256:TRP:HZ2	1:A:1502:ALA:HB1	1.86	0.40
1:A:1343:LEU:HB3	1:A:1344:PRO:HD3	2.02	0.40
1:A:2070:ASP:OD2	1:A:2159:ARG:NH2	2.54	0.40
1:A:2473:HIS:HB3	1:A:2480:LEU:HD11	2.03	0.40
1:A:2273:ALA:HA	1:A:2276:THR:HG22	2.04	0.40
1:A:2531:ASP:OD1	1:A:2531:ASP:N	2.55	0.40
1:D:2078:GLU:N	1:D:2078:GLU:OE1	2.54	0.40
1:D:2415:ILE:HG22	1:D:2534:LEU:O	2.22	0.40
1:A:2503:LEU:HB3	1:A:2504:THR:H	1.69	0.40
1:D:1744:LEU:HD12	1:D:1744:LEU:HA	1.91	0.40
1:D:1267:TRP:HB2	1:D:1402:HIS:HB2	2.04	0.40
1:D:1280:ALA:HA	1:D:1393:GLY:HA3	2.04	0.40
1:D:1285:PRO:HB2	1:D:1287:VAL:HG23	2.04	0.40
1:D:1368:GLY:HA3	1:D:1384:PRO:HG3	2.04	0.40
1:D:2070:ASP:OD2	1:D:2159:ARG:NH2	2.54	0.40
1:D:2441:SER:HA	1:D:2453:TYR:O	2.21	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	1337/2587 (52%)	1253 (94%)	83 (6%)	1 (0%)	48	78
1	D	1337/2587 (52%)	1253 (94%)	83 (6%)	1 (0%)	48	78
All	All	2674/5174 (52%)	2506 (94%)	166 (6%)	2 (0%)	50	78

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2109	GLY
1	D	2109	GLY

### 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	1085/2113 (51%)	1031 (95%)	54 (5%)	20	47
1	D	1085/2113 (51%)	1031 (95%)	54 (5%)	20	47
All	All	2170/4226 (51%)	2062 (95%)	108 (5%)	23	47

All (108) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1317	VAL
1	A	1345	VAL
1	A	1369	LEU
1	A	1370	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	1371	VAL
1	A	1395	CYS
1	A	1404	ASN
1	A	1461	LEU
1	A	1500	CYS
1	A	1510	CYS
1	A	1532	ASP
1	A	1557	THR
1	A	1623	CYS
1	A	1664	ASP
1	A	1674	CYS
1	A	1690	GLU
1	A	1793	ASN
1	A	1796	LYS
1	A	1799	ASN
1	A	1823	CYS
1	A	1859	CYS
1	A	1926	CYS
1	A	1959	LEU
1	A	1963	THR
1	A	1965	VAL
1	A	1970	CYS
1	A	1974	TYR
1	A	2011	CYS
1	A	2046	ASP
1	A	2099	LEU
1	A	2104	GLN
1	A	2105	VAL
1	A	2161	CYS
1	A	2170	ASN
1	A	2173	ASP
1	A	2189	PHE
1	A	2200	LEU
1	A	2202	CYS
1	A	2208	PRO
1	A	2211	CYS
1	A	2225	ASN
1	A	2241	CYS
1	A	2291	THR
1	A	2345	VAL
1	A	2376	CYS
1	A	2462	CYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	2475	PHE
1	A	2501	THR
1	A	2502	VAL
1	A	2504	THR
1	A	2534	LEU
1	A	2560	ASP
1	A	2567	LYS
1	A	2577	ASP
1	D	1317	VAL
1	D	1345	VAL
1	D	1369	LEU
1	D	1370	GLN
1	D	1371	VAL
1	D	1395	CYS
1	D	1404	ASN
1	D	1461	LEU
1	D	1500	CYS
1	D	1510	CYS
1	D	1532	ASP
1	D	1557	THR
1	D	1623	CYS
1	D	1664	ASP
1	D	1674	CYS
1	D	1690	GLU
1	D	1793	ASN
1	D	1796	LYS
1	D	1799	ASN
1	D	1823	CYS
1	D	1859	CYS
1	D	1926	CYS
1	D	1959	LEU
1	D	1963	THR
1	D	1965	VAL
1	D	1970	CYS
1	D	1974	TYR
1	D	2011	CYS
1	D	2046	ASP
1	D	2099	LEU
1	D	2104	GLN
1	D	2105	VAL
1	D	2161	CYS
1	D	2170	ASN

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Mol	Chain	Res	Type
1	D	2173	ASP
1	D	2189	PHE
1	D	2200	LEU
1	D	2202	CYS
1	D	2208	PRO
1	D	2211	CYS
1	D	2225	ASN
1	D	2241	CYS
1	D	2291	THR
1	D	2345	VAL
1	D	2376	CYS
1	D	2462	CYS
1	D	2475	PHE
1	D	2501	THR
1	D	2502	VAL
1	D	2504	THR
1	D	2534	LEU
1	D	2560	ASP
1	D	2567	LYS
1	D	2577	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1880	GLN
1	D	1880	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

Of 20 ligands modelled in this entry, 8 are monoatomic - leaving 12 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
2	NAG	D	5607	1	14,14,15	0.89	1 (7%)	17,19,21	1.25	1 (5%)
2	NAG	A	5601	1	14,14,15	0.81	1 (7%)	17,19,21	0.95	1 (5%)
2	NAG	D	5610	1	14,14,15	0.30	0	17,19,21	0.43	0
2	NAG	A	5607	1	14,14,15	0.88	1 (7%)	17,19,21	1.25	1 (5%)
2	NAG	A	5603	1	14,14,15	0.34	0	17,19,21	0.68	0
2	NAG	A	5609	1	14,14,15	0.27	0	17,19,21	0.42	0
2	NAG	A	5608	1	14,14,15	0.70	1 (7%)	17,19,21	0.86	0
2	NAG	A	5610	1	14,14,15	0.30	0	17,19,21	0.42	0
2	NAG	D	5603	1	14,14,15	0.34	0	17,19,21	0.68	0
2	NAG	D	5608	1	14,14,15	0.70	1 (7%)	17,19,21	0.86	0
2	NAG	D	5601	1	14,14,15	0.81	1 (7%)	17,19,21	0.95	1 (5%)
2	NAG	D	5609	1	14,14,15	0.26	0	17,19,21	0.42	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	5607	1	-	2/6/23/26	0/1/1/1
2	NAG	A	5601	1	-	2/6/23/26	0/1/1/1
2	NAG	D	5610	1	-	1/6/23/26	0/1/1/1
2	NAG	A	5607	1	-	2/6/23/26	0/1/1/1
2	NAG	A	5603	1	-	0/6/23/26	0/1/1/1
2	NAG	A	5609	1	-	1/6/23/26	0/1/1/1
2	NAG	A	5608	1	-	3/6/23/26	0/1/1/1
2	NAG	A	5610	1	-	1/6/23/26	0/1/1/1
2	NAG	D	5603	1	-	0/6/23/26	0/1/1/1
2	NAG	D	5608	1	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	5601	1	-	2/6/23/26	0/1/1/1
2	NAG	D	5609	1	-	1/6/23/26	0/1/1/1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	5607	NAG	O5-C1	3.17	1.48	1.43
2	A	5607	NAG	O5-C1	3.14	1.48	1.43
2	D	5601	NAG	O5-C1	2.58	1.47	1.43
2	A	5601	NAG	O5-C1	2.58	1.47	1.43
2	D	5608	NAG	O5-C1	-2.38	1.39	1.43
2	A	5608	NAG	O5-C1	-2.38	1.39	1.43

