



Full wwPDB EM Validation Report ⓘ

Apr 8, 2024 – 02:27 PM JST

PDB ID : 8IZL
EMDB ID : EMD-35864
Title : Structure of the Mumps Virus L Protein Bound by Phosphoprotein Tetramer
Authors : Li, T.H.; Shen, Q.T.
Deposited on : 2023-04-07
Resolution : 2.93 Å (reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev70
MolProbity : 4.02b-467
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) : 2.36

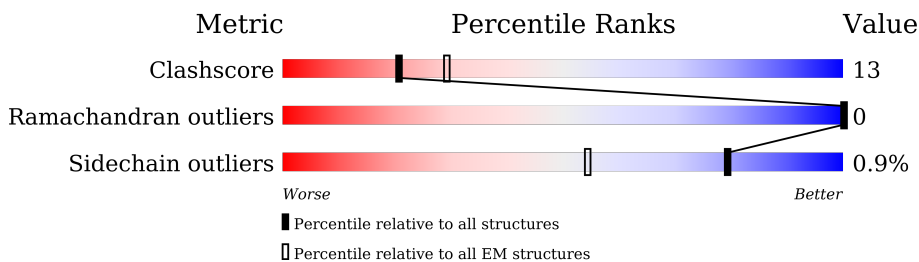
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.93 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	B	391	 10% 8% 82%
1	C	391	 12% 10% 77%
1	D	391	 8% 7% 85%
1	E	391	 8% 6% 85%
2	A	2261	 67% 24% 9%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 18612 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 Phosphoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	D	60	Total 459	C 284	N 79	O 90	S 6	0	0
1	E	58	Total 440	C 272	N 76	O 87	S 5	0	0
1	B	69	Total 517	C 321	N 89	O 101	S 6	0	0
1	C	91	Total 680	C 420	N 119	O 135	S 6	0	0

- Molecule 2 is a protein called RNA-directed RNA polymerase L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	2067	Total 16514	C 10585	N 2805	O 3039	S 85	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
3	A	2	Total 2	Zn 2	0

R2220	I2221	I2225	F2232	GLY	LEU	LEU	THR	PRO	ASP	VAL	GLU	GLY	E2141	R2142	I2143	I2144	M2145	R2149	N2150	M2151	T2158	R2159	L2160	T2161	L2162	R2163	Q2164	R2172	L2173	R2174	D2175	M2180	E2181	I2182	R2189	K2190	Y2191	L2192	N2197	F2201	G2206	D2210	L2213	N2214	R2215	K2219								
LEU	LEU	THR	THR	ASN	VAL	G2127	K2131	I2132	M2133	T2134	E2141	R2142	I2143	I2144	M2145	R2149	N2150	M2151	T2158	R2159	L2160	T2161	L2162	R2163	Q2164	R2172	L2173	R2174	D2175	M2180	E2181	I2182	R2189	K2190	Y2191	L2192	N2197	F2201	G2206	D2210	L2213	N2214	R2215	K2219										
L1997	F2006	R2012	L2028	W2033	R2036	V2037	D2048	I2051	V2055	R2056	D2057	Q2058	D2062	N2063	N2064	I2065	I2066	L2067	Q2068	A2069	R2076	K2077	L2081	P2082	D2083	L2090	M2094	A2095	R2096	L2097	I2098	T2099	K2103	E2104	V2105	I2106	E2107	I2108	A2113	SER	ASP	HIS	ASP	THR										
L1912	L1913	V1914	H1915	V1916	G1920	VAL	PRO	GLY	SER	NET	ASN	SER	MET	L1929	E1930	R1931	I1932	Q1933	V1934	H1935	A1936	L1937	L1938	I1939	T1940	V1941	T1942	V1943	L1944	K1945	L1949	L1950	I1951	L1952	M1960	R1961	F1962	S1963	F1964	L1965	V1968	L1969	V1970	Q1971	F1972	F1973	L1979	H1989	F1990	V1991	I1992	I1993		
L1809	H1810	L1811	L1812	Y1813	L1814	A1815	A1819	S1820	M1821	S1822	L1823	T1826	F1827	L1828	I1833	W1834	Q1847	R1848	N1849	P1854	T1855	Q1856	F1857	I1858	E1859	S1860	V1861	P1862	Y1863	I1866	I1870	N1874	Q1878	L1883	D1889	L1893	V1899	I1902	V1906	G1907	T1910	C1911												
SER	GLU	SER	ALA	SER	L1736	I1742	L1743	M1744	L1745	GLU	LEU	SER	ASP	ALA	SER	LEU	GLU	LYS	TYR	SER	LEU	PRO	SER	LEU	LEU	LEU	MET	THR	ALA	GLU	ASN	MET	ASP	ASN	PRO	PHE	P1772	Q1773	P1774	P1775	L1776	H1777	H1778	V1779	L1780	R1781	L1785	W1790	L1794	S1795	V1796	L1797	I1800	I1805
I1528	R1529	I1530	I1531	I1536	T1537	G1538	T1542	T1543	S1544	R1547	R1550	I1558	N1562	S1563	P1564	H1565	Y1571	T1572	K1573	L1574	PHE	A1578	I1598	P1601	S1604	GLN	LEU	THR	LEU	SER	D1610	R1611	M1614	R1618	K1619	L1620	S1621	L1623	A1624	I1625	P1633	P1641	K1644											
A1647	T1650	H1651	E1657	TYR	VAL	GLU	TYR	ILE	Q1663	I1664	E1665	I1669	R1670	I1671	M1672	I1673	I1674	L1678	L1679	P1682	L1685	TYR	SER	S1689	R1690	K1691	L1692	L1693	I1696	N1711	PHE	GLY	TYR	LEU	PRO	GLU	ILE	LEU	MET	GLU	SER	LYS	ILE	PHE	ASN	LEU	SER							

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	438014	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 ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	1.500	Depositor
Minimum map value	-0.051	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.032	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	233.19998, 233.19998, 233.19998	wwPDB
Map dimensions	440, 440, 440	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.53, 0.53, 0.53	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:
ZN

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	B	0.41	0/520	0.66	0/701
1	C	0.40	0/686	0.58	0/926
1	D	0.39	0/459	0.62	0/614
1	E	0.48	0/440	0.65	0/590
2	A	0.31	0/16861	0.52	0/22897
All	All	0.32	0/18966	0.53	0/25728

There are no bond length outliers.

There are no bond angle outliers.

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	B	517	0	545	51	0
1	C	680	0	702	58	0
1	D	459	0	487	35	0
1	E	440	0	466	40	0
2	A	16514	0	16753	395	0
3	A	2	0	0	0	0
All	All	18612	0	18953	503	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 13.

