



wwPDB EM Validation Summary Report ⓘ

Nov 13, 2022 – 02:46 AM EST

PDB ID : 6U5T
EMDB ID : EMD-20655
Title : Electron cryomicroscopy Structure of *S. cerevisiae* FAS in the Apo state
Authors : Lou, J.W.; Mazhab-Jafari, M.T.
Deposited on : 2019-08-28
Resolution : 2.90 Å (reported)
Based on initial model : 2UV8

This is a wwPDB EM Validation Summary 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.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

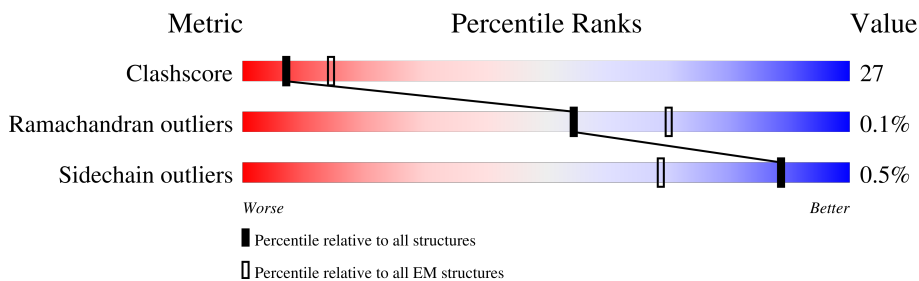
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.90 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1887	
2	G	2073	

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 28233 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 Fatty acid synthase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1616	12202	7703	2086	2368	45	0	0

- Molecule 2 is a protein called Fatty acid synthase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	G	2033	15995	10253	2660	3026	56	0	0

There are 22 discrepancies between the modelled and reference sequences:

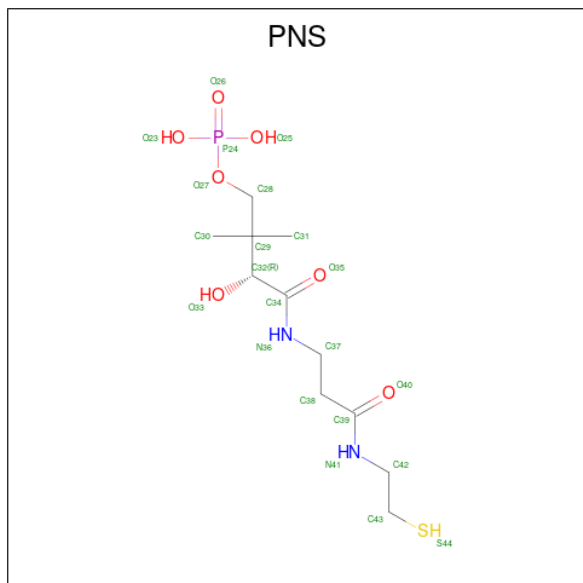
Chain	Residue	Modelled	Actual	Comment	Reference
G	2052	ASP	-	expression tag	UNP P07149
G	2053	TYR	-	expression tag	UNP P07149
G	2054	LYS	-	expression tag	UNP P07149
G	2055	ASP	-	expression tag	UNP P07149
G	2056	HIS	-	expression tag	UNP P07149
G	2057	ASP	-	expression tag	UNP P07149
G	2058	GLY	-	expression tag	UNP P07149
G	2059	ASP	-	expression tag	UNP P07149
G	2060	TYR	-	expression tag	UNP P07149
G	2061	LYS	-	expression tag	UNP P07149
G	2062	ASP	-	expression tag	UNP P07149
G	2063	HIS	-	expression tag	UNP P07149
G	2064	ASP	-	expression tag	UNP P07149
G	2065	ILE	-	expression tag	UNP P07149
G	2066	ASP	-	expression tag	UNP P07149
G	2067	TYR	-	expression tag	UNP P07149
G	2068	LYS	-	expression tag	UNP P07149
G	2069	ASP	-	expression tag	UNP P07149
G	2070	ASP	-	expression tag	UNP P07149
G	2071	ASP	-	expression tag	UNP P07149
G	2072	ASP	-	expression tag	UNP P07149

Continued on next page...

Continued from previous page...

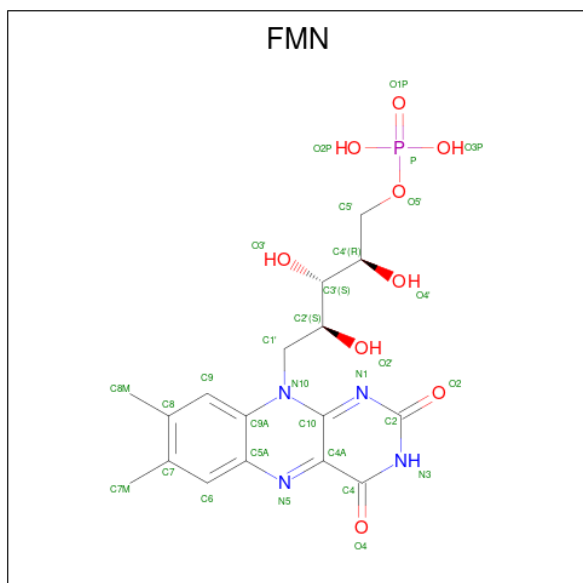
Chain	Residue	Modelled	Actual	Comment	Reference
G	2073	LYS	-	expression tag	UNP P07149

- Molecule 3 is 4'-PHOSPHOPANTETHEINE (three-letter code: PNS) (formula: $C_{11}H_{23}N_2O_7PS$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
3	A	1	5	1	3	1	0

- Molecule 4 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$) (labeled as "Ligand of Interest" by depositor).