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
2	D	5607	NAG	C1-O5-C5	4.95	118.90	112.19
2	A	5607	NAG	C1-O5-C5	4.92	118.86	112.19
2	D	5601	NAG	C1-O5-C5	3.68	117.18	112.19
2	A	5601	NAG	C1-O5-C5	3.66	117.15	112.19

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	5601	NAG	C4-C5-C6-O6
2	D	5601	NAG	C4-C5-C6-O6
2	A	5601	NAG	O5-C5-C6-O6
2	D	5601	NAG	O5-C5-C6-O6
2	A	5607	NAG	O5-C5-C6-O6
2	D	5607	NAG	O5-C5-C6-O6
2	D	5610	NAG	O5-C5-C6-O6
2	A	5610	NAG	O5-C5-C6-O6
2	A	5608	NAG	O5-C5-C6-O6
2	D	5608	NAG	O5-C5-C6-O6
2	A	5607	NAG	C4-C5-C6-O6
2	D	5607	NAG	C4-C5-C6-O6
2	A	5608	NAG	C1-C2-N2-C7
2	D	5608	NAG	C1-C2-N2-C7
2	D	5609	NAG	C4-C5-C6-O6
2	A	5609	NAG	C4-C5-C6-O6

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
2	A	5608	NAG	C3-C2-N2-C7
2	D	5608	NAG	C3-C2-N2-C7

There are no ring outliers.

7 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	5607	NAG	3	0
2	A	5601	NAG	1	0
2	A	5607	NAG	3	0
2	A	5609	NAG	1	0
2	A	5608	NAG	2	0
2	D	5608	NAG	3	0
2	D	5609	NAG	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	D	2
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	D	1657:ASP	C	1658:PRO	N	7.71
1	A	1657:ASP	C	1658:PRO	N	7.58
1	A	1258:ASP	C	1259:PRO	N	5.18
1	D	1258:ASP	C	1259:PRO	N	5.03

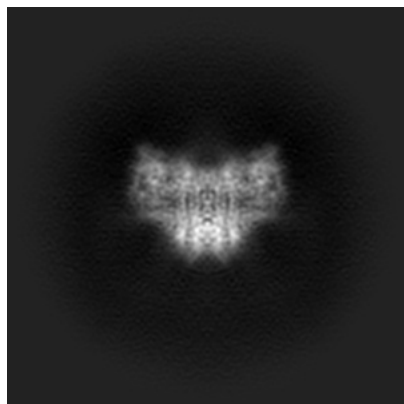
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-19070. These allow visual inspection of the internal detail of the map and identification of artifacts.

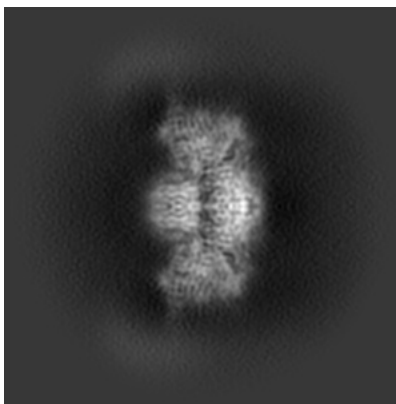
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