All (503) 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)
2:A:1290:LEU:CD2	2:A:1691:LYS:HE3	1.65	1.26
1:D:256:LEU:HD11	1:C:256:LEU:HD23	1.14	1.11
1:D:256:LEU:CD1	1:C:256:LEU:HD23	1.85	1.07
2:A:1290:LEU:HD21	2:A:1691:LYS:CE	1.86	1.05
2:A:2090:LEU:HD13	2:A:2150:ASN:HD22	1.20	1.03
2:A:1290:LEU:HD21	2:A:1691:LYS:HE3	1.00	0.98
1:C:271:ALA:O	2:A:395:GLN:HB2	1.68	0.93
1:D:256:LEU:HD11	1:C:256:LEU:CD2	1.99	0.91
1:D:253:LYS:HD3	1:C:252:ILE:HG22	1.55	0.87
1:C:303:PRO:HG2	2:A:459:ARG:HB2	1.53	0.87
2:A:1290:LEU:CD2	2:A:1691:LYS:CE	2.50	0.83
2:A:1324:SER:OG	2:A:1849:ASN:HB2	1.79	0.82
1:E:259:VAL:HG22	1:B:263:LEU:HD22	1.61	0.81
2:A:2090:LEU:HD13	2:A:2150:ASN:ND2	1.96	0.80
2:A:1914:VAL:HG11	2:A:1940:THR:HG22	1.66	0.77
2:A:136:SER:HB2	2:A:145:LEU:HB3	1.67	0.77
1:E:259:VAL:HG23	1:B:260:LYS:CE	2.14	0.76
1:E:259:VAL:HG23	1:B:260:LYS:HE2	1.67	0.76
1:C:280:ASN:HB3	2:A:387:CYS:HB3	1.67	0.75
2:A:777:GLN:HG2	2:A:780:ASN:O	1.87	0.74
2:A:1624:ALA:HB2	2:A:1651:HIS:NE2	2.01	0.74
2:A:1502:LEU:HB3	2:A:1622:LEU:HD11	1.69	0.74
2:A:841:ARG:HH12	2:A:887:ASN:HD21	1.36	0.73
2:A:1558:ILE:HD12	2:A:1574:LEU:HD22	1.70	0.72
2:A:2105:VAL:HG13	2:A:2132:ILE:HD12	1.70	0.72
1:B:249:VAL:O	1:B:252:ILE:HG22	1.89	0.72
1:D:263:LEU:HD21	1:C:259:VAL:HG13	1.72	0.71
2:A:1176:VAL:HG12	2:A:1375:THR:HG22	1.74	0.70
1:D:263:LEU:CD2	1:C:259:VAL:HG13	2.21	0.69
2:A:360:GLU:HG3	2:A:851:GLN:HA	1.74	0.69
1:E:256:LEU:O	1:E:259:VAL:HG12	1.93	0.69
1:D:266:ILE:HG22	1:C:266:ILE:HD13	1.76	0.68
2:A:1810:HIS:HB2	2:A:1833:ILE:HD13	1.74	0.68
1:C:239:VAL:HA	1:C:242:VAL:HG22	1.77	0.67
2:A:111:THR:O	2:A:115:LYS:HG2	1.93	0.67
2:A:615:ILE:HD11	2:A:661:ILE:HG22	1.76	0.67
2:A:703:HIS:O	2:A:707:MET:HG2	1.94	0.67
2:A:1902:ILE:O	2:A:1906:VAL:HG22	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1529:ARG:HD3	2:A:1573:LYS:HZ3	1.61	0.66
2:A:715:ASP:HB3	2:A:718:ASN:HB2	1.78	0.66
2:A:1811:LEU:HB3	2:A:1914:VAL:HG22	1.77	0.66
2:A:615:ILE:HD12	2:A:660:GLU:HG2	1.79	0.65
2:A:20:ARG:HB2	2:A:372:THR:HB	1.78	0.65
2:A:1061:VAL:HG21	2:A:1159:LEU:HD22	1.77	0.65
2:A:1200:PHE:HB2	2:A:1371:LEU:HB3	1.79	0.65
2:A:2090:LEU:HD11	2:A:2094:MET:HE2	1.79	0.65
2:A:2158:THR:HA	2:A:2161:THR:HG22	1.79	0.65
2:A:1123:ILE:HG13	2:A:1124:ILE:HG23	1.79	0.64
2:A:13:HIS:NE2	2:A:862:THR:O	2.26	0.64
2:A:425:LEU:HD23	2:A:458:LEU:HD13	1.79	0.64
2:A:469:ASP:HB3	2:A:528:PRO:HG2	1.79	0.64
2:A:280:LEU:O	2:A:284:MET:HG3	1.99	0.63
2:A:235:LEU:HA	2:A:239:MET:HE2	1.80	0.63
1:E:259:VAL:HG22	1:B:263:LEU:CD2	2.29	0.63
2:A:2104:GLU:O	2:A:2108:ILE:HG12	1.99	0.63
2:A:1202:LEU:HB3	2:A:1369:THR:HG22	1.81	0.62
2:A:1520:ILE:HD11	2:A:1625:ILE:HG22	1.80	0.62
1:B:276:MET:O	2:A:680:GLN:HG2	1.99	0.62
2:A:881:VAL:HG11	2:A:898:ASN:HB2	1.80	0.62
2:A:1866:ILE:HD11	2:A:1878:GLN:HB2	1.81	0.62
2:A:1550:ARG:HH22	2:A:1858:ILE:HD12	1.64	0.62
2:A:1777:HIS:HD2	2:A:1781:ARG:HH21	1.48	0.62
2:A:1056:LEU:HD22	2:A:1061:VAL:HG13	1.82	0.62
2:A:55:GLU:HG3	2:A:56:GLU:HG3	1.81	0.62
1:E:273:VAL:CG2	1:B:270:MET:CE	2.78	0.61
1:C:284:VAL:O	2:A:739:VAL:HG11	1.99	0.61
2:A:820:ILE:HG13	2:A:822:HIS:HD2	1.66	0.61
2:A:1785:LEU:HD23	2:A:1785:LEU:H	1.64	0.61
1:E:256:LEU:HD22	1:E:259:VAL:CG1	2.30	0.61
1:B:227:GLY:O	1:B:231:ARG:HG2	2.00	0.61
2:A:1531:ILE:HD11	2:A:1536:ILE:HD12	1.83	0.61
2:A:1790:TRP:HB2	2:A:1823:LEU:HD13	1.83	0.61
2:A:2172:ARG:HD2	2:A:2174:ARG:HH22	1.66	0.61
2:A:319:PHE:HE2	2:A:827:GLN:HG3	1.66	0.61
2:A:301:ALA:HB2	2:A:320:ILE:HD12	1.83	0.60
2:A:1813:LEU:HD23	2:A:1916:VAL:HG22	1.83	0.60
1:E:266:ILE:CD1	1:B:266:ILE:HG22	2.32	0.60
2:A:1858:ILE:HA	2:A:1863:TYR:HD2	1.66	0.60
2:A:1290:LEU:HD22	2:A:1691:LYS:HE3	1.75	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:526:PHE:H	2:A:1034:PRO:HG2	1.66	0.60
1:D:257:SER:O	1:D:261:THR:HG23	2.02	0.60
2:A:268:LYS:O	2:A:272:VAL:HG23	2.02	0.60
2:A:1359:ASN:HB3	2:A:1361:PRO:HD2	1.83	0.60
2:A:1481:TRP:H	2:A:1542:THR:HG22	1.66	0.60
2:A:520:PHE:O	2:A:1033:ASN:ND2	2.34	0.59
2:A:1203:PRO:HB2	2:A:1216:PRO:HG3	1.84	0.59
2:A:2048:ASP:HA	2:A:2163:ARG:HH12	1.67	0.59
1:E:273:VAL:HG21	1:B:270:MET:CE	2.32	0.59
1:C:284:VAL:CG1	1:C:288:GLU:HB2	2.32	0.59
2:A:2180:MET:N	2:A:2180:MET:SD	2.74	0.59
2:A:492:PHE:HA	2:A:716:PRO:HA	1.85	0.59
2:A:1318:SER:HB2	2:A:1351:LEU:HD22	1.86	0.58
2:A:715:ASP:OD2	2:A:718:ASN:ND2	2.37	0.58
2:A:1870:ILE:HD12	2:A:1870:ILE:H	1.67	0.58
2:A:139:LEU:HB3	2:A:1353:LEU:HD11	1.85	0.58
2:A:678:ARG:O	2:A:681:VAL:HG12	2.03	0.58
2:A:1558:ILE:HD11	2:A:1578:ALA:HB2	1.85	0.57
2:A:695:ILE:HG21	2:A:698:LEU:HB2	1.86	0.57
2:A:1663:GLN:HG2	2:A:1664:ILE:HG23	1.86	0.57
2:A:1790:TRP:CD1	2:A:2066:ILE:HD12	2.39	0.57
1:B:276:MET:HA	2:A:683:ILE:HG21	1.86	0.57