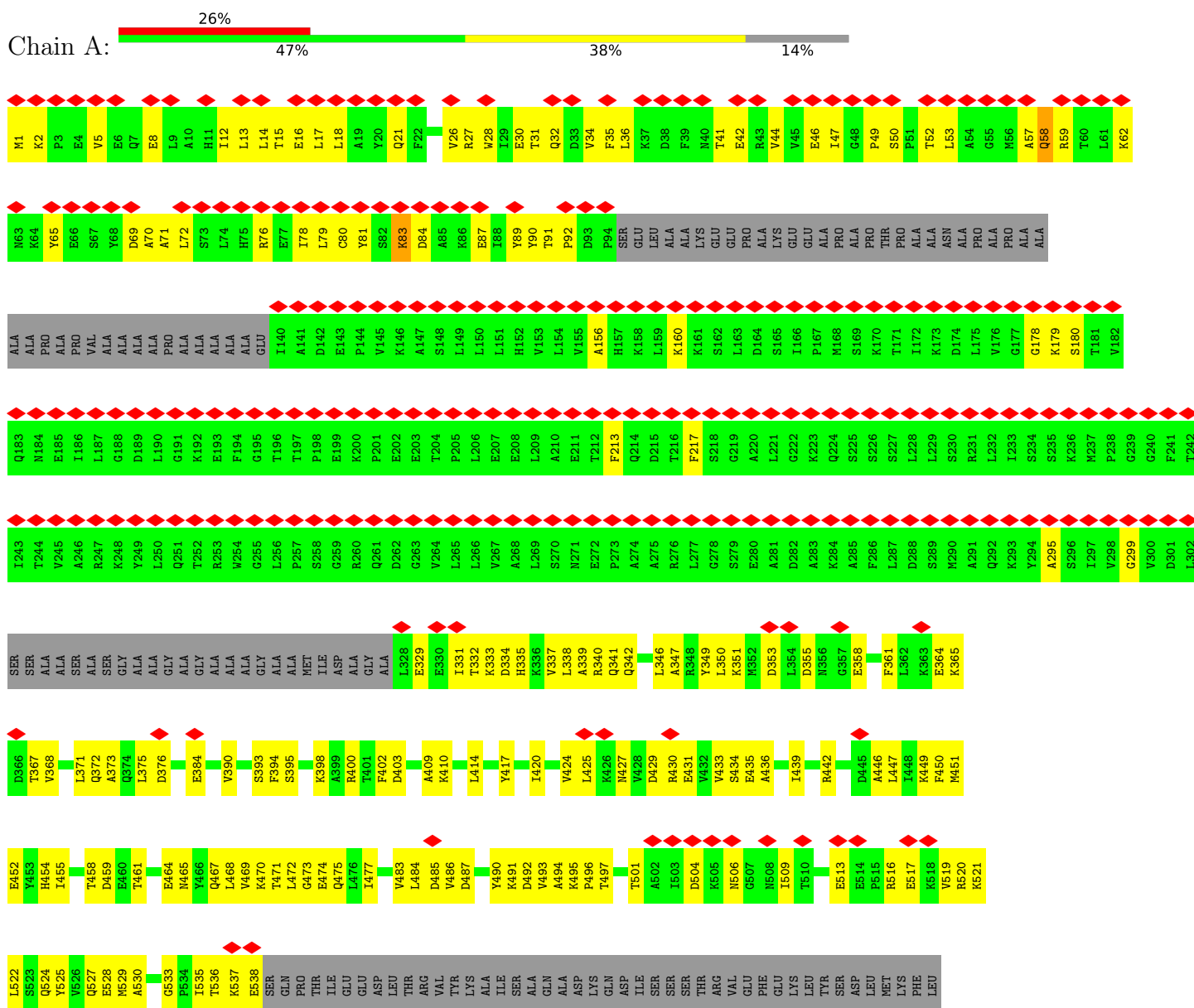


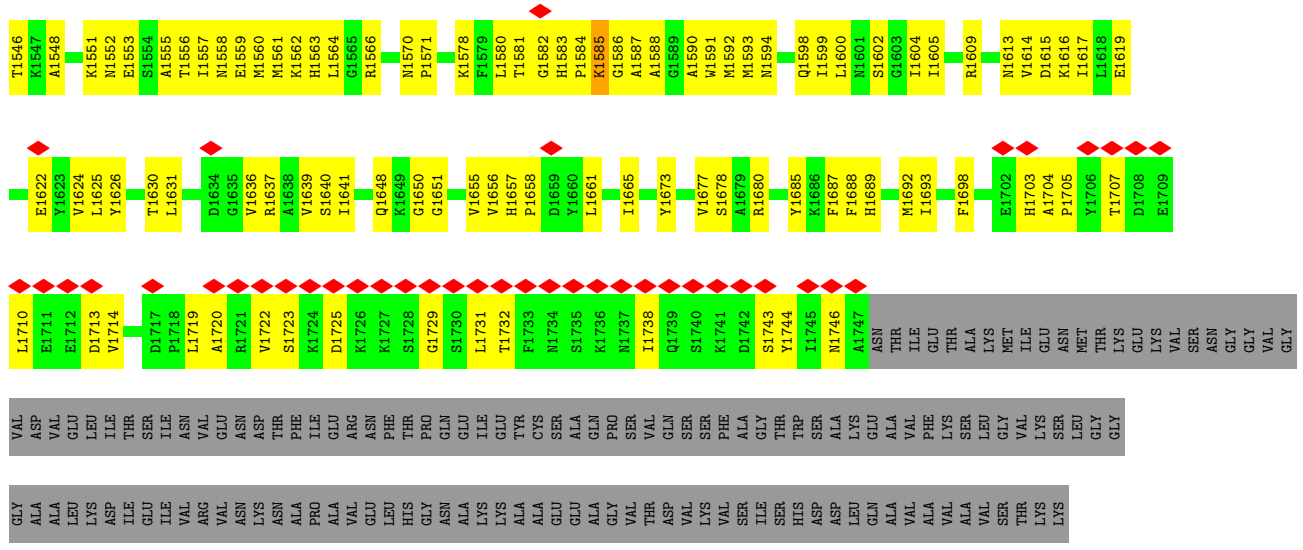
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
4	G	1	31	17	4	9	1	0

3 Residue-property plots

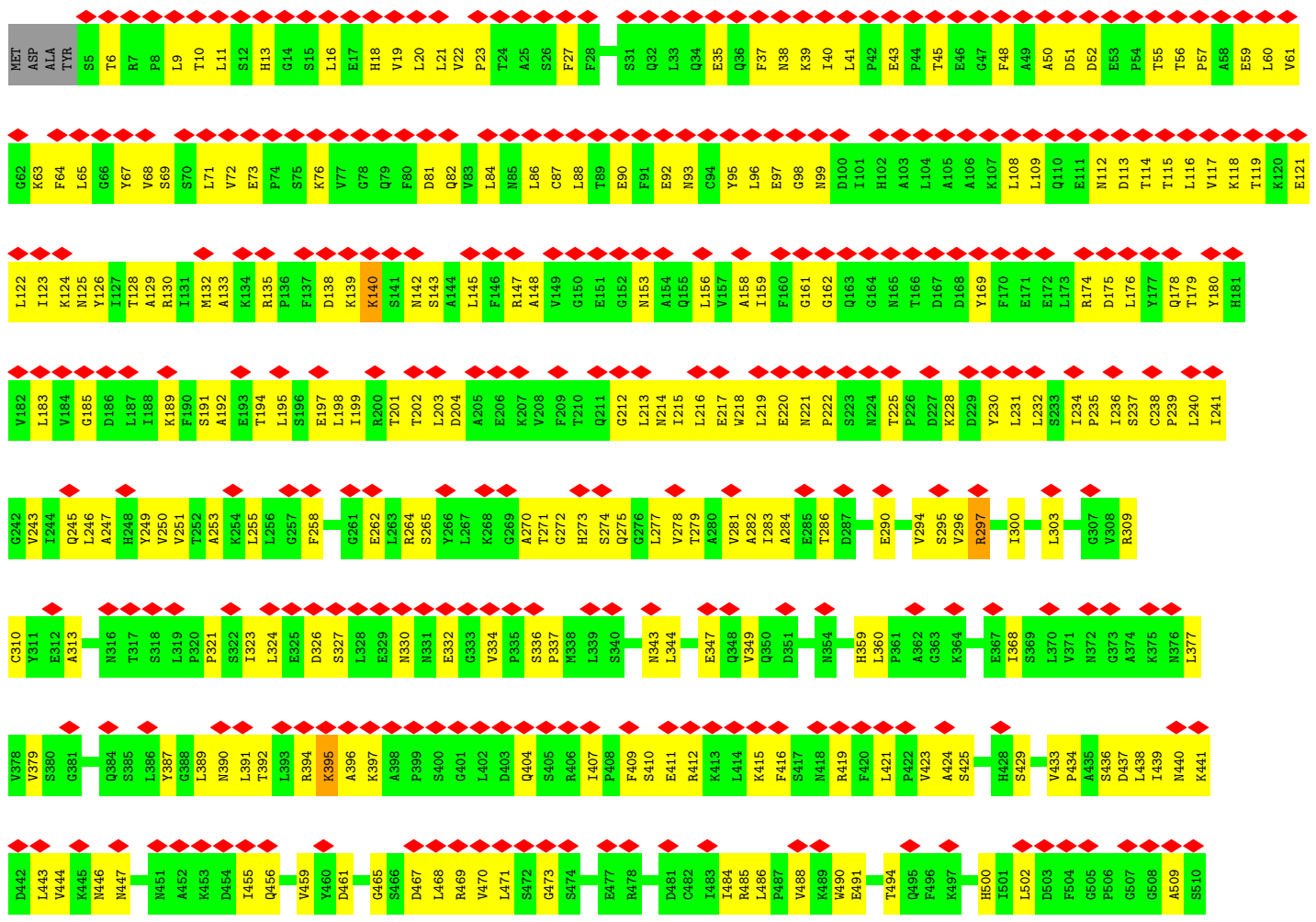
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