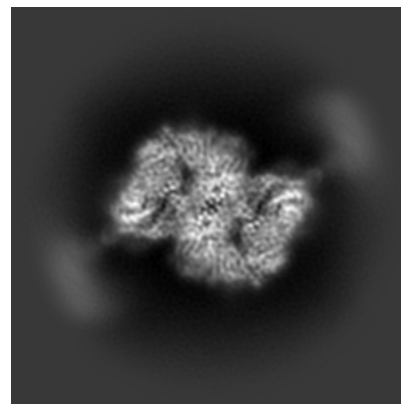
#### 6.1.1 Primary map



X

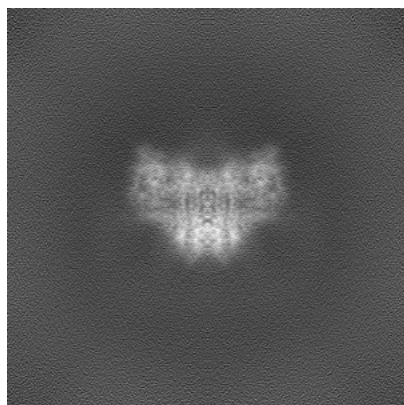


Y

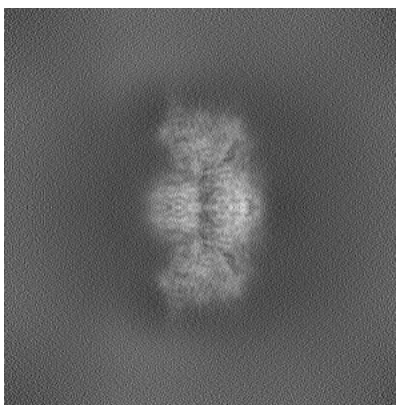


Z

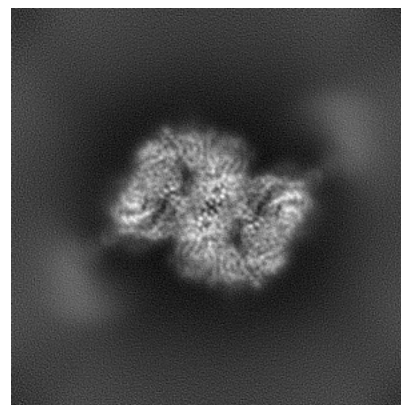
#### 6.1.2 Raw map



X



Y



Z

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

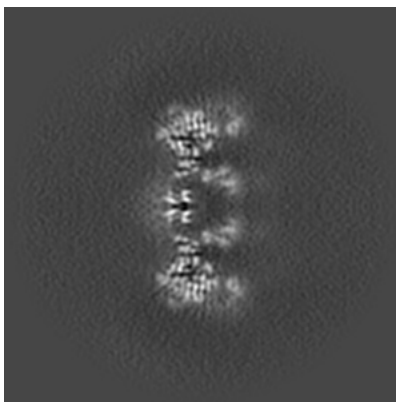


## 6.2 Central slices [i](#)

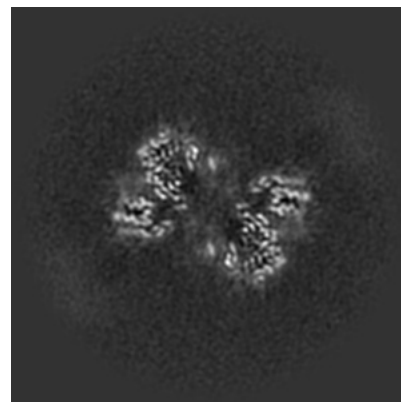
### 6.2.1 Primary map



X Index: 176

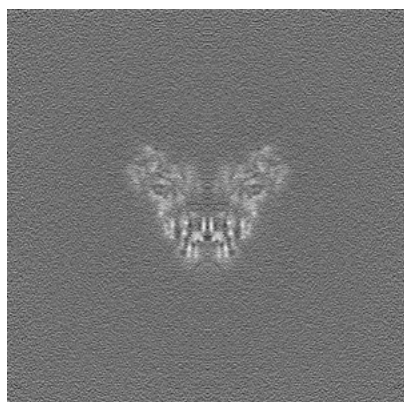


Y Index: 176

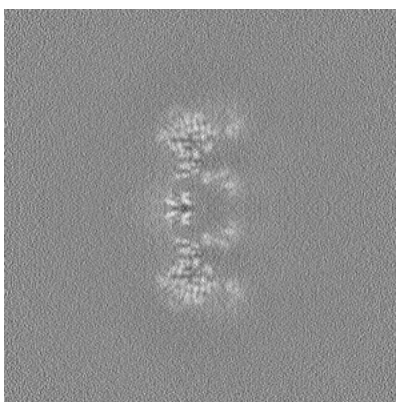


Z Index: 176

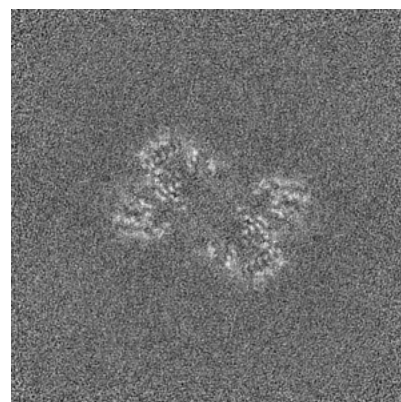
### 6.2.2 Raw map



X Index: 176



Y Index: 176



Z Index: 176

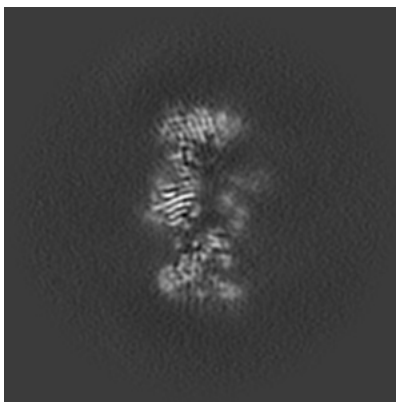
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