2:A:451:ASN:HD21	2:A:454:SER:HB2	1.70	0.57
2:A:1790:TRP:O	2:A:1794:ILE:HG12	2.03	0.57
2:A:2095:ALA:HA	2:A:2182:ILE:HD13	1.86	0.57
1:B:249:VAL:O	1:B:250:THR:C	2.43	0.57
2:A:2160:LEU:O	2:A:2164:GLN:HG2	2.05	0.57
2:A:113:TRP:HB2	2:A:911:VAL:HG11	1.85	0.57
2:A:1425:ILE:HD12	2:A:1682:PRO:CB	2.35	0.57
2:A:1670:ARG:O	2:A:1674:ILE:HG12	2.05	0.57
2:A:847:ARG:NH2	2:A:1209:ASP:OD1	2.38	0.57
2:A:906:LEU:HD23	2:A:933:ILE:HG23	1.86	0.57
2:A:1439:LEU:HA	2:A:1442:LYS:HD2	1.86	0.57
2:A:484:PRO:HB3	2:A:545:GLU:HG3	1.85	0.56
2:A:1936:ALA:O	2:A:1940:THR:HG23	2.05	0.56
2:A:1068:VAL:O	2:A:1072:GLN:HG2	2.04	0.56
2:A:150:ARG:O	2:A:158:TYR:N	2.39	0.56
2:A:2051:ILE:HG21	2:A:2163:ARG:HD2	1.88	0.56
2:A:847:ARG:HG2	2:A:1316:ALA:HA	1.87	0.56
2:A:943:LEU:HB3	2:A:987:ILE:HD13	1.88	0.56
2:A:1425:ILE:HD12	2:A:1682:PRO:HB2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1822:SER:O	2:A:1826:THR:HG23	2.06	0.56
2:A:1484:GLU:HG3	2:A:1693:LEU:HD22	1.87	0.56
1:B:276:MET:HG2	2:A:683:ILE:CG2	2.36	0.56
1:B:272:THR:O	1:B:275:ILE:HG13	2.05	0.56
2:A:384:GLU:HG3	2:A:385:SER:N	2.20	0.55
2:A:1571:TYR:HA	2:A:1574:LEU:HB2	1.88	0.55
2:A:374:THR:HB	2:A:377:GLN:HG3	1.88	0.55
2:A:1380:CYS:O	2:A:1382:ARG:HG2	2.06	0.55
2:A:1937:LEU:HD22	2:A:1969:LEU:HD21	1.88	0.55
2:A:1915:HIS:HA	2:A:1951:ILE:HG23	1.87	0.55
1:B:266:ILE:HD11	1:C:267:GLU:CA	2.36	0.55
1:C:273:VAL:HG23	2:A:394:PHE:HB2	1.88	0.55
2:A:366:ARG:NH2	2:A:555:LYS:O	2.40	0.55
2:A:1598:ILE:HD11	2:A:1619:LYS:HD2	1.87	0.55
2:A:2090:LEU:HD11	2:A:2094:MET:CE	2.36	0.55
2:A:319:PHE:CE2	2:A:827:GLN:HG3	2.41	0.55
1:E:273:VAL:CG2	1:B:270:MET:HE2	2.37	0.55
1:C:266:ILE:O	1:C:269:MET:HG2	2.07	0.55
2:A:1486:CYS:SG	2:A:1547:ARG:NH2	2.79	0.55
2:A:451:ASN:ND2	2:A:454:SER:HB2	2.22	0.54
1:D:248:MET:HE1	1:E:250:THR:HA	1.89	0.54
2:A:1199:TRP:CD2	2:A:1849:ASN:OD1	2.61	0.54
2:A:2215:ARG:O	2:A:2219:LYS:HG3	2.08	0.54
1:D:219:ASN:O	1:D:222:MET:HG2	2.08	0.54
1:E:256:LEU:HD22	1:E:259:VAL:HG12	1.90	0.54
2:A:1279:LEU:HB3	2:A:1283:GLN:HG3	1.89	0.54
2:A:2083:ASP:OD1	2:A:2083:ASP:N	2.36	0.54
2:A:841:ARG:NH2	2:A:849:LEU:O	2.39	0.54
1:E:231:ARG:O	1:E:235:LEU:HG	2.07	0.54
1:E:247:SER:O	1:E:250:THR:HG22	2.08	0.54
2:A:1775:PRO:HB2	2:A:1778:HIS:HD2	1.72	0.54
2:A:1664:ILE:HG13	2:A:1665:GLU:HG3	1.90	0.53
2:A:205:VAL:HG22	2:A:218:THR:HG22	1.89	0.53
2:A:1826:THR:HG21	2:A:2069:ALA:HA	1.89	0.53
1:D:253:LYS:HE3	1:C:255:GLU:OE1	2.08	0.53
2:A:1272:LEU:O	2:A:1275:THR:OG1	2.22	0.53
2:A:1685:LEU:O	2:A:1690:ARG:NH1	2.42	0.53
2:A:1070:LEU:O	2:A:1076:GLY:HA3	2.09	0.53
1:B:275:ILE:HG22	1:C:299:ILE:HD11	1.90	0.53
2:A:423:THR:HB	2:A:458:LEU:HD11	1.91	0.53
2:A:1516:GLY:O	2:A:1520:ILE:HD12	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1854:PRO:HG2	2:A:1857:PHE:HB3	1.91	0.53
2:A:400:THR:HG23	2:A:685:PHE:HZ	1.74	0.53
2:A:1620:LEU:HD22	2:A:1644:LYS:HE2	1.89	0.53
1:E:273:VAL:HG21	1:B:270:MET:HE3	1.91	0.53
1:C:249:VAL:O	1:C:252:ILE:HG13	2.09	0.53
2:A:169:ILE:HD11	2:A:259:ALA:HB2	1.90	0.53
1:C:274:LYS:NZ	2:A:393:ASP:CG	2.63	0.52
2:A:1259:PHE:HA	2:A:1390:ASN:OD1	2.08	0.52
2:A:1815:GLU:OE2	2:A:1820:SER:HB2	2.10	0.52
2:A:1913:LEU:HD13	2:A:1949:LEU:HD23	1.92	0.52
2:A:1796:VAL:HG11	2:A:1951:ILE:HD12	1.91	0.52
1:B:284:VAL:HG11	2:A:691:SER:HB2	1.92	0.52
2:A:1678:LEU:HD13	2:A:1679:THR:N	2.24	0.52
2:A:761:ILE:HG21	2:A:774:SER:HB3	1.91	0.52
1:D:225:LEU:HD21	1:E:225:LEU:HD13	1.90	0.52
2:A:1053:GLN:HG2	2:A:1394:LEU:HD22	1.92	0.52
2:A:1280:THR:HG22	2:A:1283:GLN:HG2	1.92	0.52
1:D:235:LEU:O	1:D:238:LYS:HG2	2.09	0.52
1:B:251:GLN:NE2	1:C:253:LYS:HE3	2.25	0.52
2:A:1790:TRP:CE3	2:A:1819:ALA:HB1	2.45	0.52
2:A:1952:LEU:HB3	2:A:1993:ILE:HB	1.92	0.52
2:A:422:PRO:HB2	2:A:461:HIS:HB2	1.91	0.52
1:E:269:MET:HE2	1:B:270:MET:O	2.09	0.52
2:A:432:SER:O	2:A:436:MET:HG3	2.10	0.52
2:A:603:THR:HG23	2:A:1223:ILE:HD12	1.91	0.52
2:A:2094:MET:HG2	2:A:2143:ILE:HD12	1.92	0.52
2:A:770:THR:HG21	2:A:785:ILE:HG23	1.91	0.51
1:C:235:LEU:HA	1:C:238:LYS:HD2	1.92	0.51
2:A:397:ILE:HG12	2:A:681:VAL:HG23	1.92	0.51
1:E:259:VAL:CG1	1:E:260:LYS:N	2.74	0.51
2:A:1455:VAL:HG21	2:A:1500:ALA:HB3	1.93	0.51
2:A:1529:ARG:HH11	2:A:1573:LYS:HZ1	1.57	0.51
2:A:2141:GLU:O	2:A:2145:MET:HG3	2.10	0.51
1:E:256:LEU:HD22	1:E:259:VAL:HG11	1.93	0.51
1:B:281:PRO:HD2	1:C:293:PHE:HB2	1.91	0.51
1:D:221:ILE:O	1:D:225:LEU:HD22	2.11	0.51
2:A:2099:THR:HG22	2:A:2192:LEU:CD1	2.41	0.51
2:A:508:LEU:HD13	2:A:509:PRO:HD2	1.93	0.51
1:C:296:HIS:CE1	2:A:540:TYR:CE1	2.99	0.50
1:D:253:LYS:HD3	1:C:252:ILE:CG2	2.34	0.50
2:A:309:VAL:HB	2:A:312:ILE:HG12	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1823:LEU:HD11	2:A:2065:ILE:HG22	1.92	0.50
2:A:63:LEU:O	2:A:66:ILE:HG22	2.11	0.50