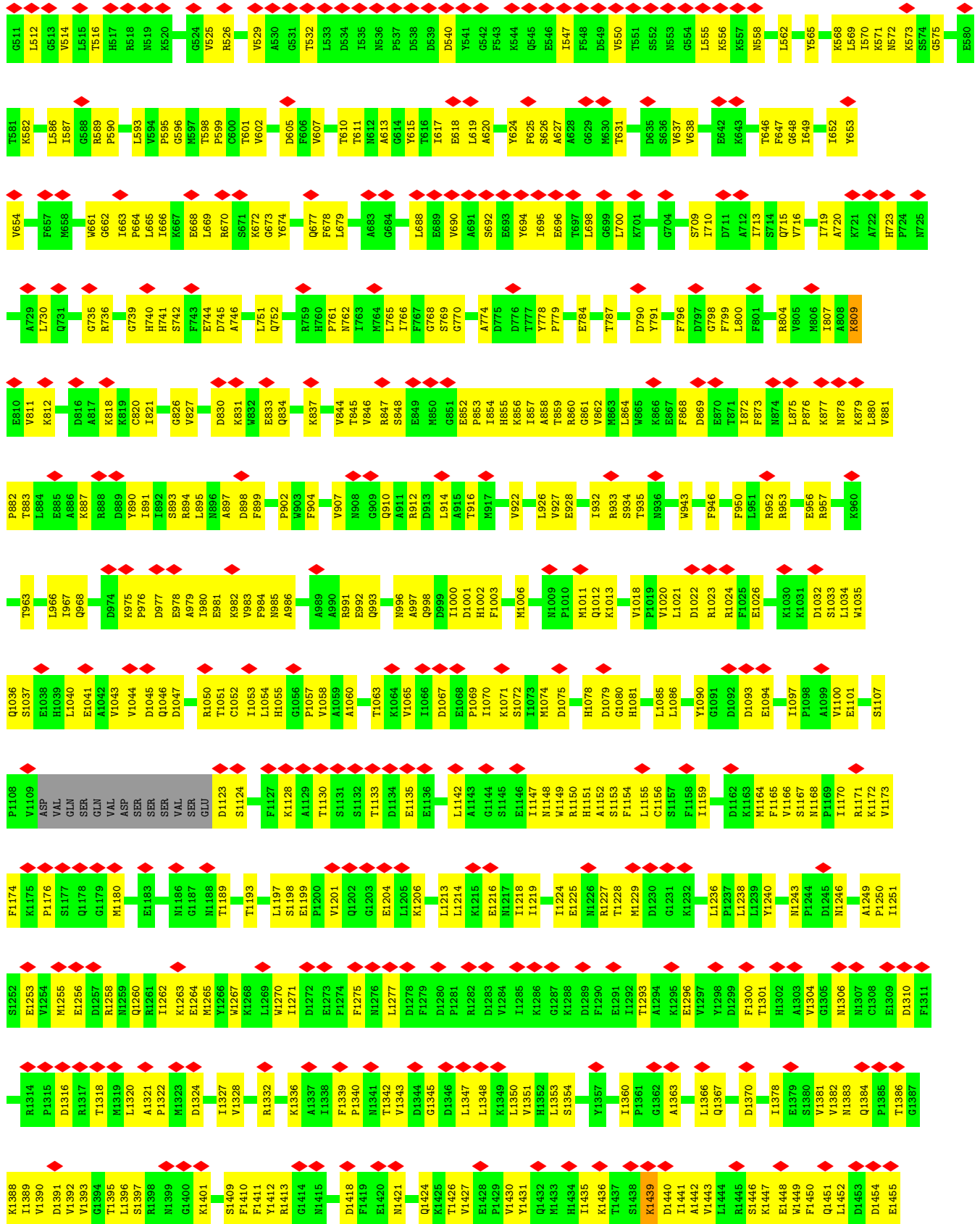
• Molecule 1: Fatty acid synthase subunit alpha





• Molecule 2: Fatty acid synthase subunit beta





E2046	V1985	I1925	V1865	A1805	D1743	G1668	S1600	V1591	D1456
K2047	K1986	E1926	F1866	G1806	G1744	Q1669	V1601	N1532	F1457
Y2048	F1987	L1927	S1867	H1807	K1745	G1670	L1533	L1533	D1458
E2049	F1988	Q1928	Q1868	S1808	L1746	S1671	R1604	E1534	L1459
Q2050	K1989	K1929	Q1869	S1809	K1747	Q1672	V1605	N1535	L1460
SER	S1990	K1930	A1870	G1810	T1748	E1673	G1606	P1536	N1461
ASP	F1991	L1931	L1871	E1811	E1749	Q1674	Y1608	I1537	F1466
TYR	L1992	S1932	Y1872	Q1872	K1750	G1675	F1612	P1538	E1467
LYS	K1993	L1933	Y1873	A1814	L1751	M1676	V1613	T1468	T1468
ASP	K1994	L1934	V1874	L1815	K1753	M1678	D1614	A1540	E1469
HIS	N1995	E1935	V1875	A1816	E1754	D1679	M1615	V1541	V1472
ASP	I1997	V1936	V1876	S1817	E1756	L1680	V1616	L1542	K1475
ASP	K1998	E1937	R1877	L1818	I1755	Y1681	L1617	D1543	N1476
TYR	E1999	R1878	V1878	A1819	E1757	K1682	P1618	S1544	A1477
LYS	N2000	V1878	G1879	D1820	H1758	T1683	M1619	T1546	N1478
ASP	V2001	H1939	G1880	I1821	S1759	S1684	T1620	P1547	I1479
HIS	K2002	L1940	R1881	M1822	T1760	K1685	A1621	S1548	F1480
ASP	V2003	F1941	R1882	S1823	Y1762	K1686	L1622	T1549	
ILE	A2004	E1942	T1882	I1824	Y1763	A1687	K1623	N1550	K1484
ASP	R2005	G1883	G1883	E1825	F1764	Q1688	I1626	P1552	C1485
TYR	G2008	I1943	W1884	S1826	R1765	D1689	Q1627	R1551	I1489
ASP	K2009	I1944	L1885	L1827	S1766	V1690	H1628	P1552	K1490
ASP	K2009	D1945	L1885	V1828	E1767	M1692	I1626	R1555	V1491
ASP	Y2010	E1946	E1887	V1828	K1768	R1693	M1631	D1559	K1496
ASP	I2011	A1947	E1887	I1829	L1770	A1694	I1632	L1560	E1497
LYS	F2012	S1948	I1888	V1830	L1771	F1695	I1632	I1563	T1498
ASP	N2013	K1949	V1889	F1832	L1772	A1694	R1635	H1564	V1499
L2014	L2014	M1950	M1890	Y1833	A1773	S1705	K1636	E1500	I1501
A2016	A2016	S1951	M1891	F1833	I1774	I1706	L1637	I1501	I1501
K2017	K2017	A1952	Y1891	Y1833	T1775	L1707	I1638	G1502	G1502
F2018	F2018	V1953	V1893	G1835	Q1775	D1708	K1639	I1503	V1504
F2019	F2019	K1954	M1895	T1837	F1776	I1709	F1640	H1568	D1505
Q2020	Q2020	P1955	Q1896	M1838	T1777	V1710	E1641	F1569	D1506
Q2020	Q2020	R1956	Q1897	Q1839	I1778	I1711	I1642	Y1572	Y1506
V2021	V2021	Y1957	Y1898	V1840	P1779	M1712	R1643	A1573	E1507
T2022	T2022	F1957	F1899	A1841	Q1778	I1713	M1644	N1574	A1510
K2023	K2023	L1958	A1900	A1842	M1714	P1714	E1645	L1575	S1511
E2024	E2024	K1959	A1901	V1842	L1783	P1715	D1646	G1577	H1512
Y2025	Y2025	L1960	A1901	P1843	M1784	I1718	D1647	T1578	G1513
F2026	F2026	G1902	G1902	D1844	A1787	I1719	V1648	I1579	M1514
Q2027	Q2027	D1903	D1903	D1845	A1788	V1649	H1581	T1580	D1518
D2028	D2028	L1904	L1904	E1846	F1789	V1650	H1581	F1519	D1518
V2029	V2029	R1905	R1905	L1847	E1790	L1651	L1582	K1521	K1521
ASP	A1965	A1906	A1906	G1848	D1791	T1652	M1583	R1522	R1522
D2031	D2031	L1907	L1907	L1848	L1792	E1731	F1584	N1523	N1523
L2032	L2032	D1908	D1908	R1849	K1793	S1734	E1656	G1524	G1524
T2033	T2033	T1909	T1909	R1850	I1729	M1735	I1657	A1591	A1591
G2034	G2034	V1910	V1910	M1851	R1730	F1738	Q1659	S1525	S1525
S2035	S2035	I1911	I1911	Y1852	L1792	E1739	P1660	I1593	I1593
E2036	E2036	M1912	M1912	G1853	S1794	I1740	T1662	E1594	E1594
P2037	P2037	V1913	V1913	M1854	K1795	T1741	T1663	N1595	N1595
I2038	I2038	L1914	L1914	I1855	M1736	I1737	F1664	A1597	A1597
K2039	K2039	M1915	M1915	I1856	I1737	F1738	Q1665	A1598	A1598
E2040	E2040	I1916	I1916	I1857	F1738	E1739	P1661	V1596	V1596
I2041	I2041	F1917	F1917	M1858	P1798	T1740	T1663	A1597	A1597
I2042	I2042	P1975	P1975	I1857	A1800	I1741	F1664	A1598	A1598
D2043	D2043	F1976	F1976	G1860	D1801	V1742	V1665	D1599	D1599
N2044	N2044	H1977	H1977	R1861	A1802		F1666		
W2045	W2045	S1978	S1978	Y1862	T1803		T1667		
		K1921	K1921	A1863	F1804				
		I1922	I1922	A1864					
		D1923	D1923						
		I1924	I1924						
		G1984	G1984						

