



wwPDB EM Validation Summary Report ⓘ

Jul 7, 2024 – 09:49 am BST

PDB ID : 7R04
EMDB ID : EMD-14219
Title : Neurofibromin in open conformation
Authors : Chaker-Margot, M.; Scheffzek, K.; Maier, T.
Deposited on : 2022-02-01
Resolution : 3.70 Å(reported)
Based on initial models : 6V65, 2E2X

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.dev92
Mogul : 1.8.4, 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 : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

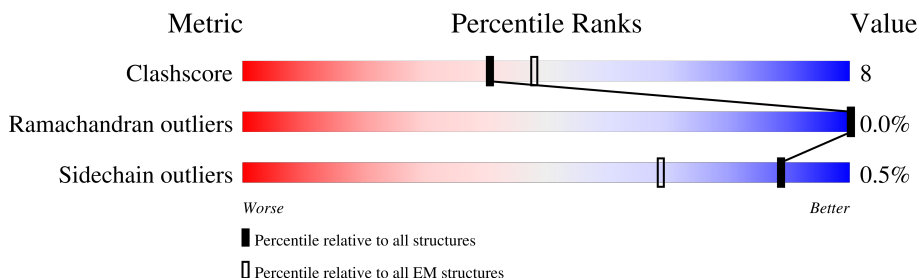
1 Overall quality at a glance

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	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	2818	
1	B	2818	

2 Entry composition [i](#)

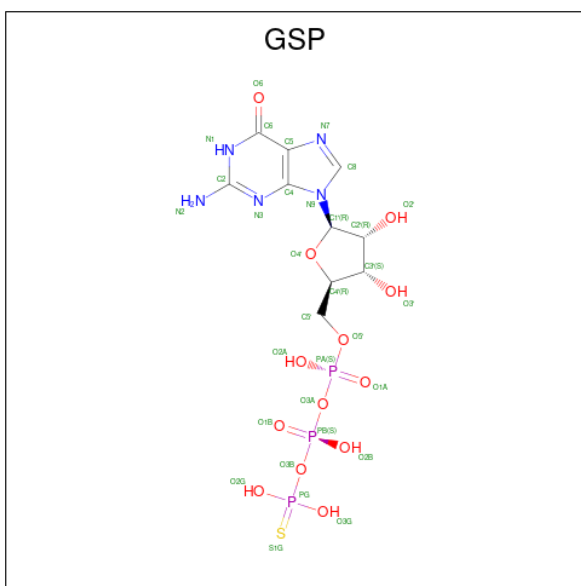
There are 2 unique types of molecules in this entry. The entry contains 36262 atoms, of which 12 are hydrogens and 0 are deuteriums.

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.

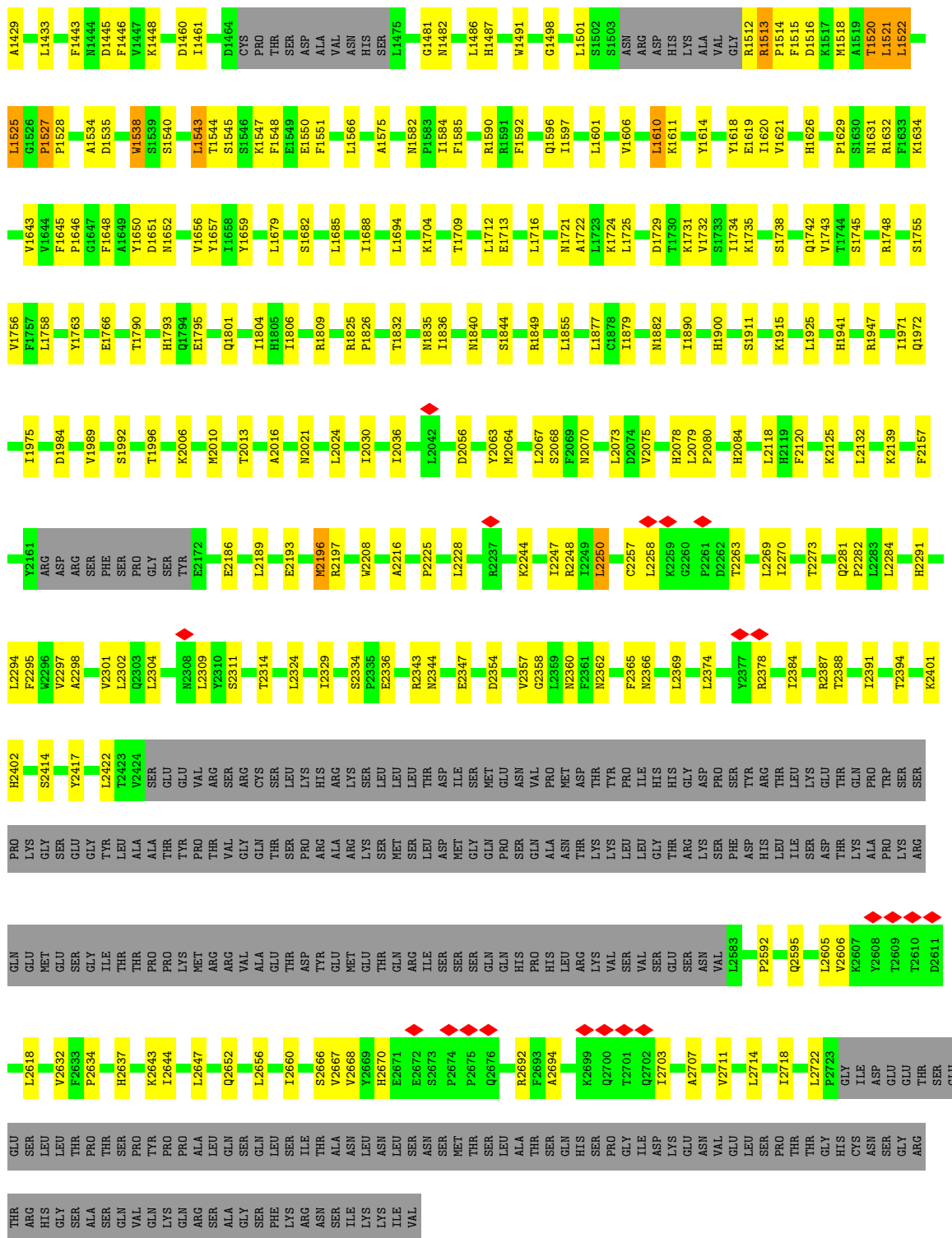
- Molecule 1 is a protein called Isoform I of Neurofibromin.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2326	Total	C	N	O	S	0	0
			18523	11890	3124	3390	119		
1	B	2229	Total	C	N	O	S	0	0
			17695	11363	2980	3236	116		