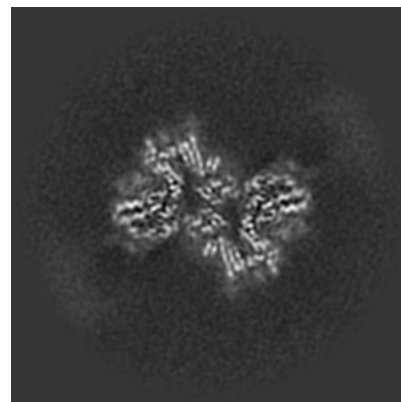
### 6.3.1 Primary map



X Index: 176

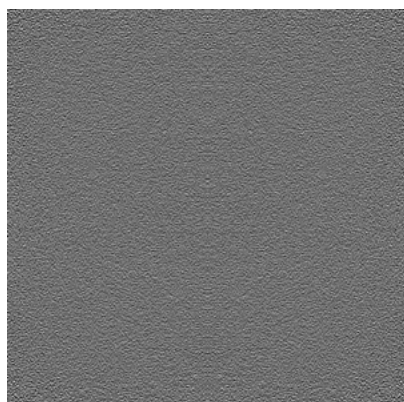


Y Index: 186

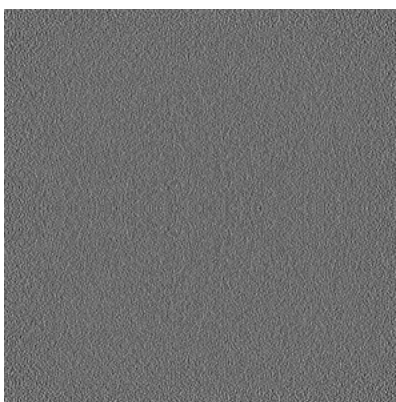


Z Index: 168

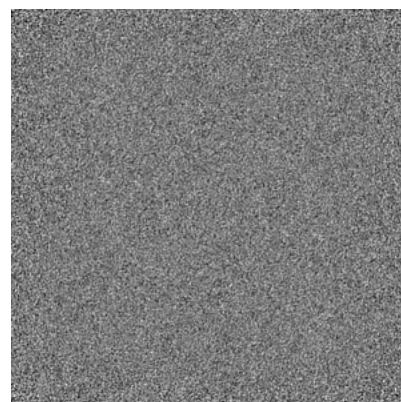
### 6.3.2 Raw map



X Index: 0



Y Index: 0

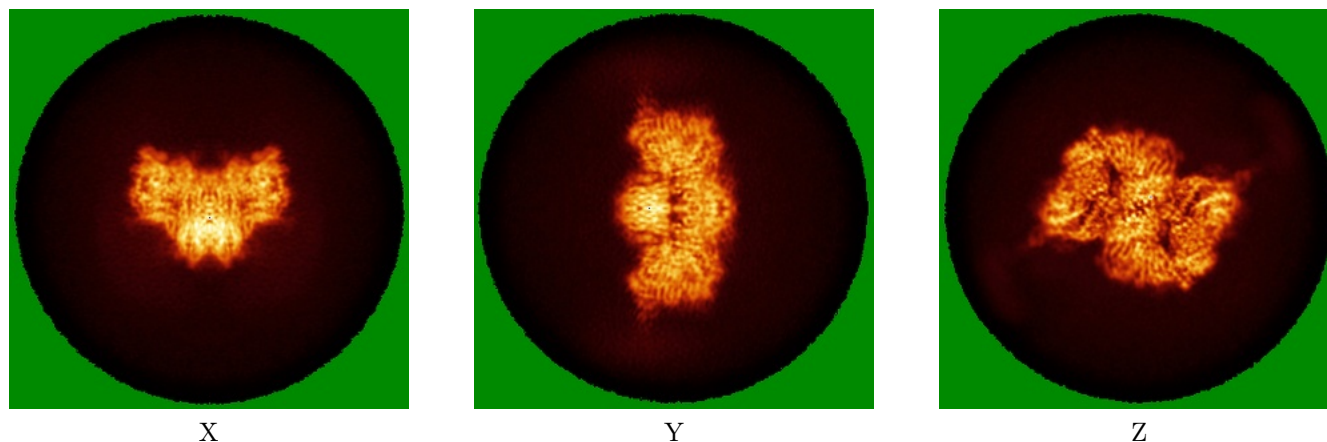


Z Index: 351

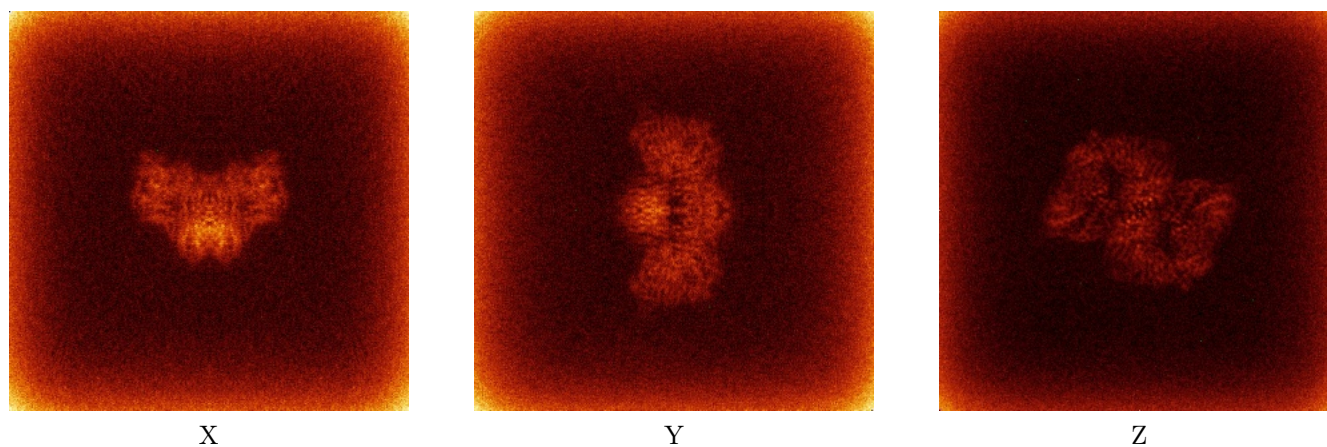
The images above show the largest variance slices of the map in three orthogonal directions.

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

### 6.4.1 Primary map



### 6.4.2 Raw map

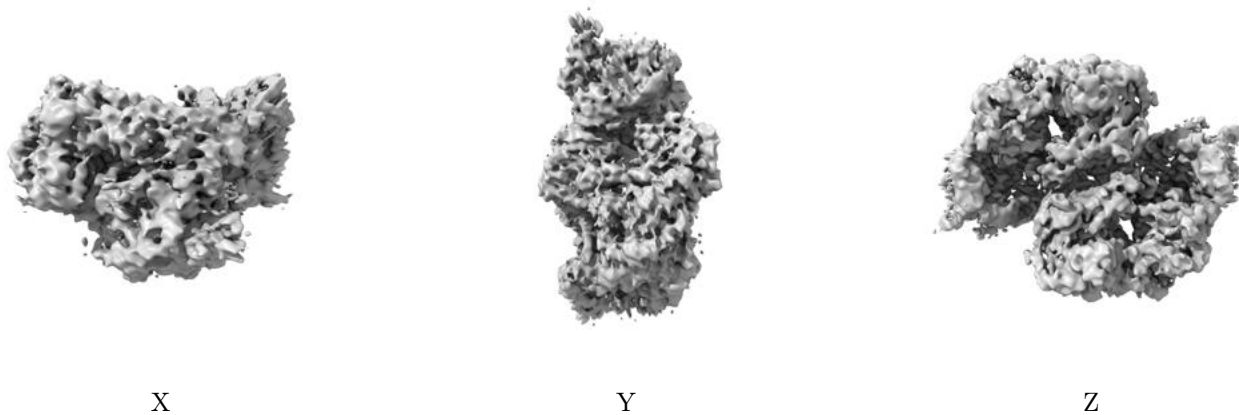


The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.



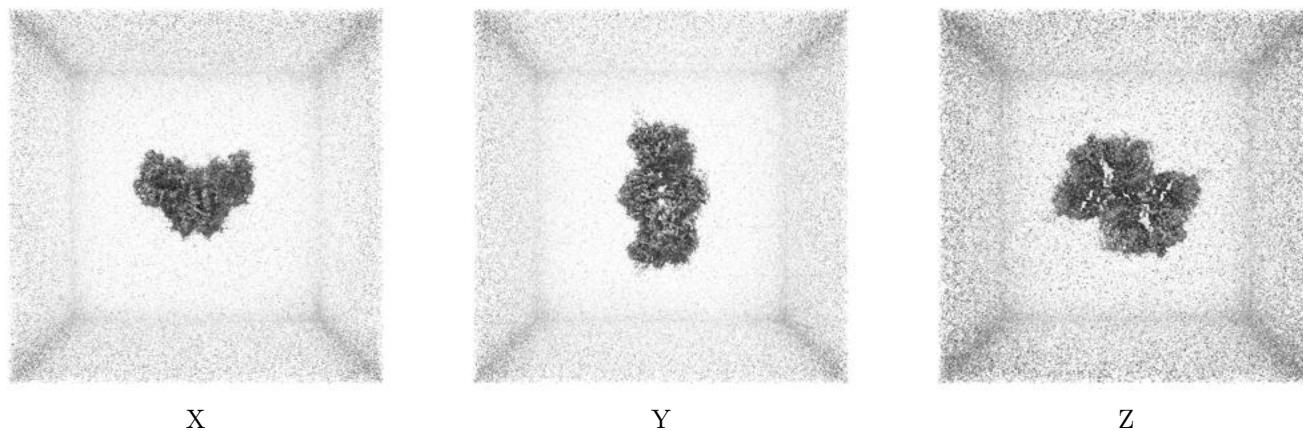
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0495. 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.