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D3	Depositor
Number of particles used	637823	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE; CTFFIND4 within cryoSPARC2	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	43	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	2.591	Depositor
Minimum map value	-1.261	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.139	Depositor
Recommended contour level	0.696	Depositor
Map size (\AA)	373.12, 373.12, 373.12	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.06, 1.06, 1.06	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: FMN, PNS

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	0.64	0/12424	0.54	0/16819
2	G	0.47	0/16360	0.49	0/22198
All	All	0.55	0/28784	0.51	0/39017

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	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1294	SER	Peptide
1	A	702	LYS	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	12202	0	11715	648	0
2	G	15995	0	15978	878	0
3	A	5	0	0	0	0
4	G	31	0	19	1	0
All	All	28233	0	27712	1488	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 27.

The worst 5 of 1488 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:1335:PHE:HD1	1:A:1378:GLU:HG3	1.07	1.12
1:A:1343:PHE:CE2	1:A:1585:LYS:NZ	2.18	1.10
1:A:1333:ASP:OD2	1:A:1585:LYS:HB2	1.52	1.09
1:A:1584:PRO:HB2	1:A:1587:ALA:HB3	1.34	1.04
1:A:1335:PHE:HD1	1:A:1378:GLU:CG	1.71	1.02

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	1608/1887 (85%)	1329 (83%)	275 (17%)	4 (0%)	47	78
2	G	2029/2073 (98%)	1771 (87%)	258 (13%)	0	100	100
All	All	3637/3960 (92%)	3100 (85%)	533 (15%)	4 (0%)	54	82

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1585	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	179	LYS
1	A	1168	LEU
1	A	58	GLN

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	1233/1566 (79%)	1230 (100%)	3 (0%)	93	98
2	G	1772/1810 (98%)	1761 (99%)	11 (1%)	86	96
All	All	3005/3376 (89%)	2991 (100%)	14 (0%)	89	96

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	G	395	LYS
2	G	415	LYS
2	G	1439	LYS
2	G	1023	ARG
2	G	1128	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 35 such sidechains are listed below:

Mol	Chain	Res	Type
2	G	1061	GLN
2	G	1383	ASN
2	G	1688	GLN
1	A	1345	ASN
1	A	1146	HIS

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 monosaccharides 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	PNS	A	1888	1	1,4,21	0.63	0	0,4,29	-	-
4	FMN	G	3051	-	33,33,33	1.16	2 (6%)	48,50,50	1.27	8 (16%)

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	PNS	A	1888	1	-	0/0/2/27	-
4	FMN	G	3051	-	-	3/18/18/18	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	G	3051	FMN	C4A-N5	3.40	1.37	1.30
4	G	3051	FMN	C10-N1	2.19	1.37	1.33

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	3051	FMN	C4-N3-C2	-3.39	119.38	125.64
4	G	3051	FMN	C4A-C4-N3	2.77	120.23	113.19
4	G	3051	FMN	O4-C4-C4A	-2.62	119.65	126.60
4	G	3051	FMN	C4A-C10-N10	2.60	120.28	116.48
4	G	3051	FMN	C5A-C9A-N10	2.37	120.40	117.95

There are no chirality outliers.

All (3) torsion outliers are listed below:

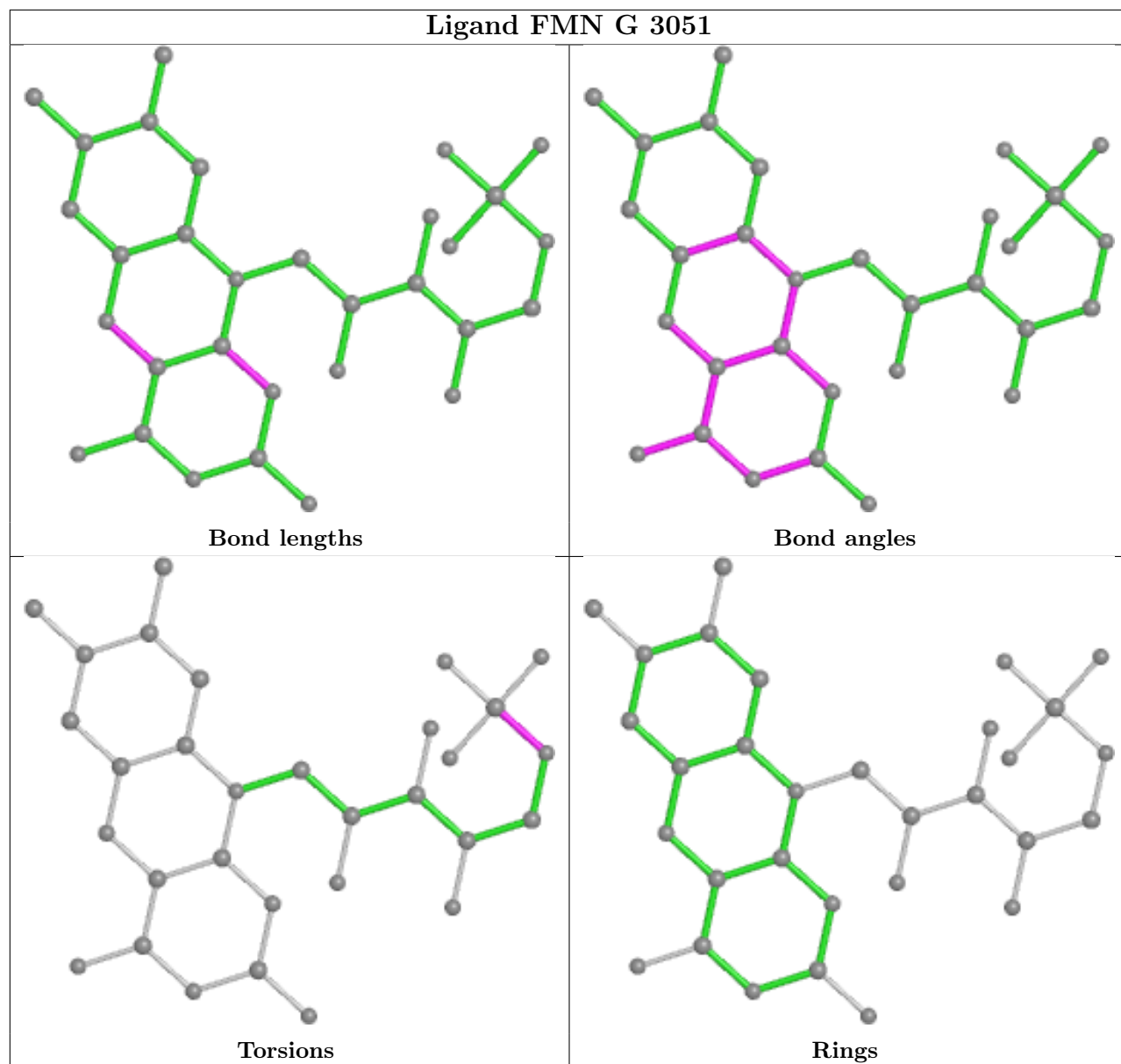
Mol	Chain	Res	Type	Atoms
4	G	3051	FMN	C5'-O5'-P-O1P
4	G	3051	FMN	C5'-O5'-P-O2P
4	G	3051	FMN	C5'-O5'-P-O3P