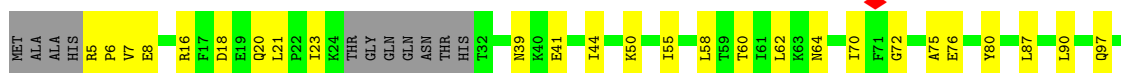
- Molecule 2 is 5'-GUANOSINE-DIPHOSPHATE-MONOTHIOPHOSPHATE (three-letter code: GSP) (formula: C₁₀H₁₆N₅O₁₃P₃S) (labeled as "Ligand of Interest" by depositor).

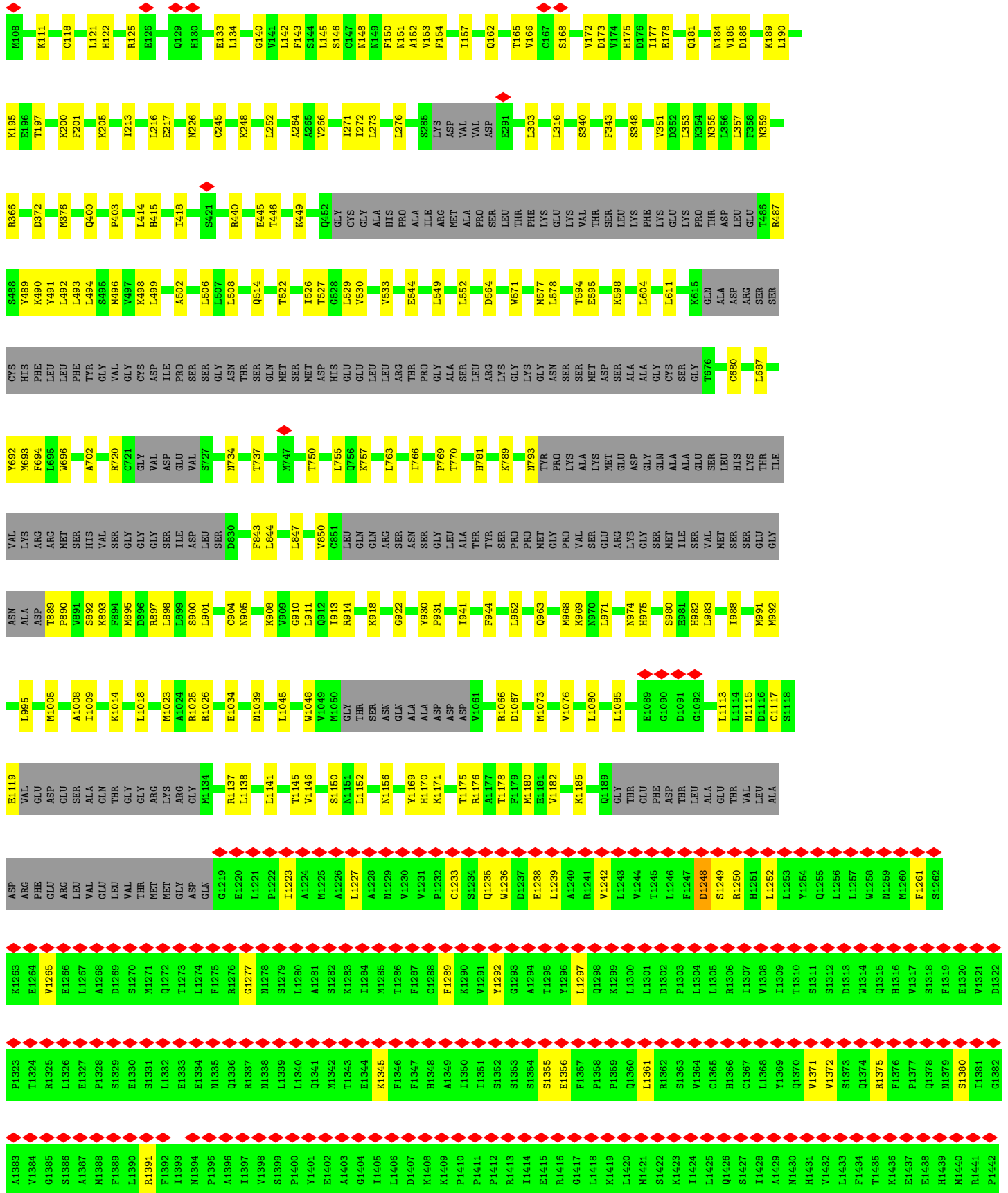


Mol	Chain	Residues	Atoms						AltConf	
			Total	C	H	N	O	P		S
2	A	1	Total	C	H	N	O	P	S	0
			44	10	12	5	13	3	1	