2:A:1678:LEU:HD13	2:A:1679:THR:H	1.76	0.50
1:B:250:THR:O	1:B:251:GLN:C	2.50	0.50
1:B:250:THR:O	1:B:253:LYS:N	2.44	0.50
2:A:2090:LEU:CD1	2:A:2094:MET:HE2	2.41	0.50
1:C:247:SER:O	1:C:250:THR:HG22	2.12	0.49
2:A:596:VAL:HG23	2:A:598:ASP:H	1.77	0.49
2:A:688:THR:O	2:A:692:MET:HG3	2.12	0.49
2:A:612:ILE:HD11	2:A:773:MET:SD	2.53	0.49
2:A:1051:LEU:HD13	2:A:1399:ILE:HD11	1.94	0.49
2:A:2215:ARG:HH11	2:A:2219:LYS:HZ1	1.61	0.49
1:E:217:SER:O	1:E:221:ILE:HG12	2.11	0.49
1:D:235:LEU:O	1:D:239:VAL:HG12	2.13	0.49
1:E:266:ILE:HD11	1:B:270:MET:HB2	1.95	0.49
1:C:296:HIS:CE1	2:A:540:TYR:HE1	2.31	0.49
2:A:393:ASP:N	2:A:393:ASP:OD1	2.45	0.49
2:A:1742:ILE:HG22	2:A:1979:LEU:HB2	1.93	0.49
1:B:275:ILE:HD13	2:A:687:ARG:HD3	1.94	0.49
2:A:582:LEU:HD21	2:A:689:LEU:HD13	1.94	0.49
2:A:53:ARG:HD3	2:A:60:HIS:HE1	1.77	0.49
2:A:1178:GLY:HA2	2:A:1373:LEU:HA	1.95	0.49
2:A:1197:PHE:HE2	2:A:1199:TRP:HB2	1.78	0.49
2:A:1809:ALA:HB3	2:A:1911:CYS:HB3	1.93	0.49
1:C:275:ILE:N	2:A:392:LEU:O	2.46	0.49
1:C:280:ASN:H	2:A:387:CYS:HA	1.78	0.49
1:E:266:ILE:HD13	1:B:266:ILE:HG22	1.94	0.49
1:B:249:VAL:O	1:B:252:ILE:N	2.46	0.49
1:D:228:MET:HG2	1:E:229:ASP:OD1	2.13	0.48
1:D:245:GLN:HA	1:D:248:MET:HB3	1.95	0.48
1:D:266:ILE:CG2	1:C:266:ILE:HD13	2.43	0.48
1:E:266:ILE:HD12	1:B:267:GLU:HA	1.94	0.48
2:A:2213:LEU:HD13	2:A:2221:ILE:HD12	1.95	0.48
1:E:235:LEU:HD22	1:B:235:LEU:HD12	1.95	0.48
2:A:1410:ASP:OD1	2:A:1410:ASP:N	2.44	0.48
2:A:1609:SER:OG	2:A:1610:ASP:N	2.42	0.48
1:B:278:PRO:HG3	2:A:679:TYR:CD2	2.47	0.48
2:A:103:LEU:HD22	2:A:208:VAL:HG11	1.94	0.48
2:A:1199:TRP:CE2	2:A:1849:ASN:OD1	2.66	0.48
2:A:1563:SER:OG	2:A:1565:HIS:O	2.31	0.48
2:A:1144:ILE:O	2:A:1148:ARG:HG3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:263:LEU:O	1:E:267:GLU:HG3	2.14	0.48
2:A:88:ILE:HD12	2:A:232:LEU:HD23	1.95	0.48
2:A:740:SER:OG	2:A:742:ARG:NH1	2.46	0.48
1:C:258:THR:O	1:C:262:THR:HG22	2.13	0.48
1:C:260:LYS:HE3	1:C:260:LYS:HB3	1.43	0.48
2:A:126:ASP:OD1	2:A:126:ASP:N	2.45	0.48
2:A:412:TYR:CG	2:A:421:PRO:HG3	2.48	0.48
2:A:990:ARG:NH1	2:A:1009:ILE:HD13	2.28	0.48
2:A:166:LEU:HD21	2:A:893:LEU:HD11	1.95	0.48
2:A:299:VAL:HG11	2:A:362:LEU:HG	1.95	0.48
2:A:321:CYS:HB3	2:A:343:LEU:HD21	1.95	0.48
2:A:1007:LEU:HD11	2:A:1150:LEU:HD21	1.95	0.48
1:D:260:LYS:NZ	1:D:264:ALA:HB2	2.28	0.48
2:A:69:GLU:O	2:A:73:ARG:HG2	2.14	0.48
2:A:1181:ILE:HD11	2:A:1187:CYS:HB2	1.96	0.48
2:A:413:ARG:HD2	2:A:420:TRP:CD1	2.49	0.47
2:A:599:GLN:O	2:A:603:THR:HG22	2.14	0.47
2:A:1805:ILE:HD11	2:A:1828:LEU:HB3	1.97	0.47
2:A:394:PHE:O	2:A:398:MET:HG2	2.14	0.47
1:C:275:ILE:HG21	2:A:680:GLN:HB3	1.97	0.47
1:C:286:VAL:HG22	1:C:290:ARG:HG3	1.95	0.47
2:A:936:LEU:HB2	2:A:1124:ILE:HD13	1.97	0.47
2:A:1449:LEU:HD12	2:A:1685:LEU:HB3	1.96	0.47
2:A:683:ILE:CG2	2:A:684:PRO:HD3	2.45	0.47
1:C:233:GLN:O	1:C:236:GLU:HG3	2.14	0.47
2:A:1024:GLN:HG2	2:A:1085:LEU:HB2	1.96	0.47
1:B:243:LEU:HA	1:B:243:LEU:HD23	1.82	0.47
2:A:1228:ASP:N	2:A:1228:ASP:OD1	2.48	0.47
2:A:1601:PRO:O	2:A:1611:ARG:NH2	2.48	0.47
2:A:1834:TRP:CG	2:A:1906:VAL:HG12	2.50	0.47
1:C:273:VAL:HG23	2:A:394:PHE:CB	2.44	0.46
2:A:865:ILE:HD13	2:A:868:ASP:H	1.80	0.46
2:A:2192:LEU:H	2:A:2197:ASN:ND2	2.12	0.46
2:A:967:ILE:HG21	2:A:1146:ILE:HB	1.97	0.46
2:A:1538:GLY:O	2:A:1542:THR:HG23	2.15	0.46
1:B:258:THR:HA	1:B:261:THR:HG22	1.97	0.46
2:A:1200:PHE:HZ	2:A:1347:MET:HA	1.81	0.46
2:A:125:SER:OG	2:A:164:ARG:N	2.49	0.46
2:A:165:GLU:O	2:A:169:ILE:HG23	2.15	0.46
1:D:249:VAL:O	1:D:252:ILE:HG22	2.16	0.46
1:B:278:PRO:HG3	2:A:679:TYR:HD2	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1692:LEU:O	2:A:1696:ILE:HG13	2.16	0.46
2:A:1899:VAL:HG21	2:A:1935:HIS:CD2	2.51	0.46
1:D:249:VAL:HA	1:D:252:ILE:HG22	1.98	0.46
2:A:668:THR:HB	2:A:781:GLN:HG2	1.96	0.46
1:E:220:GLU:O	1:E:224:LEU:HG	2.15	0.46
2:A:116:LEU:HD22	2:A:927:LEU:HD23	1.97	0.46
2:A:2151:TRP:CD2	2:A:2225:ILE:HD12	2.51	0.46
1:E:249:VAL:O	1:E:252:ILE:HG22	2.17	0.46
1:B:238:LYS:HB3	1:C:239:VAL:HG21	1.97	0.46
1:B:266:ILE:HD11	1:C:267:GLU:HA	1.97	0.46
1:C:260:LYS:HZ2	1:C:261:THR:HG23	1.81	0.46
2:A:1245:LEU:O	2:A:1249:LEU:HG	2.16	0.46
2:A:1536:ILE:HG21	2:A:1572:THR:HG23	1.97	0.46
2:A:1779:VAL:HG21	2:A:2051:ILE:HD11	1.98	0.45
1:D:229:ASP:HA	1:D:232:LEU:HB3	1.98	0.45
2:A:600:LEU:HD11	2:A:1224:GLY:HA3	1.98	0.45
2:A:1122:GLU:HG2	2:A:1123:ILE:HG23	1.97	0.45
1:C:303:PRO:HG2	2:A:459:ARG:CB	2.37	0.45
1:E:264:ALA:HA	1:E:267:GLU:OE1	2.15	0.45
2:A:1152:LYS:HE2	2:A:1152:LYS:HB2	1.78	0.45
2:A:1386:SER:OG	2:A:1387:CYS:N	2.48	0.45
2:A:1744:ASN:OD1	2:A:1744:ASN:N	2.49	0.45
2:A:2174:ARG:HD3	2:A:2206:GLY:HA2	1.97	0.45
2:A:1513:ARG:HH21	2:A:1633:PRO:HG2	1.82	0.45