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	G	3051	FMN	1	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.

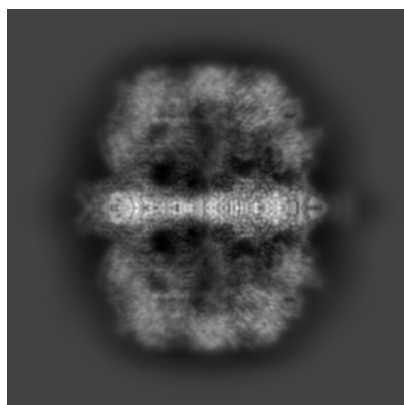
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20655. These allow visual inspection of the internal detail of the map and identification of artifacts.

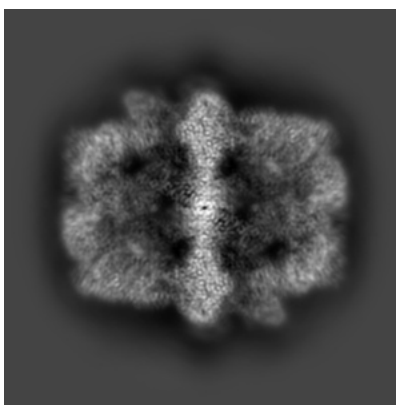
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

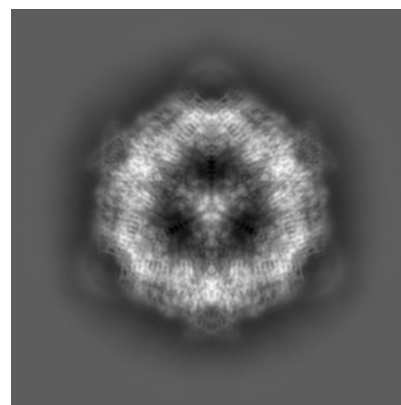
6.1.1 Primary map



X



Y

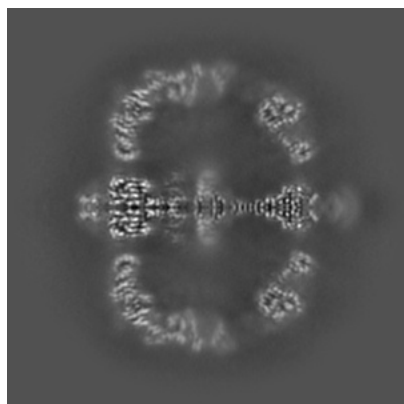


Z

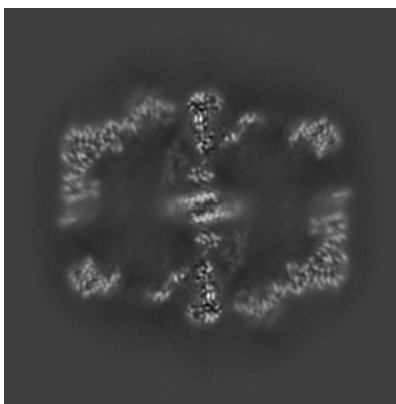
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

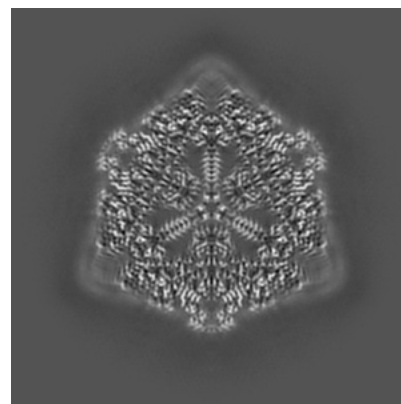
6.2.1 Primary map



X Index: 176



Y Index: 176

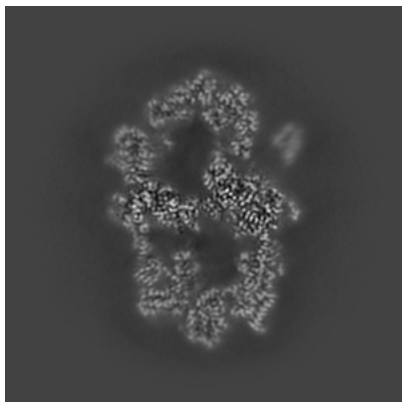


Z Index: 176

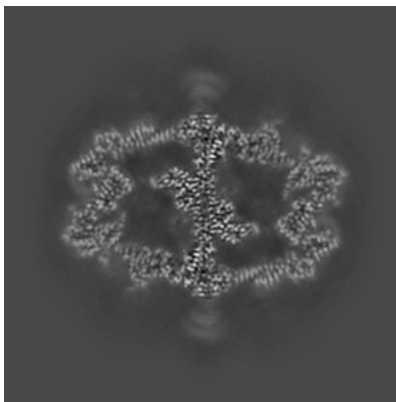
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

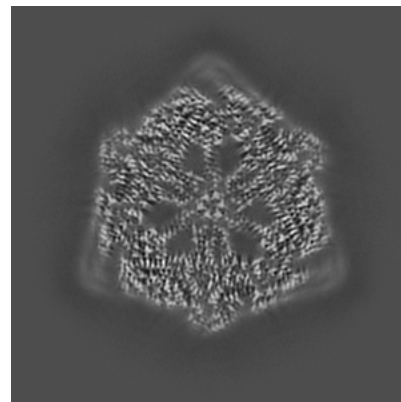
6.3.1 Primary map



X Index: 237



Y Index: 121

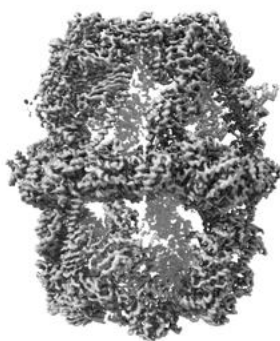


Z Index: 172

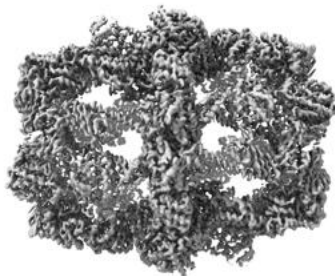
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

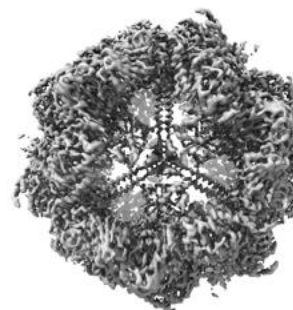
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.696. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