● Molecule 1: Isoform I of Neurofibromin





THR	THR	PRO	PRO	GLU	R2032	S1911	R1809	T1749	L1685	D1623	PHE	SER	F1443
TYR	TYR	LYS	MET	GLU	I2036	K1915	W1810	K1750	V1686	L1624	LYS	ASN	N1444
THR	THR	ARG	ARG	VAL	T2045	S1916	E1811	V1751	F1687	T1625	ALA	ARG	D1445
GLY	GLY	ARG	ARG	VAL	D2056	S1917	L1812	G1752	I1688	H1626	HIS	ASP	F1446
GLN	GLN	CYS	ASP	ASP	K1921	K1813	Q1814	Q1754	D1689	T1627	LYS	VAL	V1447
THR	THR	LEU	ASP	ASP	C1924	P1815	P1815	S1755	K1693	G1628	ALA	VAL	K1448
PRO	PRO	LYS	ASP	ASP	Y1927	ASP	ASP	V1756	L1694	P1629	GLY	GLY	S1449
ARG	ARG	ARG	ILE	ILE	W1931	ASP	ASP	F1757	A1695	S1630	ARG	ARG	N1450
ALA	ALA	ARG	ILE	ILE	L1932	PRO	PRO	L1758	E1696	R1631	THR	THR	F1451
LYS	LYS	GLN	GLN	GLN	L1932	GLN	GLN	N1759	H1697	F1633	THR	THR	L1452
LEU	LEU	HIS	HIS	HIS	R1937	HIS	HIS	D1760	I1698	K1634	THR	THR	A1453
LEU	LEU	LEU	LEU	LEU	H1941	LEU	LEU	V1761	I1699	K1635	THR	THR	R1455
LEU	LEU	LEU	LEU	LEU	H1942	LEU	LEU	V1762	H1700	D1636	THR	THR	R1456
LEU	LEU	LEU	LEU	LEU	D1943	LEU	LEU	E1763	E1701	F1637	THR	THR	F1457
LEU	LEU	LEU	LEU	LEU	K1946	LEU	LEU	S1765	Q1702	L1638	THR	THR	F1458
LEU	LEU	LEU	LEU	LEU	E1948	LEU	LEU	I1767	Q1703	S1639	THR	THR	L1459
LEU	LEU	LEU	LEU	LEU	G1831	LEU	LEU	E1768	K1704	K1640	THR	THR	D1460
LEU	LEU	LEU	LEU	LEU	T1832	LEU	LEU	E1769	L1705	W1641	THR	THR	L1461
LEU	LEU	LEU	LEU	LEU	M1956	LEU	LEU	I1770	P1706	F1642	THR	THR	L1462
LEU	LEU	LEU	LEU	LEU	L1957	LEU	LEU	C1771	A1707	V1643	THR	THR	S1463
LEU	LEU	LEU	LEU	LEU	E1964	LEU	LEU	D1772	A1708	F1644	THR	THR	D1464
LEU	LEU	LEU	LEU	LEU	M1967	LEU	LEU	V1773	T1709	F1645	THR	THR	PRO
LEU	LEU	LEU	LEU	LEU	ASP	LEU	LEU	D1774	L1710	P1646	THR	THR	PRO
LEU	LEU	LEU	LEU	LEU	ARG	LEU	LEU	E1775	L1712	F1648	THR	THR	GLU
LEU	LEU	LEU	LEU	LEU	ARG	LEU	LEU	I1776	A1713	A1649	THR	THR	HIS
LEU	LEU	LEU	LEU	LEU	ASP	LEU	LEU	M1777	E1714	V1650	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	GLY	LEU	LEU	Q1777	D1715	D1651	THR	THR	ASP
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	F1778	L1716	M1652	THR	THR	ASP
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	T1779	K1717	V1653	THR	THR	GLY
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	L1780	V1718	S1654	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	T1781	F1719	A1654	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	H1782	H1720	A1655	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	A1783	N1721	V1656	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	M1784	A1722	Y1657	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	Q1785	L1723	I1658	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	G1786	K1724	C1661	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	T1787	L1725	M1662	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	P1788	A1726	S1663	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	L1789	H1727	W1664	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	T1790	K1728	V1665	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	F1791	D1729	R1666	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	M1792	T1730	E1667	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	H1793	K1731	Y1668	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	Q1794	V1732	T1669	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	E1795	K1735	K1670	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	C1796	V1736	Y1671	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	E1797	G1737	L1674	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	I1798	S1738	L1675	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	I1799	V1741	L1676	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	V1800	Q1742	T1677	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	Q1801	V1743	L1678	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	I1803	T1744	G1678	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	I1804	S1745	K1680	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	H1805	A1746	G1681	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	I1806	E1747	S1682	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	R1807	R1748	K1683	THR	THR	LEU
LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	T1808		R1684	THR	THR	LEU

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	300000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	52.847	Depositor
Minimum map value	-20.737	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.998	Depositor
Recommended contour level	6.0	Depositor
Map size (\AA)	541.696, 541.696, 541.696	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.058, 1.058, 1.058	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: GSP

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	0.35	0/18902	0.61	10/25620 (0.0%)
1	B	0.30	0/18052	0.56	5/24473 (0.0%)
All	All	0.32	0/36954	0.59	15/50093 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2

There are no bond length outliers.

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1984	ASP	CB-CG-OD1	8.51	125.96	118.30
1	B	1608	LEU	CA-CB-CG	6.22	129.61	115.30
1	A	1180	MET	CA-CB-CG	6.01	123.51	113.30
1	A	1610	LEU	CA-CB-CG	5.92	128.93	115.30
1	B	1023	MET	CG-SD-CE	5.53	109.04	100.20

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	1248	ASP	Peptide
1	B	2705	ASP	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	18523	0	18780	295	0
1	B	17695	0	17898	261	0
2	A	32	12	12	3	0
All	All	36250	12	36690	547	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 8.

The worst 5 of 547 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:197:THR:O	1:A:201:PHE:HB2	1.52	1.08
1:A:1535:ASP:HA	1:A:1596:GLN:HG3	1.36	1.06
1:A:1491:TRP:CD1	1:A:1528:PRO:HD3	1.94	1.03
1:A:1544:THR:HB	1:A:1547:LYS:HG2	1.48	0.95
1:A:1204:ARG:HD2	1:A:1525:LEU:HD13	1.56	0.87

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	2298/2818 (82%)	2209 (96%)	88 (4%)	1 (0%)	100	100
1	B	2195/2818 (78%)	2128 (97%)	67 (3%)	0	100	100
All	All	4493/5636 (80%)	4337 (96%)	155 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	677	PRO

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	2085/2512 (83%)	2069 (99%)	16 (1%)	81	89
1	B	1982/2512 (79%)	1976 (100%)	6 (0%)	92	96
All	All	4067/5024 (81%)	4045 (100%)	22 (0%)	89	94

5 of 22 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2139	LYS
1	B	125	ARG
1	B	39	ASN
1	B	1039	ASN
1	A	1520	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 13 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	963	GLN
1	B	1394	ASN
1	B	2220	ASN
1	B	1882	ASN
1	B	2050	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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
2	GSP	A	2901	-	26,34,34	1.10	3 (11%)	27,54,54	0.81	1 (3%)

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	GSP	A	2901	-	-	2/17/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2901	GSP	C5-C6	-2.85	1.41	1.47
2	A	2901	GSP	C8-N7	-2.25	1.31	1.35
2	A	2901	GSP	C5-C4	-2.04	1.37	1.43

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	2901	GSP	O6-C6-C5	2.01	128.30	124.37

There are no chirality outliers.