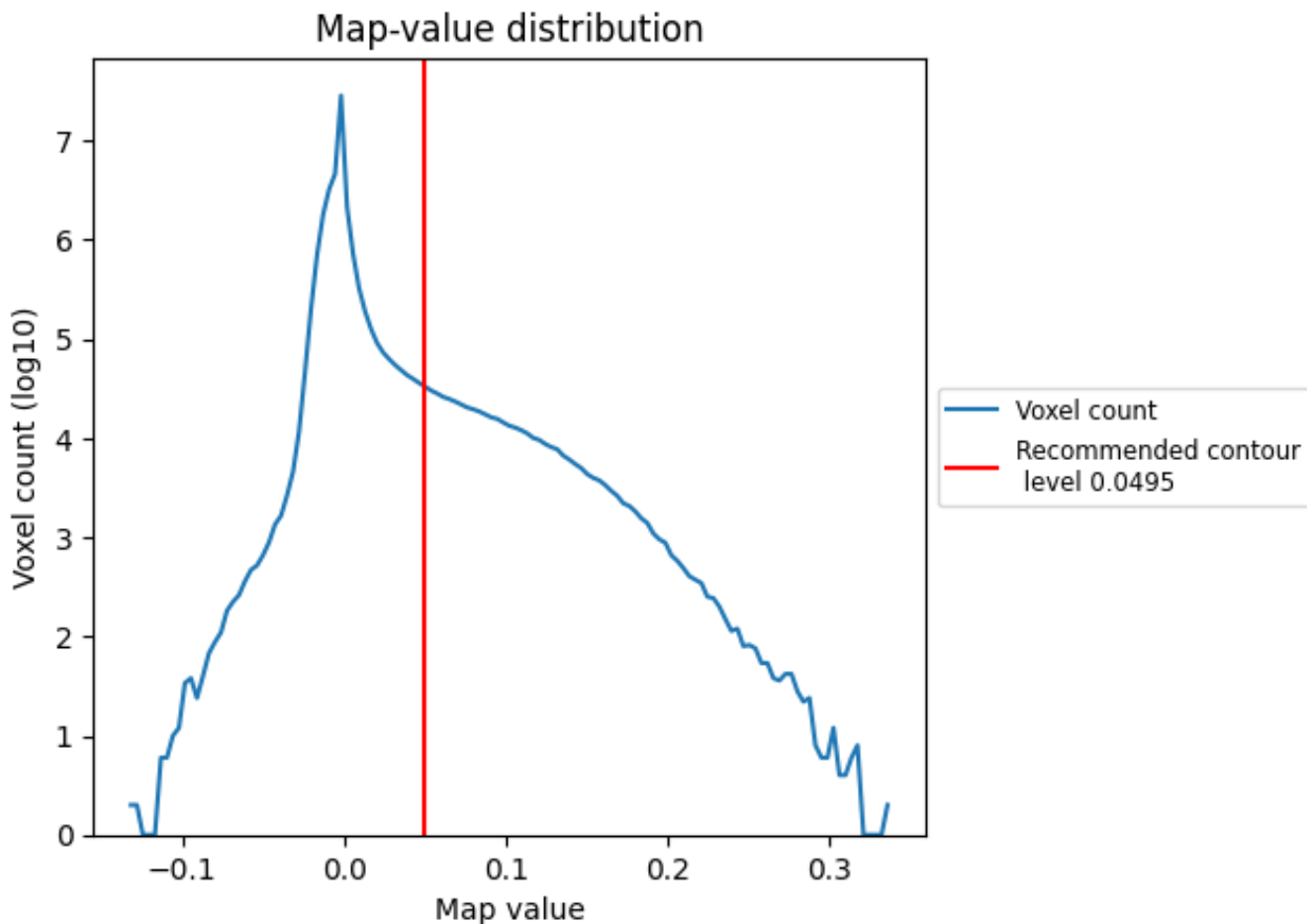
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

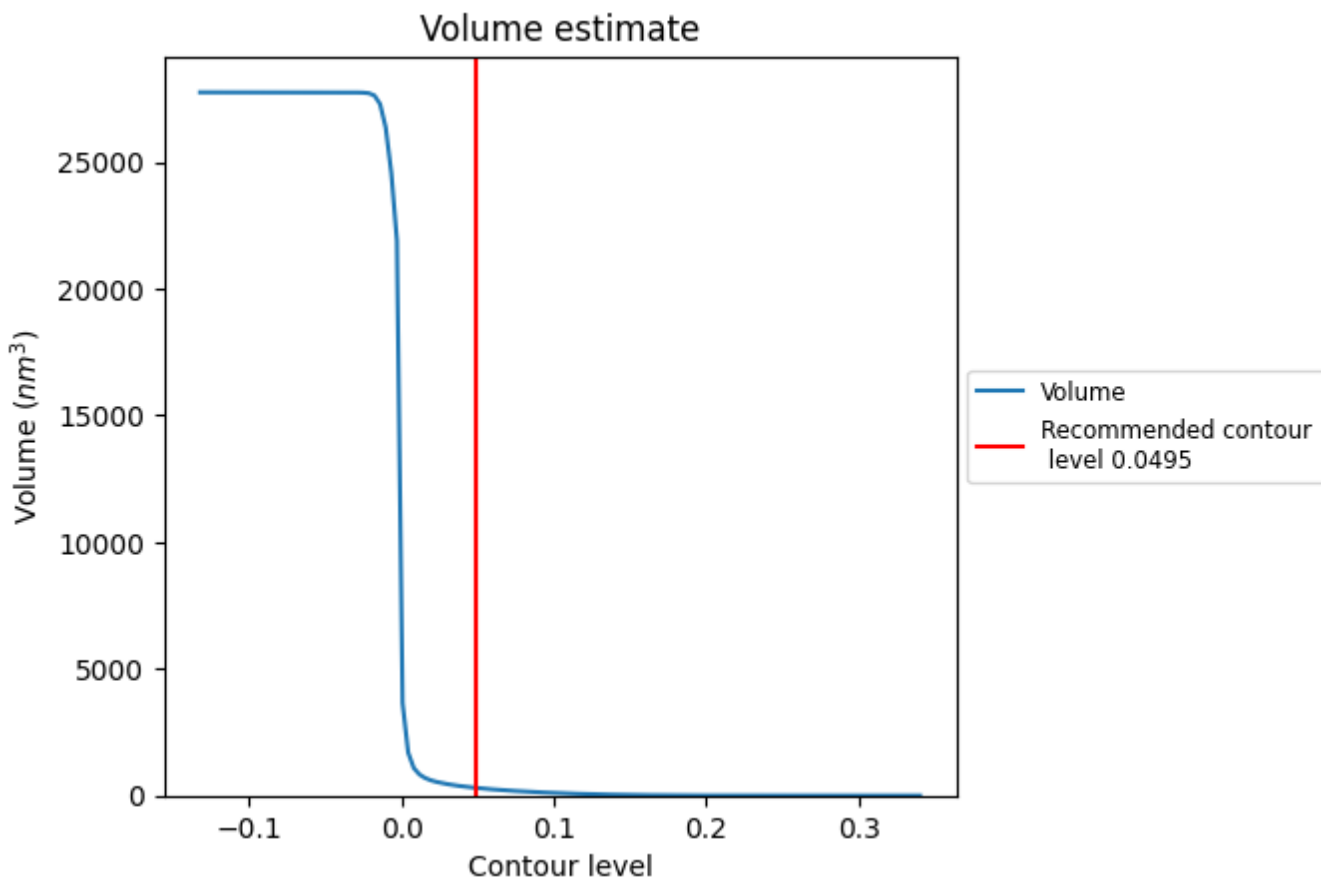
This section contains the results of statistical analysis of the map.