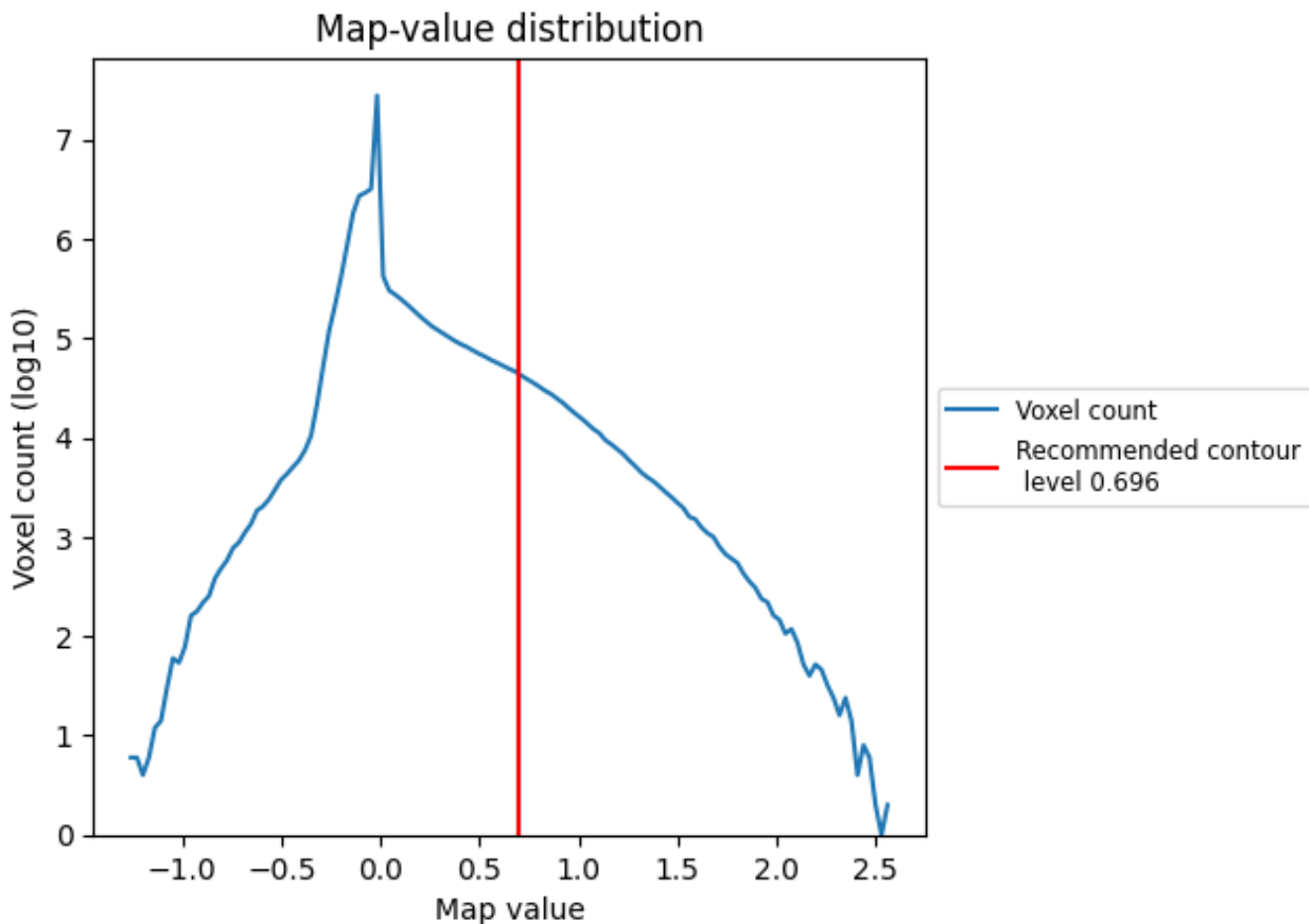
6.5 Mask visualisation

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

7 Map analysis [i](#)

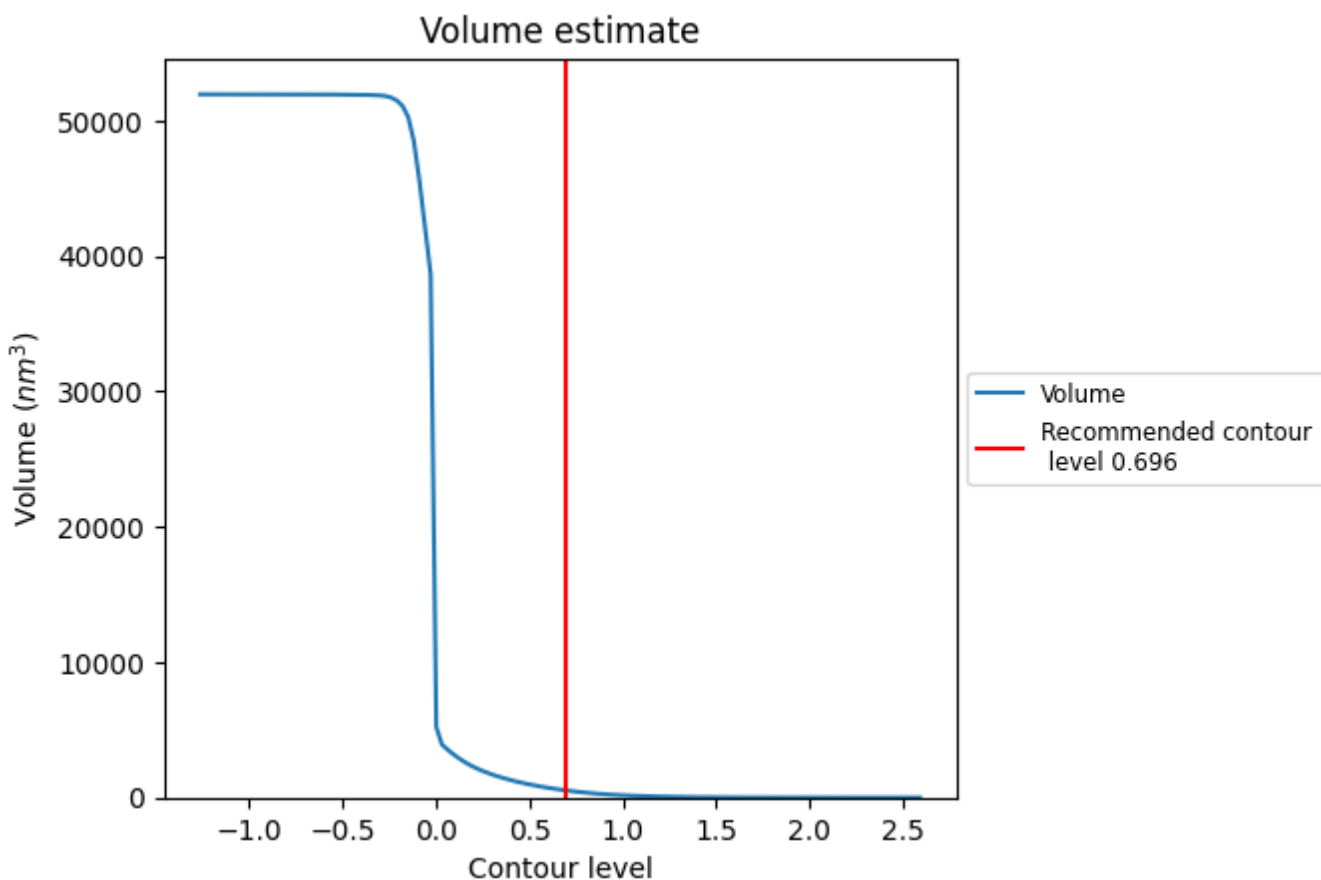
This section contains the results of statistical analysis of the map.