All (2) torsion outliers are listed below:

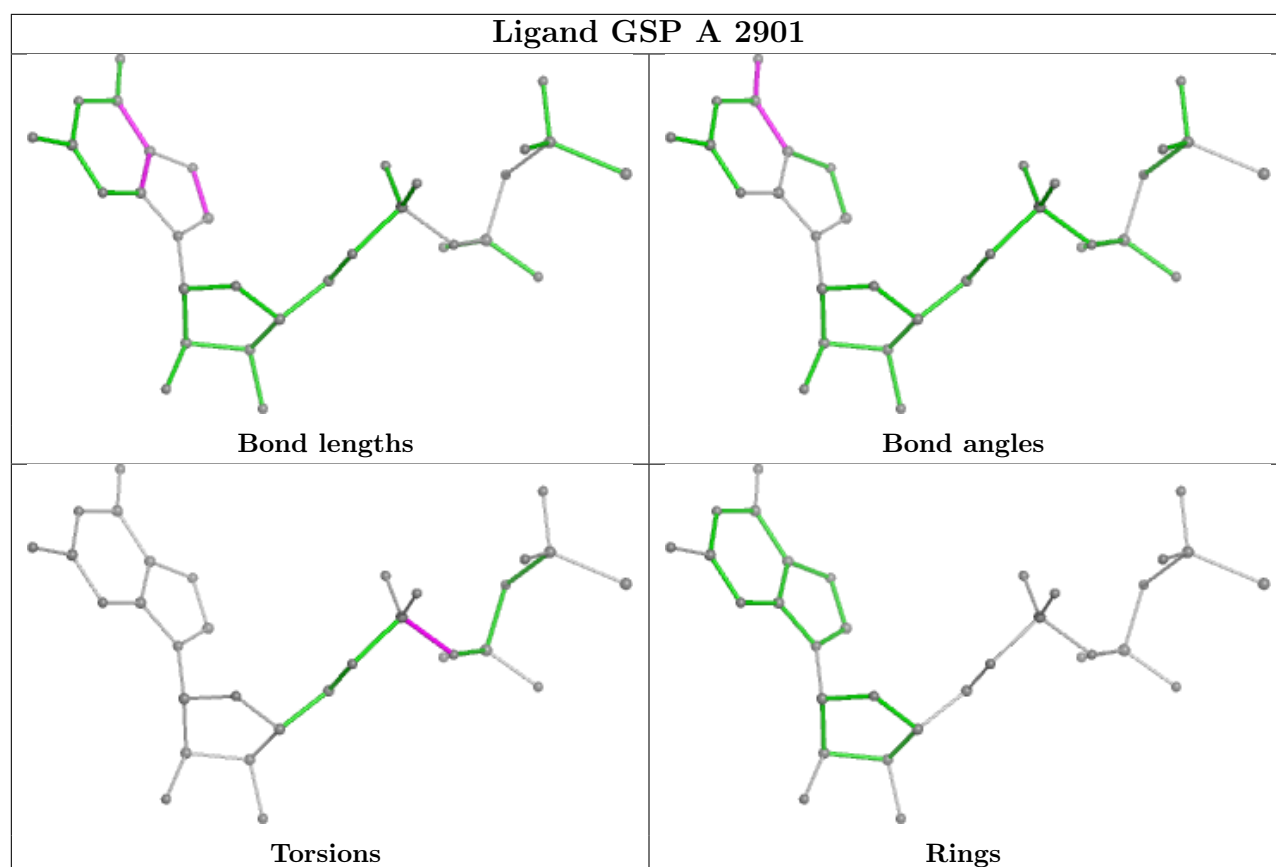
Mol	Chain	Res	Type	Atoms
2	A	2901	GSP	PB-O3A-PA-O2A
2	A	2901	GSP	PB-O3A-PA-O1A

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2901	GSP	3	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.

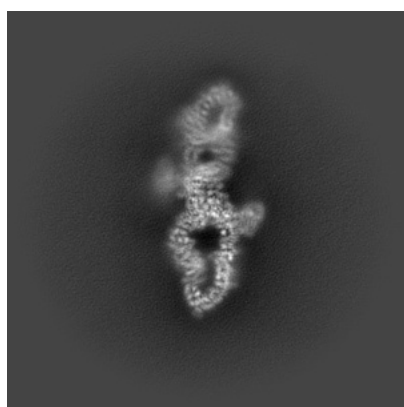
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14219. These allow visual inspection of the internal detail of the map and identification of artifacts.

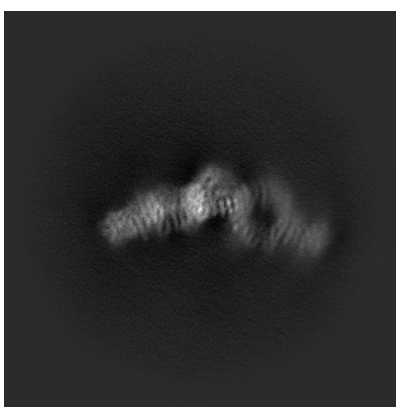
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