2:A:1647:ALA:HA	2:A:1650:THR:HG22	1.98	0.45
2:A:2033:TRP:O	2:A:2037:VAL:HG22	2.17	0.45
2:A:2055:VAL:HB	2:A:2058:GLN:HE21	1.81	0.45
1:B:250:THR:OG1	1:B:251:GLN:N	2.50	0.45
2:A:407:ILE:HG21	2:A:590:MET:HE3	1.98	0.45
2:A:705:ARG:NH1	2:A:708:ARG:HB2	2.32	0.45
2:A:1544:SER:HB2	2:A:1848:ARG:HH11	1.82	0.45
2:A:1847:GLN:O	2:A:1848:ARG:NE	2.49	0.45
2:A:1962:PHE:HZ	2:A:1991:VAL:HG11	1.81	0.45
2:A:2172:ARG:HB2	2:A:2175:ASP:OD2	2.17	0.45
2:A:1409:TYR:HD2	2:A:1411:PRO:HD3	1.82	0.45
2:A:2192:LEU:H	2:A:2197:ASN:HD22	1.64	0.45
2:A:704:LEU:HD22	2:A:708:ARG:HH21	1.82	0.45
2:A:705:ARG:HD2	2:A:705:ARG:HA	1.70	0.45
2:A:1058:ARG:HD3	2:A:1392:PRO:HA	1.99	0.45
2:A:2097:LEU:HD12	2:A:2143:ILE:HD11	1.98	0.45
2:A:2191:TYR:O	2:A:2192:LEU:HB2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:222:MET:O	1:E:226:ARG:HG2	2.17	0.45
2:A:53:ARG:HD3	2:A:60:HIS:CE1	2.52	0.45
2:A:1449:LEU:O	2:A:1453:GLN:HG3	2.17	0.45
1:C:280:ASN:H	2:A:387:CYS:CA	2.30	0.44
2:A:366:ARG:HG3	2:A:366:ARG:HH11	1.81	0.44
2:A:1937:LEU:O	2:A:1941:VAL:HG23	2.17	0.44
2:A:2215:ARG:HD3	2:A:2219:LYS:HZ2	1.81	0.44
1:C:296:HIS:NE2	2:A:540:TYR:HE1	2.14	0.44
2:A:616:SER:OG	2:A:617:GLU:N	2.51	0.44
2:A:690:ASN:HB3	2:A:695:ILE:O	2.18	0.44
2:A:1797:LEU:HD13	2:A:1800:ILE:HD11	1.98	0.44
2:A:1856:GLN:O	2:A:1860:SER:OG	2.34	0.44
1:B:234:HIS:O	1:B:238:LYS:HG2	2.17	0.44
1:C:295:ASP:HA	2:A:542:ARG:HH21	1.82	0.44
2:A:79:TRP:N	2:A:79:TRP:HE3	2.15	0.44
2:A:2189:ARG:HG3	2:A:2191:TYR:O	2.17	0.44
2:A:131:VAL:HG21	2:A:973:LEU:HD23	1.99	0.44
2:A:1199:TRP:CZ2	2:A:1201:PHE:HB2	2.53	0.44
2:A:1558:ILE:HG23	2:A:1574:LEU:HD22	2.00	0.44
2:A:1690:ARG:H	2:A:1690:ARG:HD3	1.82	0.44
1:D:236:GLU:HA	1:D:239:VAL:HG12	1.99	0.44
2:A:395:GLN:HG3	2:A:452:TRP:CH2	2.53	0.44
1:C:245:GLN:O	1:C:249:VAL:HG23	2.17	0.44
2:A:1935:HIS:HA	2:A:1938:LEU:CD2	2.47	0.44
2:A:2182:ILE:HG21	2:A:2201:PHE:HZ	1.83	0.44
1:C:277:ASP:O	2:A:389:PRO:HA	2.17	0.44
2:A:431:LYS:O	2:A:435:GLU:HG3	2.18	0.44
2:A:269:ARG:HA	2:A:349:GLN:HG3	1.99	0.44
2:A:890:GLU:HG3	2:A:1359:ASN:ND2	2.32	0.44
2:A:1774:PRO:HA	2:A:1775:PRO:HD3	1.88	0.44
2:A:32:LEU:HD11	2:A:66:ILE:HG23	1.99	0.43
1:D:243:LEU:HD21	1:C:238:LYS:HB3	1.98	0.43
2:A:412:TYR:CE2	2:A:463:CYS:HB3	2.53	0.43
2:A:2182:ILE:HG21	2:A:2201:PHE:CZ	2.53	0.43
1:D:270:MET:HG2	1:C:269:MET:HG3	2.00	0.43
2:A:1077:ARG:O	2:A:1081:ILE:HG13	2.18	0.43
2:A:1964:PHE:O	2:A:1968:VAL:HG12	2.18	0.43
2:A:2062:ASP:O	2:A:2066:ILE:HG12	2.18	0.43
1:D:258:THR:O	1:D:262:THR:HG22	2.18	0.43
2:A:301:ALA:HB1	2:A:317:TYR:HA	2.00	0.43
2:A:366:ARG:HG3	2:A:366:ARG:NH1	2.32	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:408:LEU:HD12	2:A:692:MET:HE1	2.01	0.43
1:C:240:ASP:O	1:C:243:LEU:HG	2.19	0.43
2:A:7:ILE:HD11	2:A:1106:LEU:HD12	1.99	0.43
2:A:1204:LYS:HE2	2:A:1889:ASP:OD1	2.18	0.43
2:A:1443:ILE:HG23	2:A:1488:THR:HA	2.01	0.43
2:A:1960:ASN:OD1	2:A:1960:ASN:N	2.51	0.43
2:A:1614:ASN:O	2:A:1618:ARG:HG3	2.19	0.43
2:A:2028:LEU:HD23	2:A:2028:LEU:HA	1.92	0.43
2:A:22:LYS:NZ	2:A:238:GLU:OE1	2.40	0.43
2:A:65:GLN:OE1	2:A:65:GLN:HA	2.19	0.43
2:A:192:LEU:HB3	2:A:219:PRO:HG3	2.00	0.43
2:A:1562:ASN:HD21	2:A:2220:ARG:HG2	1.83	0.43
2:A:286:ASP:OD2	2:A:372:THR:OG1	2.36	0.43
2:A:304:GLN:O	2:A:304:GLN:HG3	2.19	0.43
2:A:1016:THR:O	2:A:1020:LYS:HG3	2.19	0.43
2:A:1144:ILE:HB	2:A:1382:ARG:NH2	2.34	0.43
2:A:1945:LYS:HB2	2:A:1945:LYS:HE2	1.68	0.43
2:A:169:ILE:O	2:A:173:ASN:HB2	2.18	0.43
2:A:1094:TYR:CZ	2:A:1098:VAL:HG11	2.54	0.43
2:A:2103:LYS:HB2	2:A:2103:LYS:HE3	1.81	0.43
1:D:249:VAL:HB	1:C:248:MET:CE	2.48	0.42
2:A:73:ARG:HH12	2:A:209:ASP:HB2	1.84	0.42
2:A:590:MET:SD	2:A:755:MET:HG2	2.59	0.42
2:A:1372:HIS:HB3	2:A:1374:HIS:CD2	2.54	0.42
2:A:1669:ILE:O	2:A:1672:MET:HG2	2.19	0.42
2:A:1931:ARG:HD3	2:A:1935:HIS:HE1	1.84	0.42
2:A:2064:ASN:O	2:A:2068:GLN:HG3	2.18	0.42
1:D:229:ASP:O	1:D:232:LEU:HB3	2.20	0.42
2:A:161:PRO:HG2	2:A:893:LEU:HD13	2.01	0.42
2:A:268:LYS:HE3	2:A:268:LYS:HB2	1.84	0.42
2:A:2221:ILE:O	2:A:2225:ILE:HG12	2.18	0.42
2:A:393:ASP:O	2:A:397:ILE:HG13	2.19	0.42
2:A:565:ALA:HB3	2:A:745:ILE:HG21	2.01	0.42
1:D:232:LEU:HB2	1:E:232:LEU:HD11	2.01	0.42
2:A:120:THR:HG22	2:A:903:ILE:HD13	2.00	0.42
2:A:939:LEU:HB3	2:A:945:GLY:HA3	2.02	0.42
2:A:1598:ILE:HB	2:A:1678:LEU:HD22	2.02	0.42
2:A:1641:PRO:O	2:A:1644:LYS:HG2	2.19	0.42
2:A:1669:ILE:HD13	2:A:1669:ILE:HA	1.86	0.42
2:A:1857:PHE:HE1	2:A:1862:PRO:HB2	1.84	0.42
2:A:1972:PHE:HD1	2:A:1973:PHE:CD1	2.37	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:246:GLY:HA2	1:E:249:VAL:HG12	2.00	0.42
1:E:273:VAL:HG21	1:B:270:MET:HE2	2.01	0.42
1:B:266:ILE:CD1	1:C:267:GLU:HA	2.49	0.42
1:C:274:LYS:HZ2	2:A:393:ASP:CG	2.22	0.42
2:A:34:ASN:HA	2:A:88:ILE:HG21	2.00	0.42