### 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.

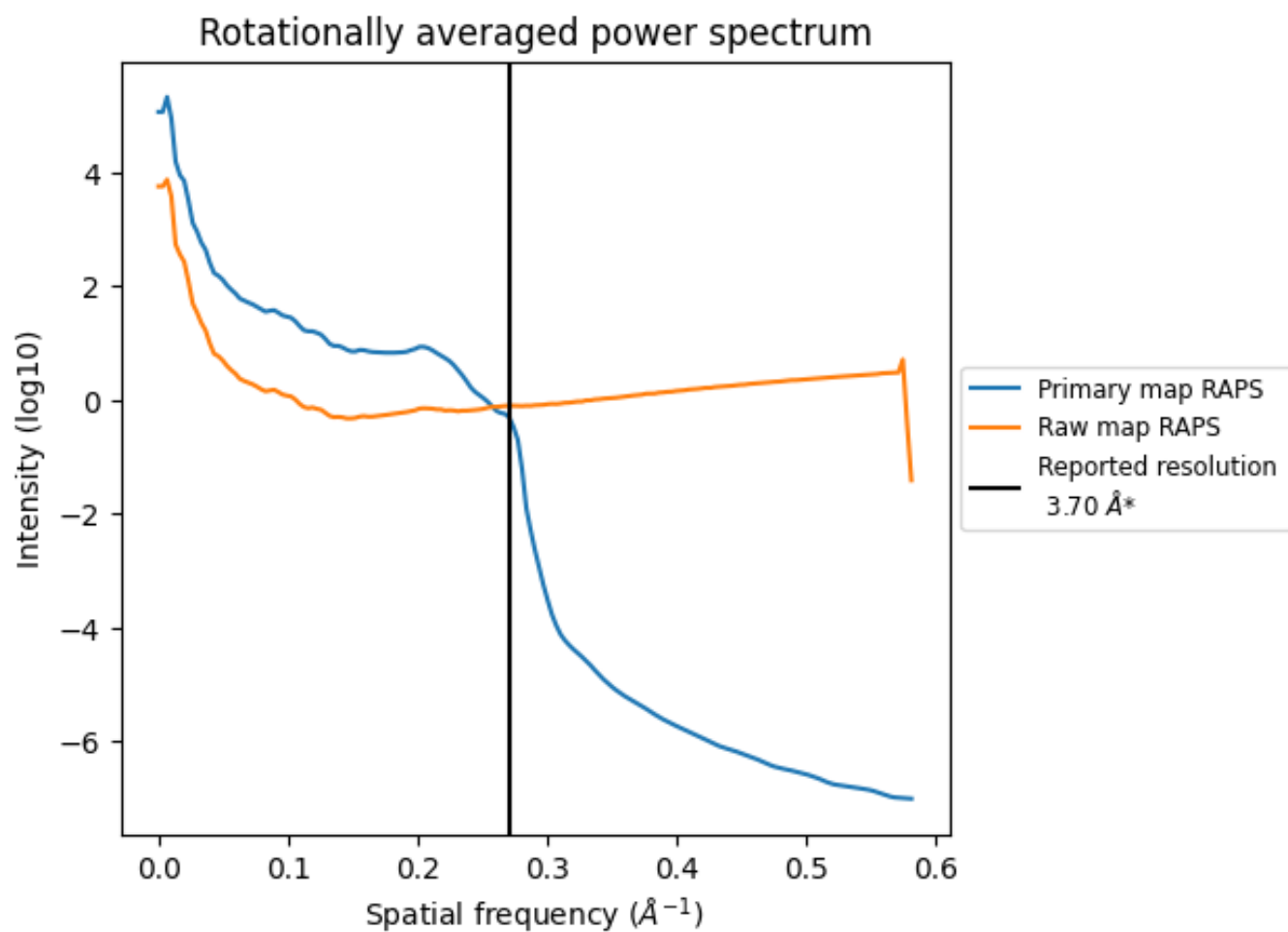
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 300 nm<sup>3</sup>; this corresponds to an approximate mass of 271 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