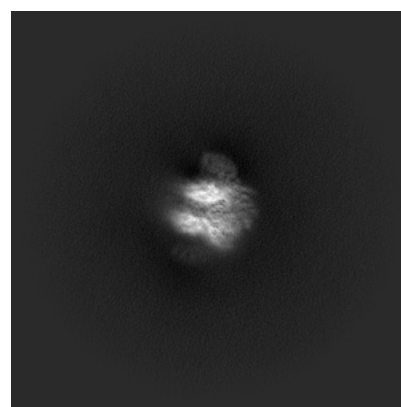
6.1.1 Primary map



X



Y

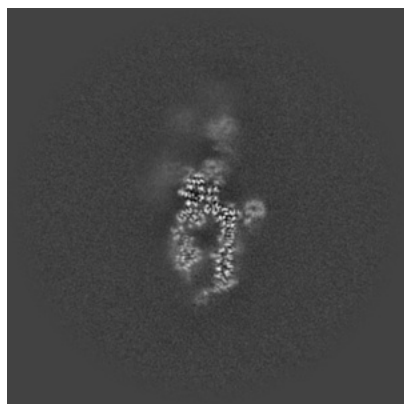


Z

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

6.2 Central slices [i](#)

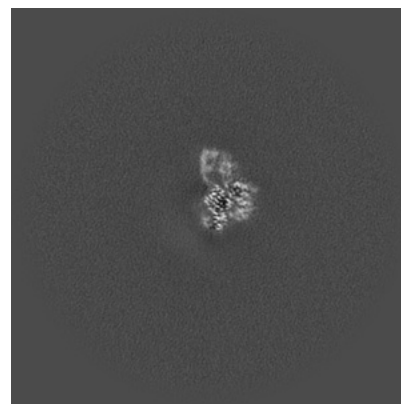
6.2.1 Primary map



X Index: 256



Y Index: 256

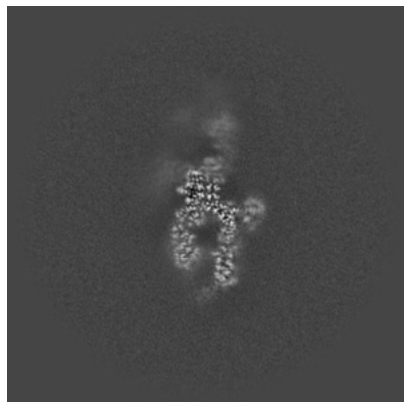


Z Index: 256

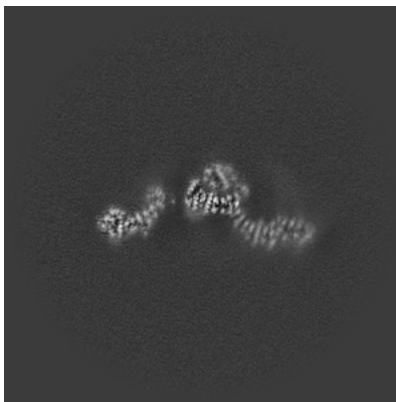
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

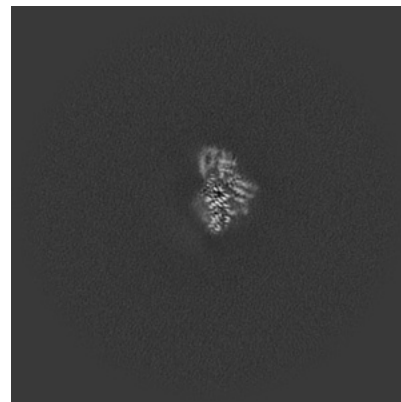
6.3.1 Primary map



X Index: 258



Y Index: 242



Z Index: 252

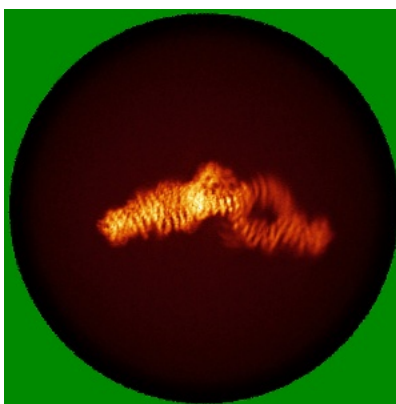
The images above show the largest variance slices of the map in three orthogonal directions.

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

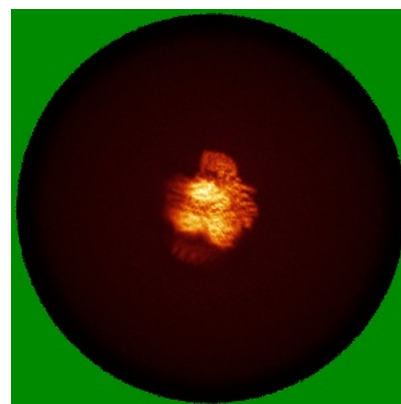
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 6.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

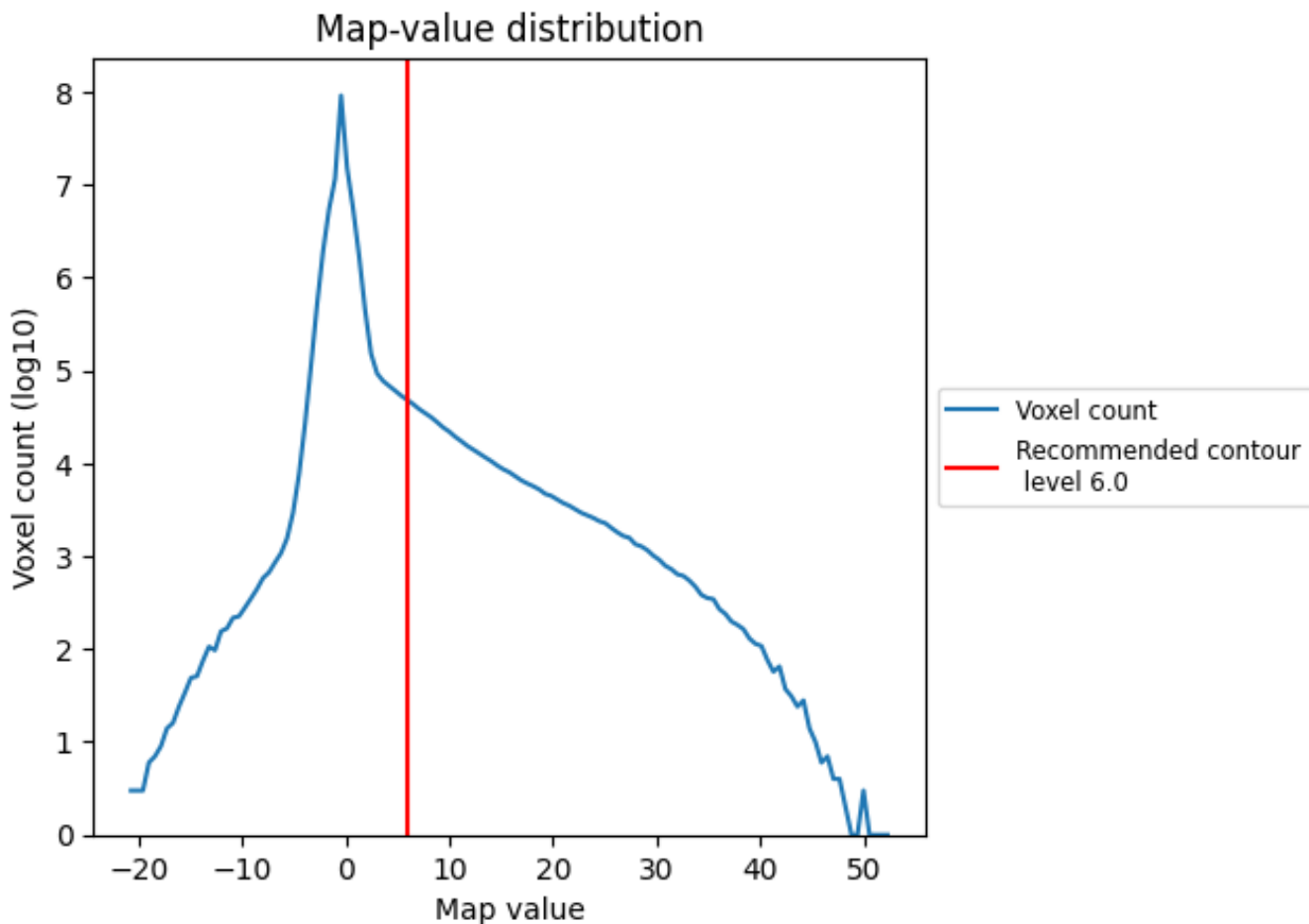
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