2:A:482:SER:N	2:A:567:MET:O	2.36	0.42
2:A:1485:CYS:HA	2:A:1488:THR:HG22	2.02	0.42
2:A:1939:ILE:O	2:A:1943:VAL:HG22	2.19	0.42
2:A:53:ARG:HG2	2:A:60:HIS:ND1	2.34	0.42
2:A:90:ILE:HG22	2:A:91:TRP:H	1.85	0.42
2:A:1105:LYS:HA	2:A:1108:THR:HG22	2.02	0.42
2:A:1796:VAL:O	2:A:1800:ILE:HG12	2.20	0.42
1:B:246:GLY:O	1:B:247:SER:C	2.58	0.42
1:B:246:GLY:O	1:B:249:VAL:N	2.52	0.42
1:B:281:PRO:HB2	1:C:296:HIS:HA	2.00	0.42
1:C:296:HIS:HE2	2:A:540:TYR:HE1	1.68	0.42
2:A:844:TYR:HD2	2:A:847:ARG:HH21	1.68	0.42
1:E:235:LEU:HD13	1:B:235:LEU:HD12	2.02	0.42
1:B:221:ILE:HD12	1:B:221:ILE:H	1.85	0.42
1:B:247:SER:O	1:B:248:MET:C	2.58	0.42
2:A:861:LEU:O	2:A:905:GLN:NE2	2.52	0.42
2:A:1079:LYS:HB3	2:A:1079:LYS:HE2	1.77	0.42
2:A:1293:SER:O	2:A:1293:SER:OG	2.32	0.42
2:A:1458:ILE:HG13	2:A:1459:THR:N	2.34	0.42
2:A:1502:LEU:HD23	2:A:1502:LEU:HA	1.87	0.42
2:A:1670:ARG:HA	2:A:1673:ILE:HD12	2.01	0.42
2:A:1931:ARG:O	2:A:1935:HIS:ND1	2.53	0.42
2:A:2081:LEU:HB2	2:A:2149:ARG:HG2	2.02	0.42
1:D:225:LEU:HD21	1:E:225:LEU:HB3	2.01	0.42
2:A:596:VAL:HG23	2:A:598:ASP:N	2.35	0.42
2:A:667:THR:HG21	2:A:837:ILE:HB	2.01	0.42
2:A:867:GLY:H	2:A:1016:THR:HG22	1.83	0.42
2:A:2131:LYS:HA	2:A:2134:THR:HG22	2.02	0.42
1:C:284:VAL:HB	1:C:289:LEU:HD21	2.01	0.41
2:A:1443:ILE:HB	2:A:1444:PRO:HD3	2.02	0.41
2:A:1450:THR:O	2:A:1454:MET:HG3	2.20	0.41
2:A:1558:ILE:HD13	2:A:1558:ILE:HA	1.93	0.41
2:A:1933:GLN:O	2:A:1937:LEU:HG	2.19	0.41
2:A:2106:ILE:HG13	2:A:2191:TYR:CE1	2.55	0.41
1:E:246:GLY:O	1:E:249:VAL:HG12	2.19	0.41
2:A:572:ARG:HA	2:A:572:ARG:HD3	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1131:GLN:H	2:A:1131:GLN:HG2	1.44	0.41
2:A:1933:GLN:HE21	2:A:1965:LEU:HD11	1.84	0.41
2:A:1934:VAL:HG23	2:A:2006:PHE:HE2	1.84	0.41
1:B:276:MET:HG2	2:A:683:ILE:HG21	2.02	0.41
1:C:275:ILE:O	2:A:392:LEU:N	2.53	0.41
1:C:286:VAL:O	1:C:287:ASP:C	2.58	0.41
2:A:1197:PHE:HB3	2:A:1374:HIS:ND1	2.35	0.41
2:A:256:LEU:HD22	2:A:856:VAL:HG21	2.02	0.41
2:A:1201:PHE:HB3	2:A:1322:HIS:HB2	2.02	0.41
2:A:2190:LYS:HA	2:A:2190:LYS:HD2	1.82	0.41
2:A:824:LEU:HD23	2:A:824:LEU:HA	1.86	0.41
2:A:1443:ILE:HG12	2:A:1696:ILE:HD13	2.01	0.41
1:D:218:ALA:O	1:D:221:ILE:HG22	2.20	0.41
1:B:246:GLY:O	1:B:249:VAL:HB	2.21	0.41
2:A:970:VAL:HG11	2:A:984:LEU:HD13	2.02	0.41
2:A:1033:ASN:HB3	2:A:1035:MET:O	2.21	0.41
1:E:259:VAL:HG12	1:E:260:LYS:N	2.36	0.41
2:A:18:ILE:HG22	2:A:372:THR:HA	2.03	0.41
2:A:79:TRP:HE3	2:A:79:TRP:H	1.68	0.41
2:A:468:PRO:HB2	2:A:528:PRO:HB2	2.03	0.41
2:A:679:TYR:HA	2:A:682:ILE:HG13	2.03	0.41
2:A:1429:THR:O	2:A:1433:GLY:HA2	2.21	0.41
1:E:259:VAL:CG2	1:B:263:LEU:CD2	2.98	0.41
1:B:242:VAL:HA	1:B:245:GLN:CD	2.41	0.41
2:A:404:PHE:CE1	2:A:755:MET:HE3	2.56	0.41
2:A:711:LEU:HG	2:A:741:PRO:HG3	2.03	0.41
2:A:1527:THR:O	2:A:1531:ILE:HG23	2.20	0.41
2:A:1944:LEU:HB2	2:A:1997:LEU:HD22	2.03	0.41
1:C:280:ASN:H	2:A:387:CYS:C	2.24	0.41
2:A:79:TRP:HB2	2:A:84:ARG:HB3	2.02	0.41
2:A:263:LEU:HD12	2:A:266:LEU:HD12	2.03	0.41
2:A:364:ILE:HA	2:A:367:LEU:HG	2.02	0.41
2:A:474:ILE:HG13	2:A:475:PHE:N	2.36	0.41
2:A:540:TYR:HD1	2:A:540:TYR:H	1.68	0.41
2:A:1270:TYR:HA	2:A:1284:LEU:CD2	2.51	0.41
2:A:1813:LEU:HD12	2:A:1893:LEU:HD21	2.03	0.40
2:A:1971:GLN:OE1	2:A:2012:ARG:HD3	2.21	0.40
2:A:2077:LYS:HE3	2:A:2077:LYS:HB3	1.79	0.40
1:D:267:GLU:HB3	1:C:266:ILE:HD11	2.03	0.40
1:B:265:THR:HG21	2:A:453:LYS:HD3	2.03	0.40
2:A:396:THR:O	2:A:400:THR:HG22	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:444:LYS:O	2:A:448:VAL:HG23	2.21	0.40
2:A:683:ILE:HG23	2:A:684:PRO:HD3	2.03	0.40
2:A:793:LEU:O	2:A:798:LYS:NZ	2.46	0.40
2:A:1907:GLY:O	2:A:1910:THR:OG1	2.38	0.40
2:A:482:SER:HB2	2:A:566:LYS:HG3	2.04	0.40
2:A:881:VAL:O	2:A:885:THR:HG23	2.21	0.40
2:A:971:LYS:HD2	2:A:1139:VAL:O	2.21	0.40
2:A:1526:MET:HE3	2:A:1526:MET:HB3	1.88	0.40
2:A:1989:HIS:H	2:A:2036:ARG:HH21	1.69	0.40
1:D:225:LEU:CD2	1:E:225:LEU:HD13	2.51	0.40
1:D:228:MET:SD	1:E:232:LEU:HD13	2.61	0.40
2:A:49:TRP:HB2	2:A:53:ARG:NH2	2.37	0.40
2:A:607:LEU:HD13	2:A:1221:PRO:HD2	2.03	0.40
2:A:1883:LEU:HD13	2:A:1902:ILE:HG12	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	67/391 (17%)	64 (96%)	3 (4%)	0	100	100
1	C	89/391 (23%)	85 (96%)	4 (4%)	0	100	100
1	D	58/391 (15%)	58 (100%)	0	0	100	100
1	E	56/391 (14%)	56 (100%)	0	0	100	100
2	A	2039/2261 (90%)	1991 (98%)	48 (2%)	0	100	100
All	All	2309/3825 (60%)	2254 (98%)	55 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	59/324 (18%)	59 (100%)	0	100	100
1	C	78/324 (24%)	73 (94%)	5 (6%)	17	43
1	D	52/324 (16%)	52 (100%)	0	100	100
1	E	50/324 (15%)	48 (96%)	2 (4%)	31	62
2	A	1858/2037 (91%)	1846 (99%)	12 (1%)	86	95
All	All	2097/3333 (63%)	2078 (99%)	19 (1%)	79	92