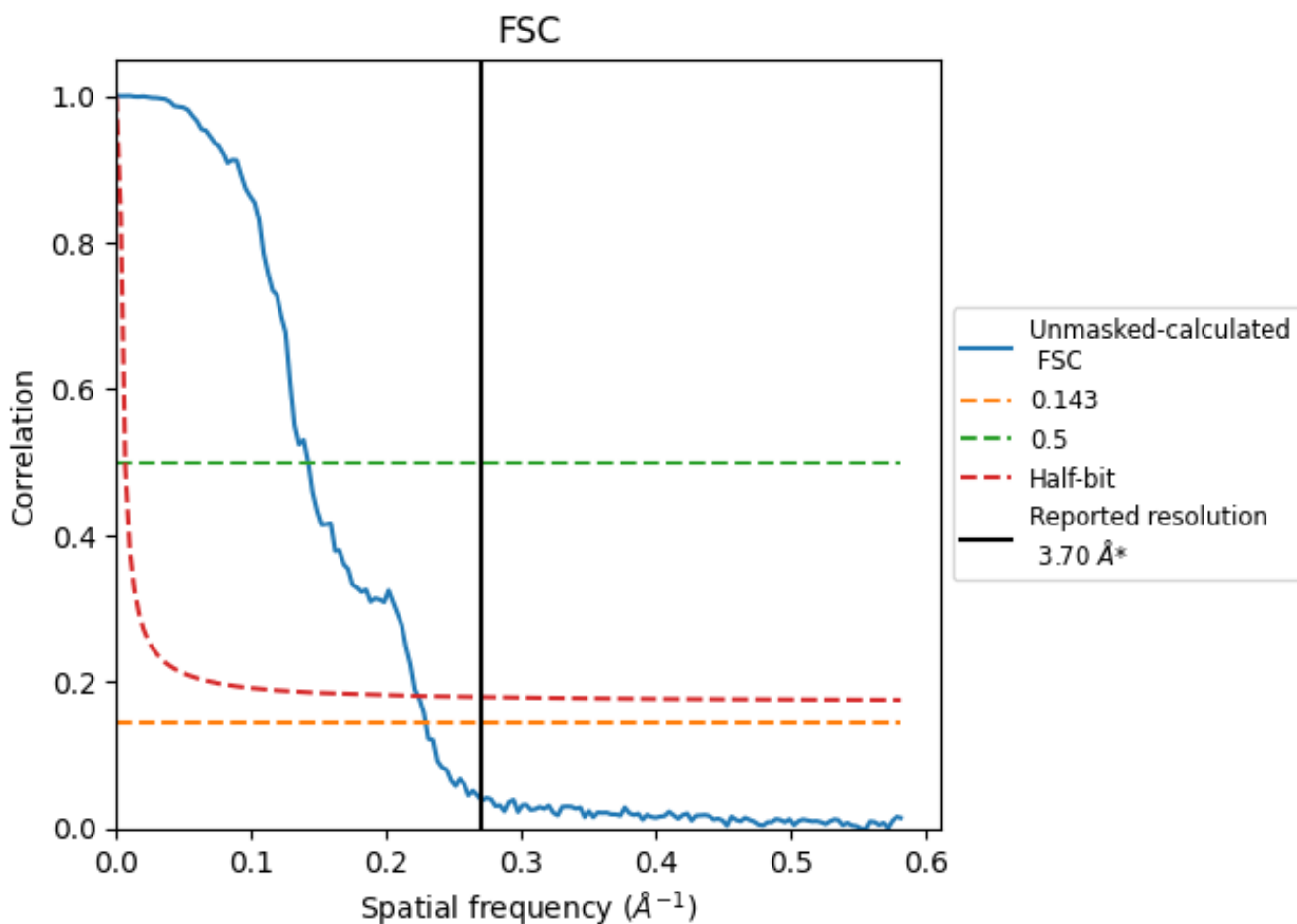


\*Reported resolution corresponds to spatial frequency of 0.270 Å<sup>-1</sup>

## 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 0.270 Å<sup>-1</sup>



## 8.2 Resolution estimates [i](#)

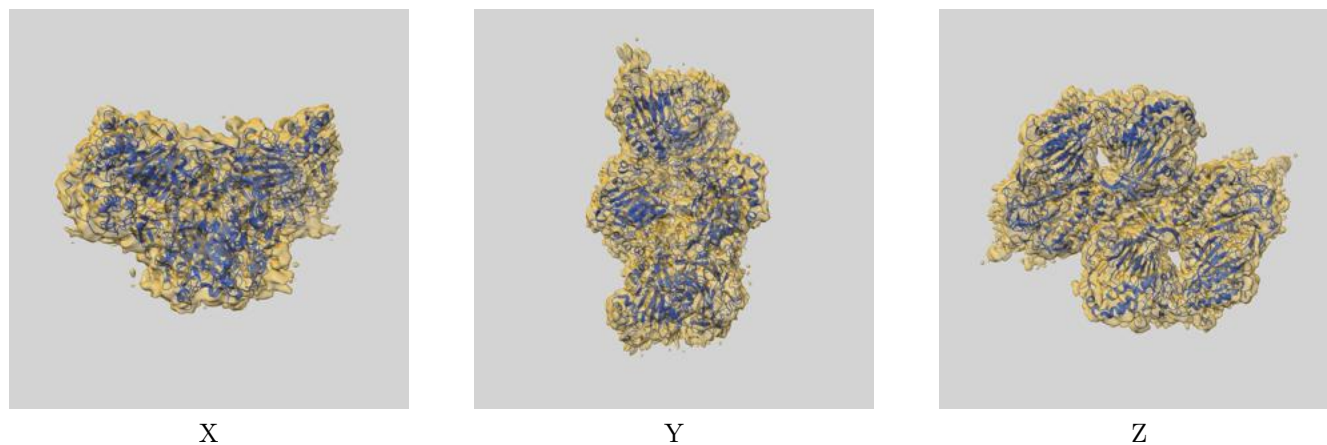
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.36	7.04	4.47

\*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 4.36 differs from the reported value 3.7 by more than 10 %

## 9 Map-model fit [i](#)

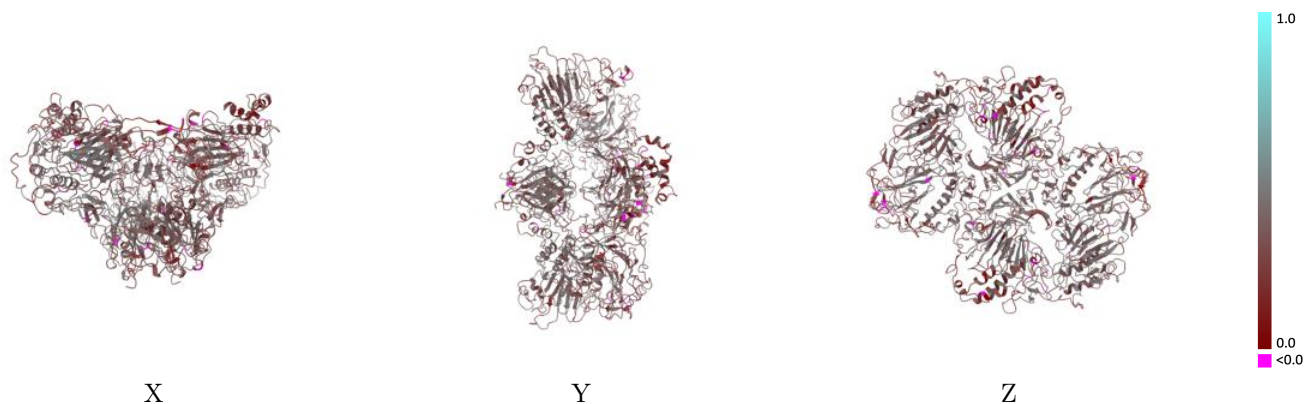
This section contains information regarding the fit between EMDB map EMD-19070 and PDB model 8RDE. Per-residue inclusion information can be found in section 3 on page 6.