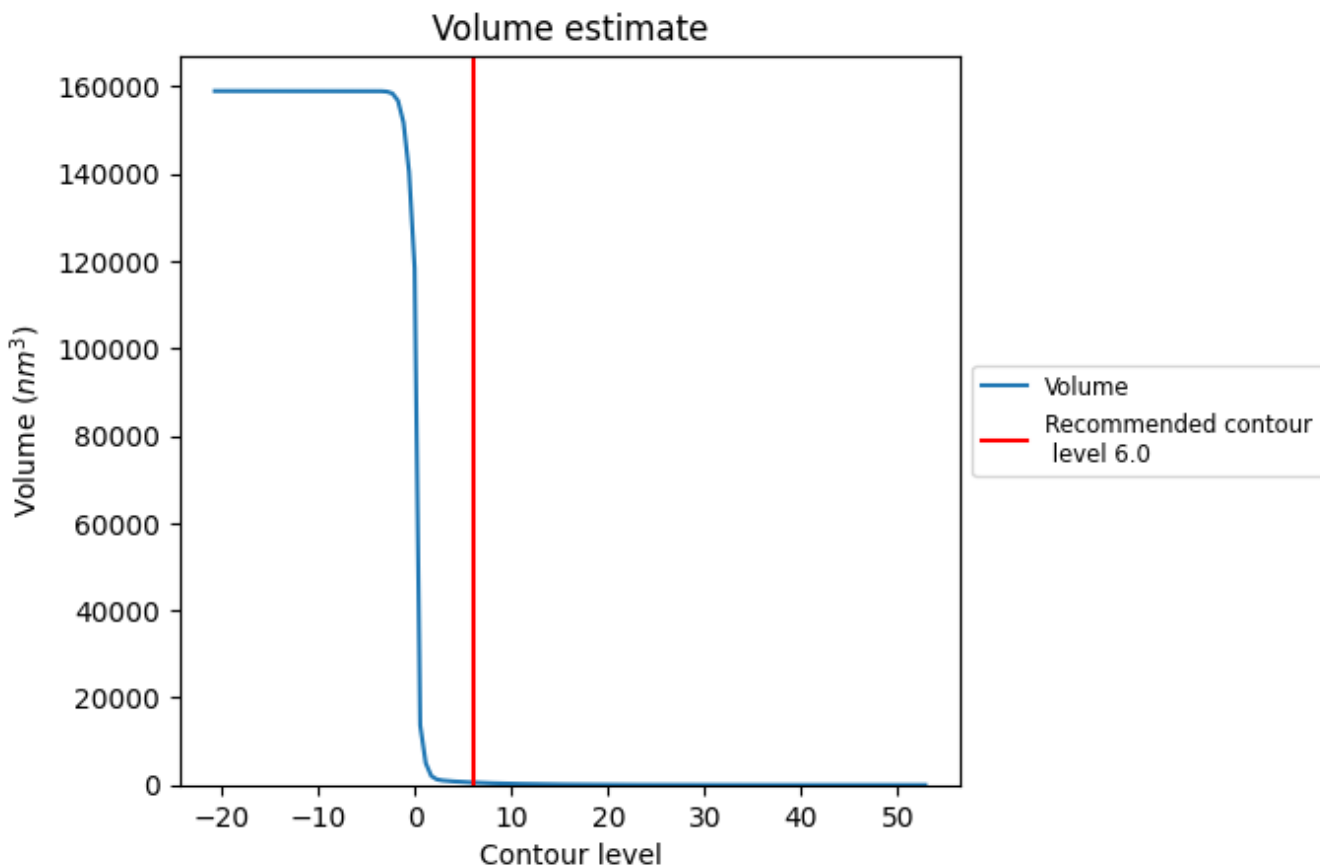
This section contains the results of statistical analysis of the map.

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.