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	245	GLN
1	E	259	VAL
1	C	250	THR
1	C	260	LYS
1	C	262	THR
1	C	263	LEU
1	C	295	ASP
2	A	79	TRP
2	A	126	ASP
2	A	170	TRP
2	A	304	GLN
2	A	360	GLU
2	A	393	ASP
2	A	1131	GLN
2	A	1358	ASN
2	A	1380	CYS
2	A	1381	ILE
2	A	1644	LYS
2	A	1933	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	251	GLN
1	B	233	GLN
2	A	451	ASN
2	A	887	ASN
2	A	1778	HIS
2	A	1933	GLN
2	A	2011	ASN
2	A	2150	ASN

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](#)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

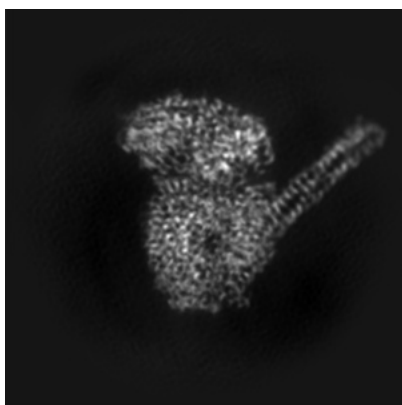
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-35864. These allow visual inspection of the internal detail of the map and identification of artifacts.