### 9.1 Map-model overlay [i](#)



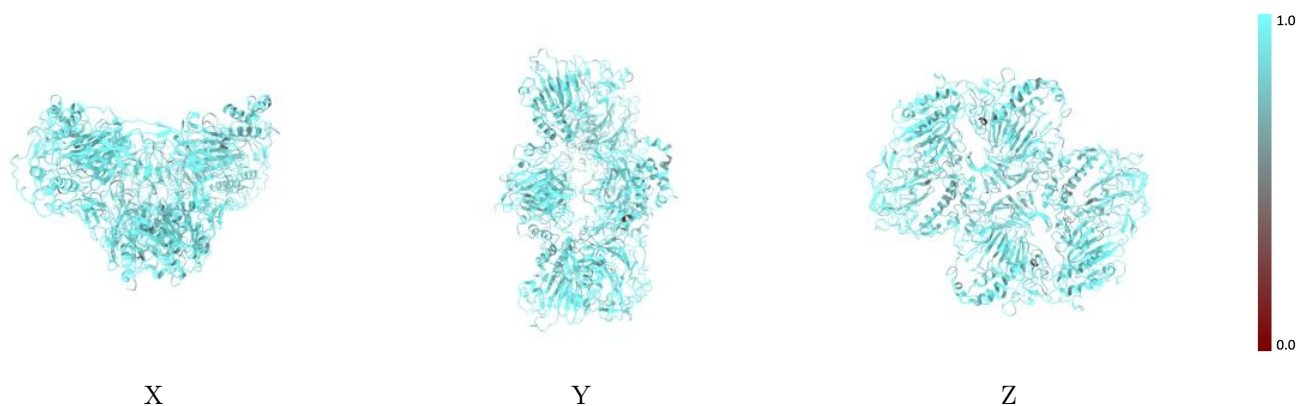
The images above show the 3D surface view of the map at the recommended contour level 0.0495 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



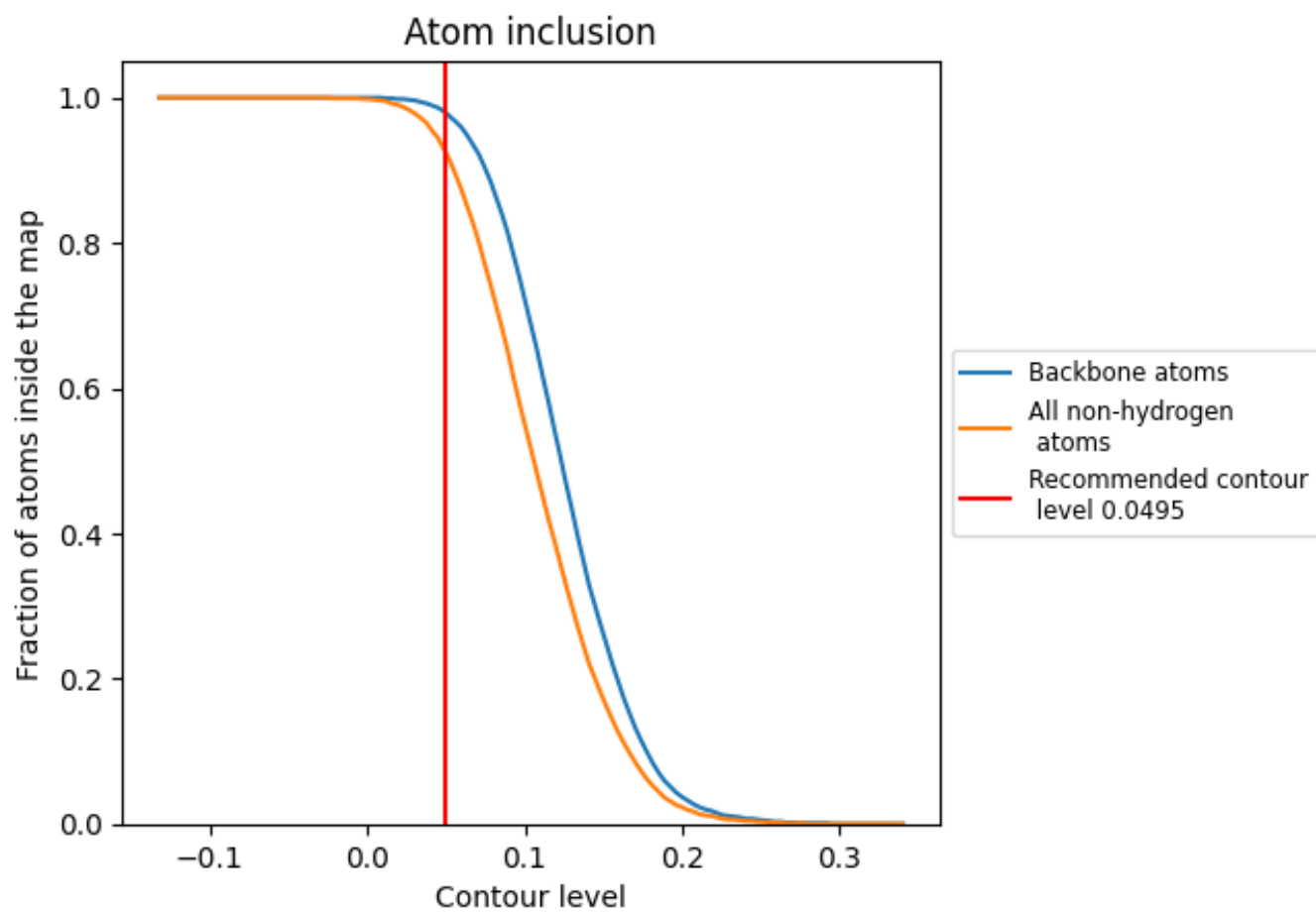
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0495).







## 9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 93% 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 (0.0495) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9260	 0.3430
A	 0.9230	 0.3390
D	 0.9290	 0.3470