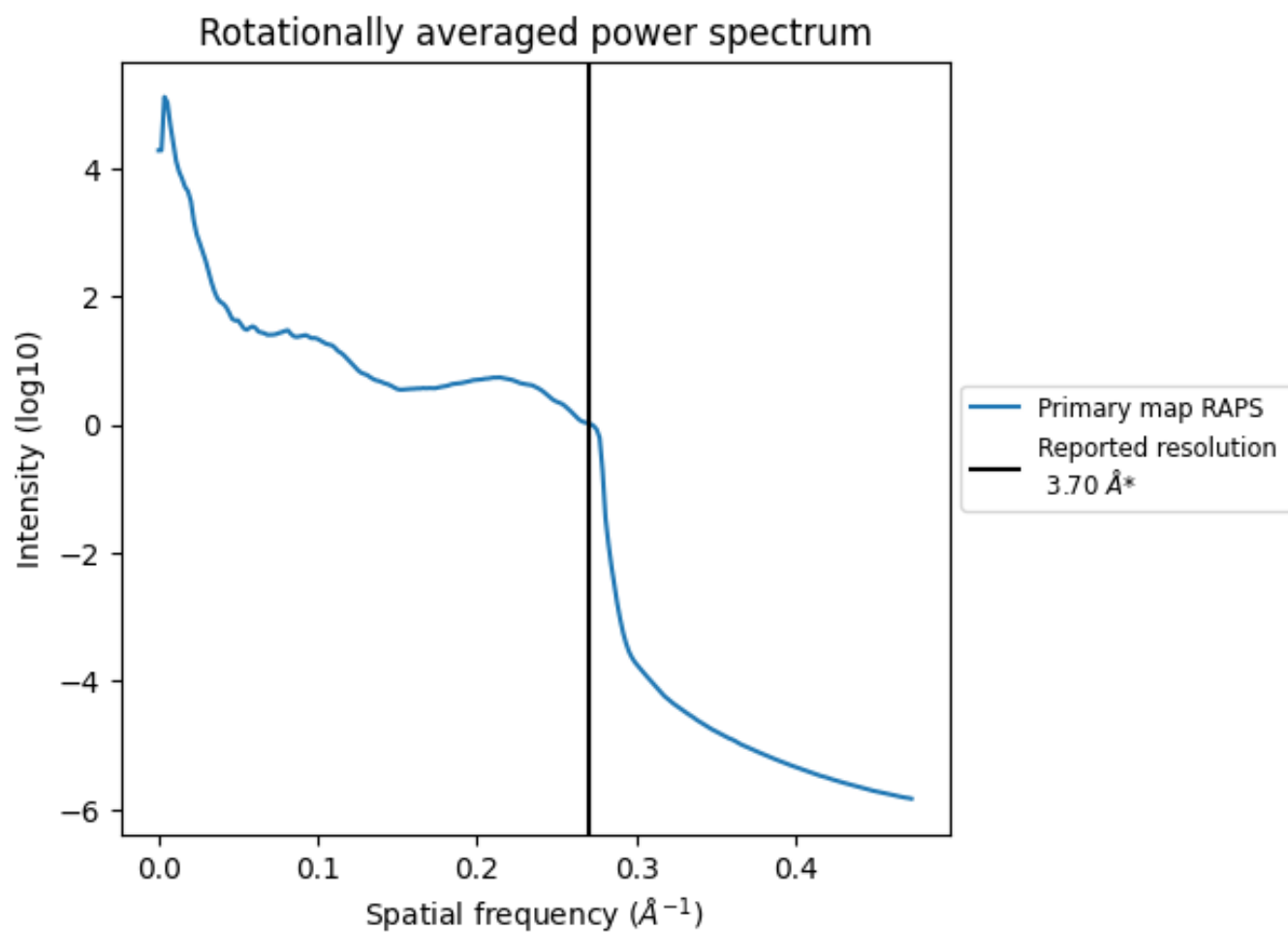
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 564 nm^3 ; this corresponds to an approximate mass of 510 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\AA^{-1}

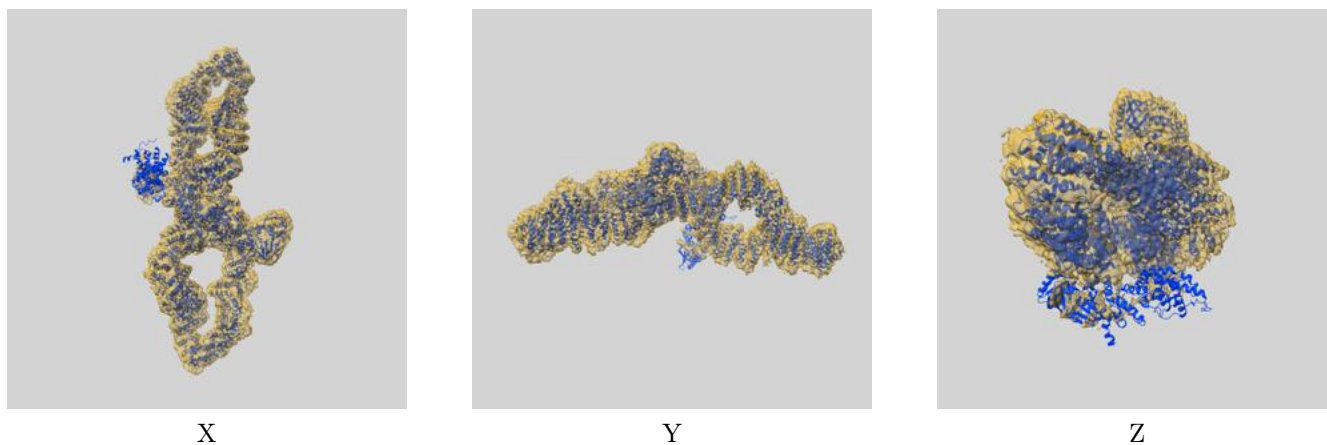
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

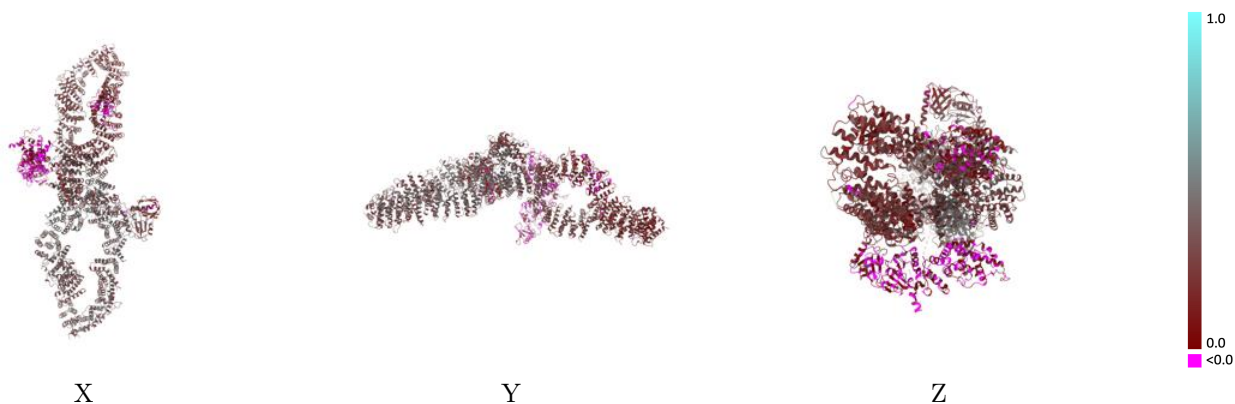
This section contains information regarding the fit between EMDB map EMD-14219 and PDB model 7R04. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