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.

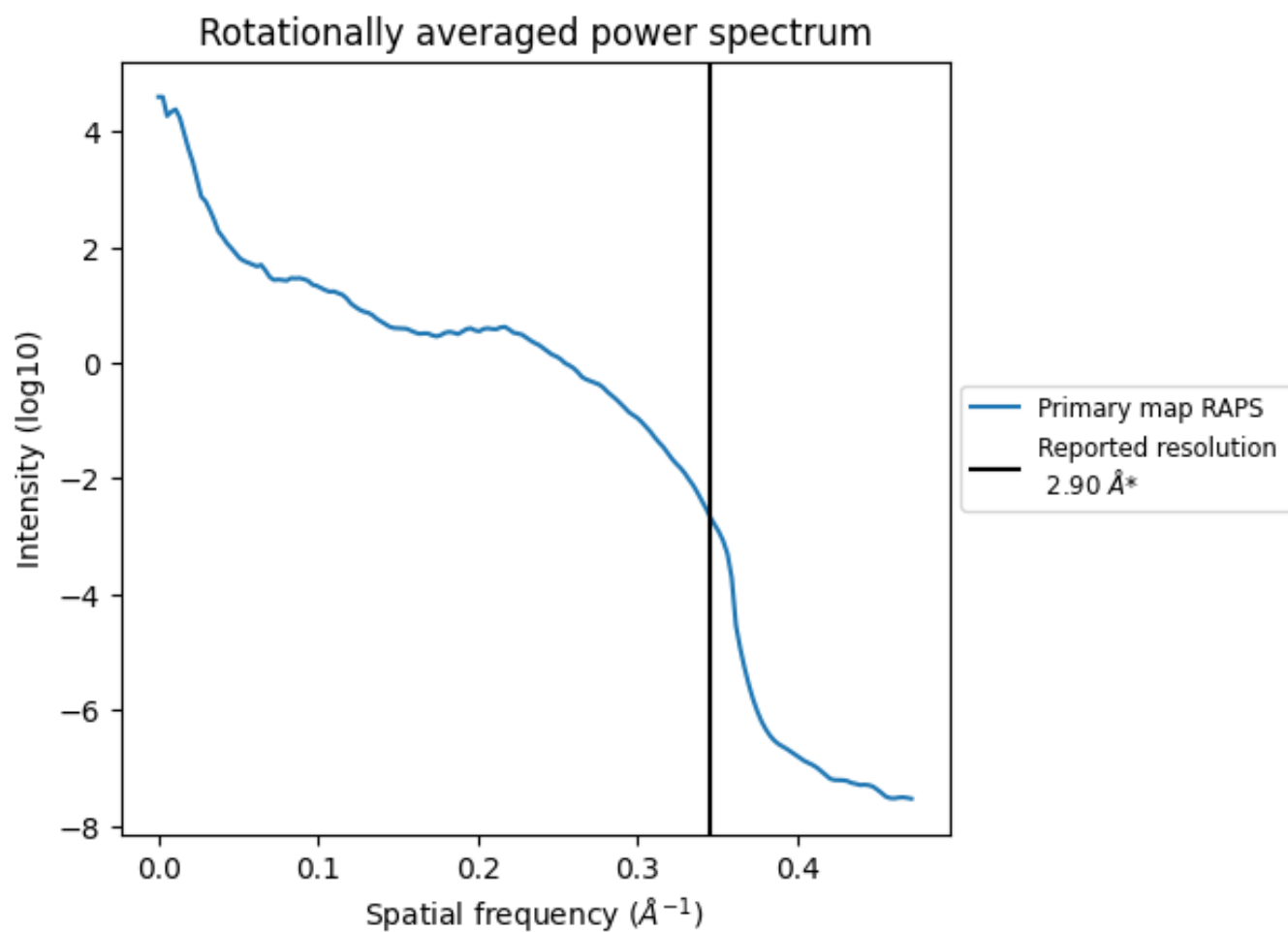
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 528 nm³; this corresponds to an approximate mass of 477 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 0.345 \AA^{-1}

8 Fourier-Shell correlation

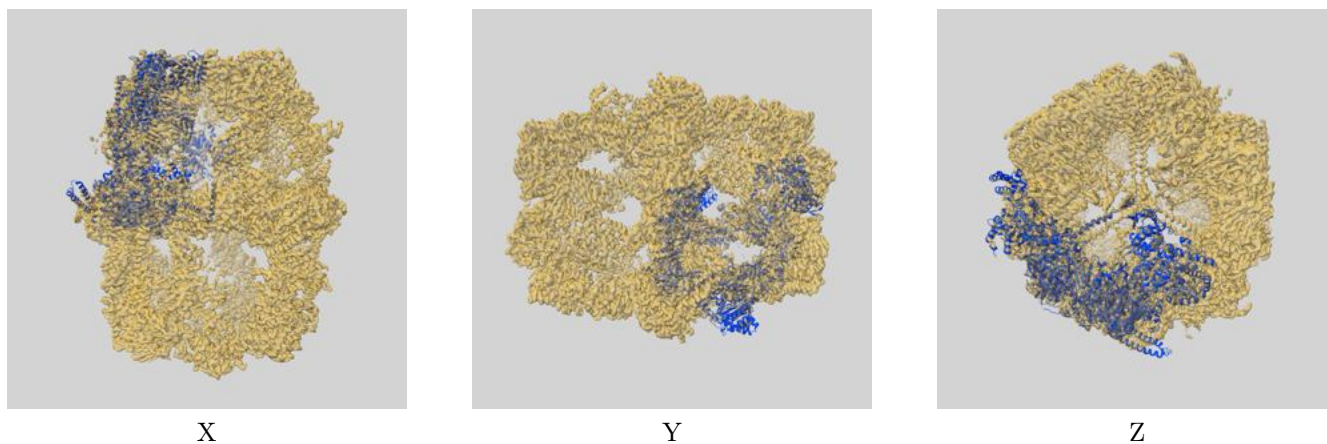
This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

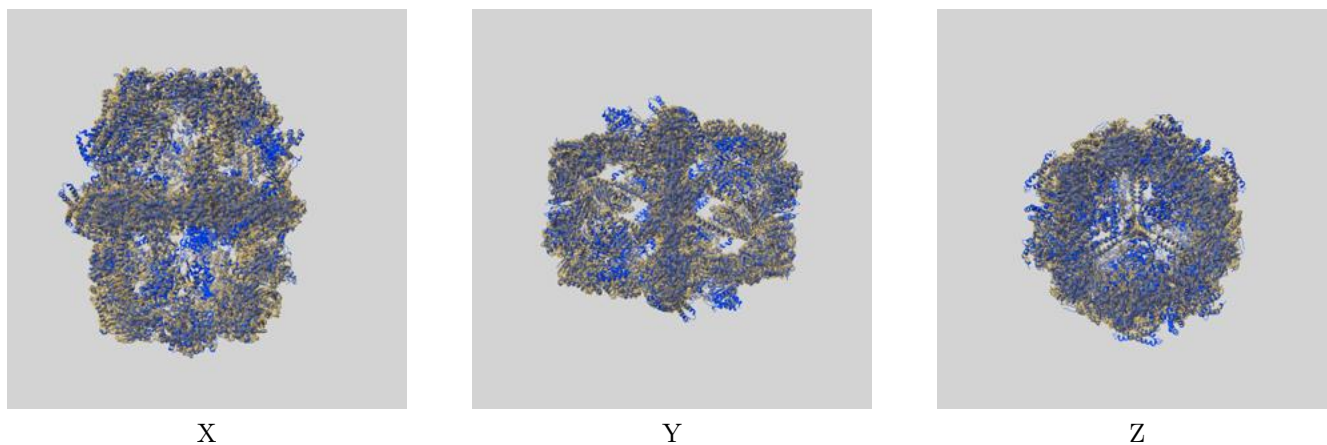
This section contains information regarding the fit between EMDB map EMD-20655 and PDB model 6U5T. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)