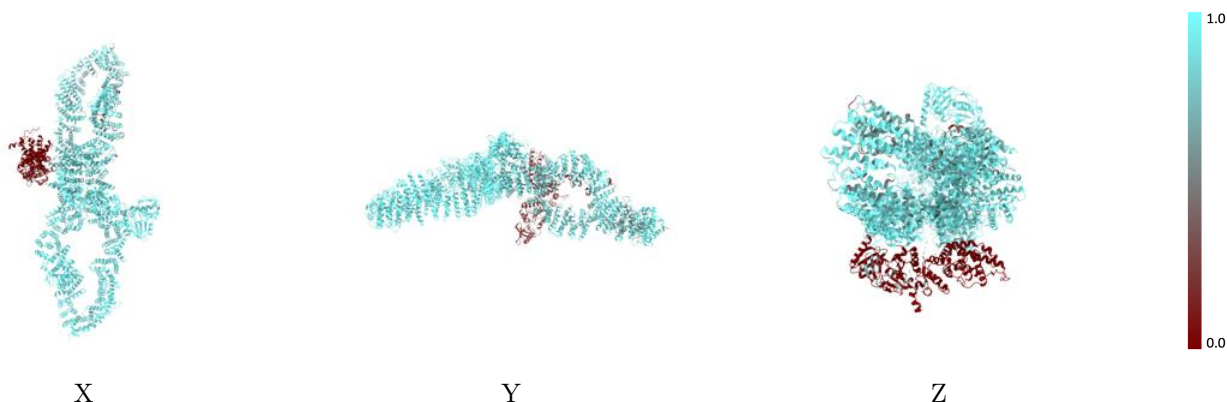
The images above show the 3D surface view of the map at the recommended contour level 6.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



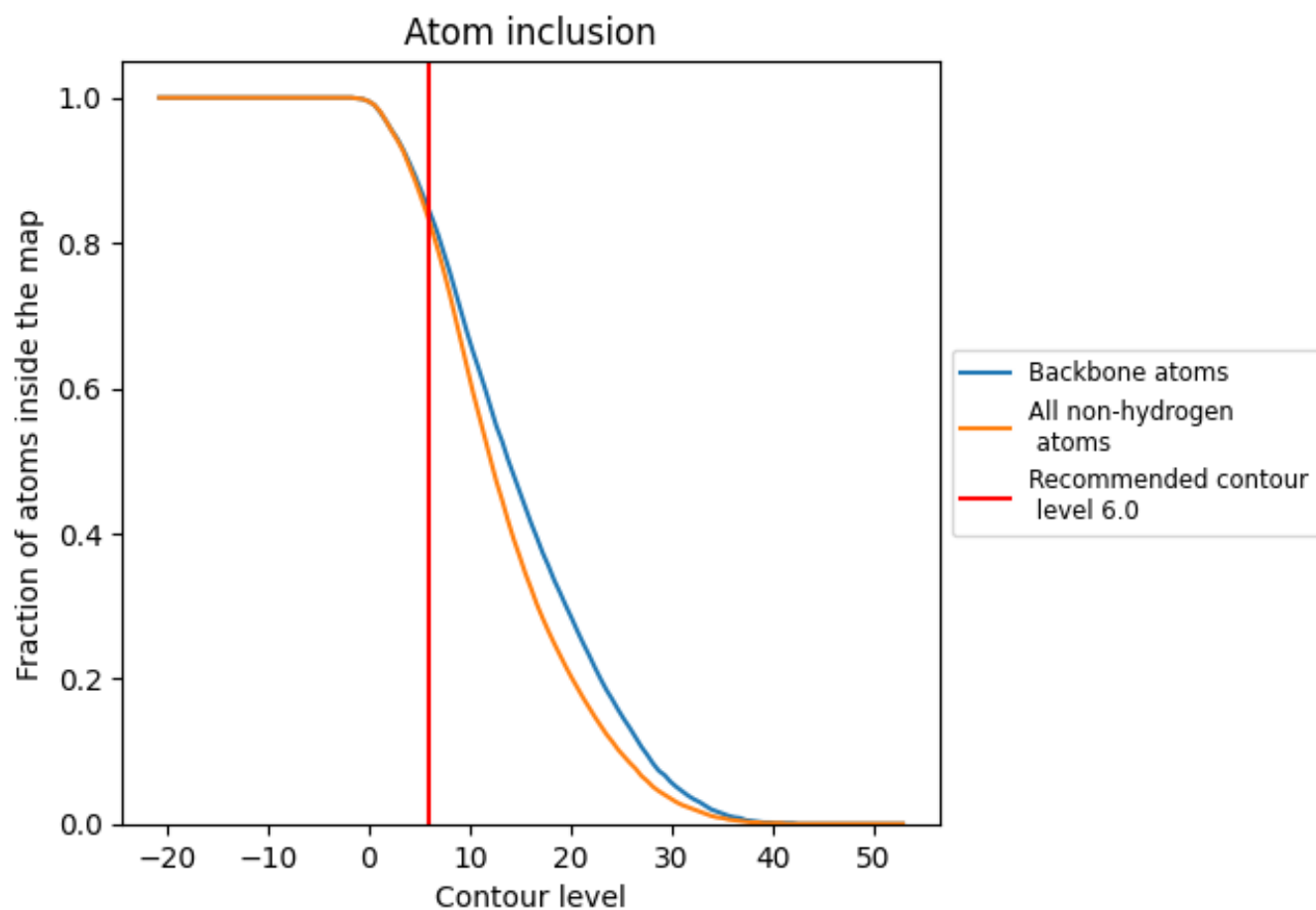
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (6.0).






9.4 Atom inclusion [i](#)



At the recommended contour level, 84% of all backbone atoms, 83% 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 (6.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8290	 0.2790
A	 0.9450	 0.3180
B	 0.7090	 0.2380