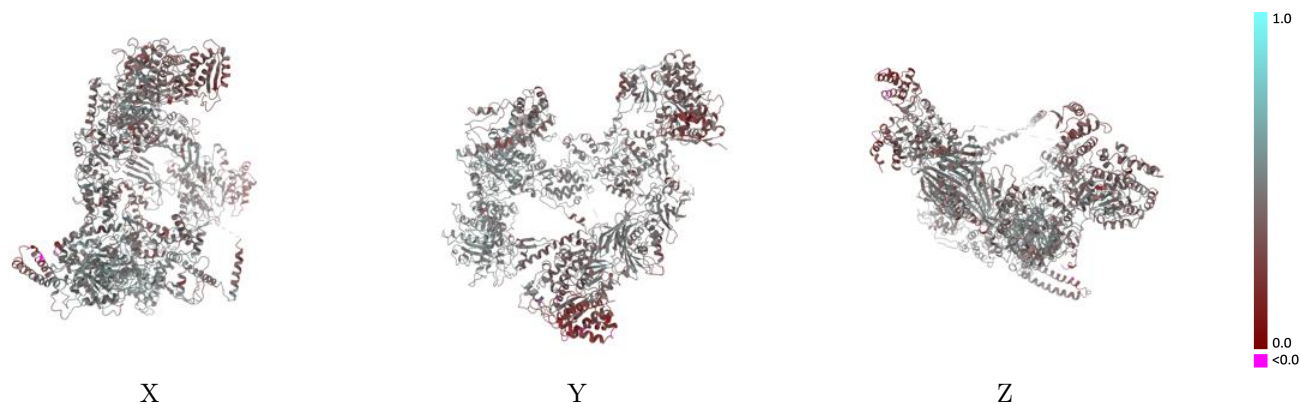


9.1.2 Map-model assembly overlay [i](#)



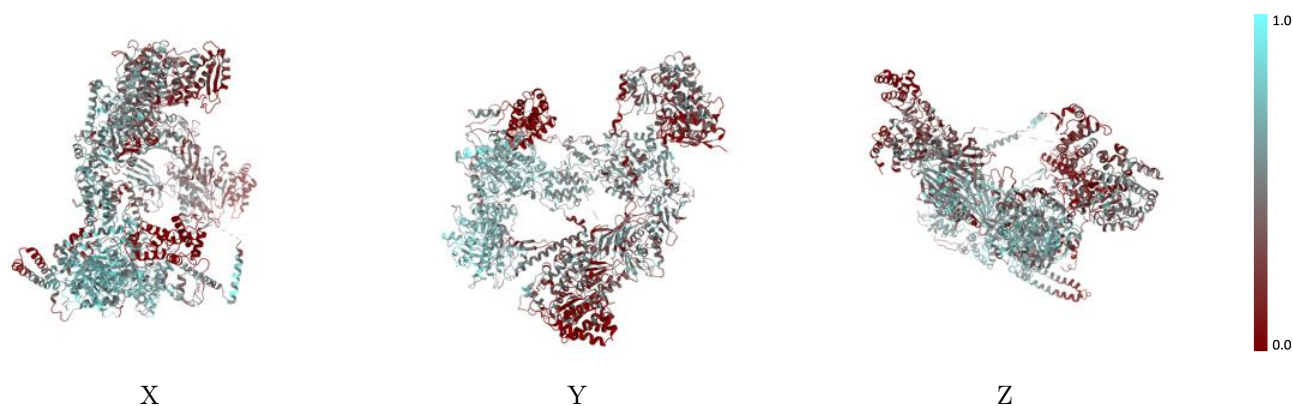
The images above show the 3D surface view of the map at the recommended contour level 0.696 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



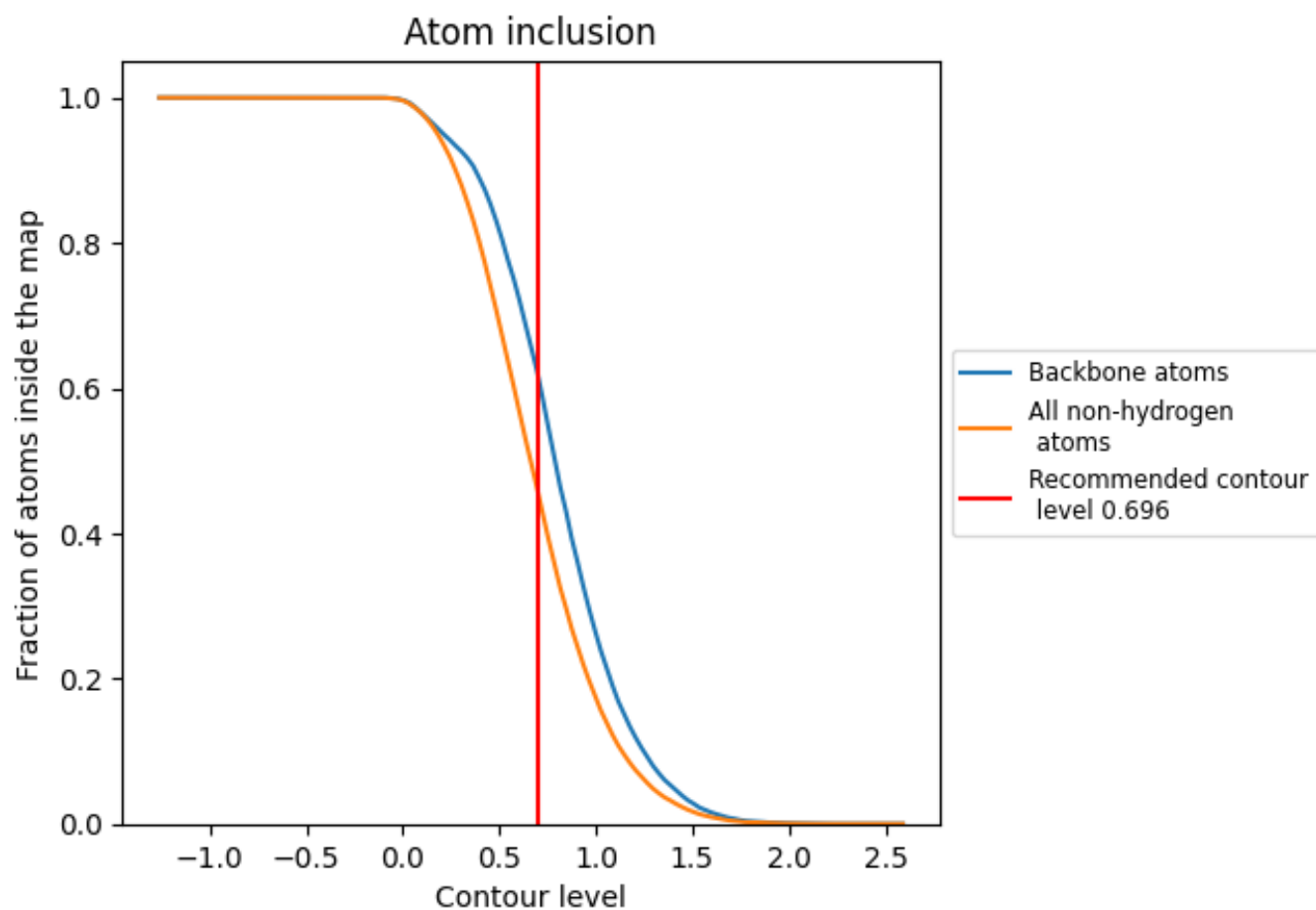
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.696).

9.4 Atom inclusion [i](#)



At the recommended contour level, 62% of all backbone atoms, 46% 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 (0.696) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4622	0.4420
A	0.5344	0.4690
G	0.4072	0.4210