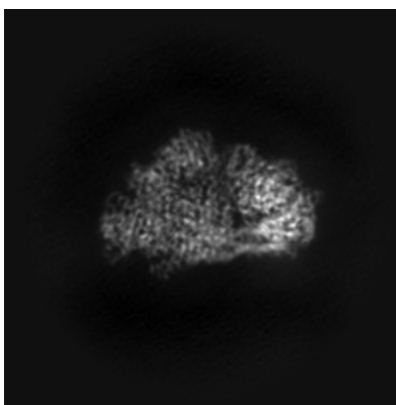
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

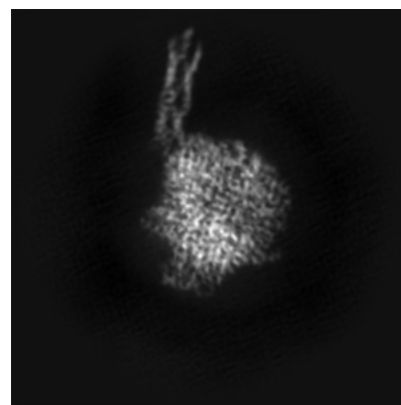
6.1.1 Primary map



X



Y



Z

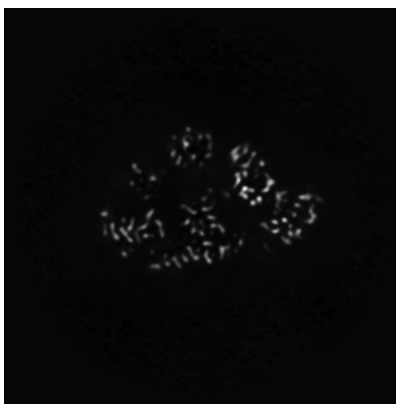
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

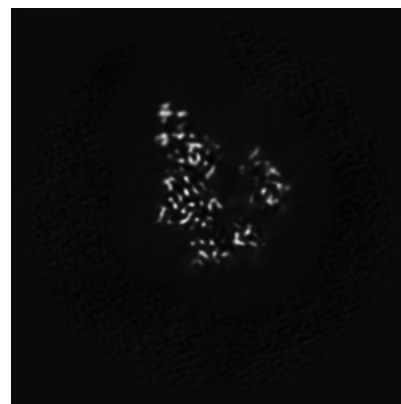
6.2.1 Primary map



X Index: 220



Y Index: 220

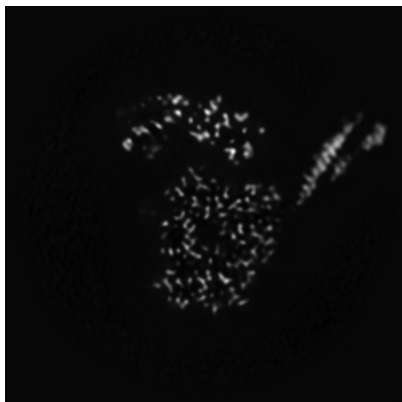


Z Index: 220

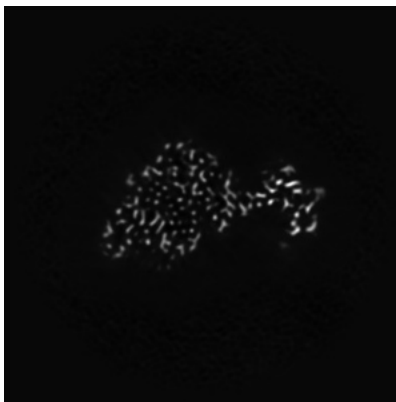
The images above show central slices of the map in three orthogonal directions.

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

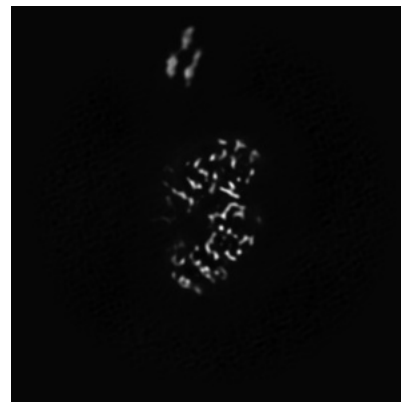
6.3.1 Primary map



X Index: 194



Y Index: 189

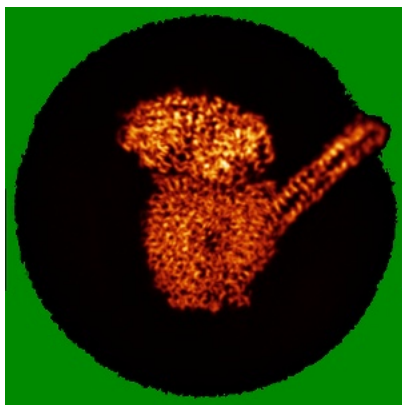


Z Index: 290

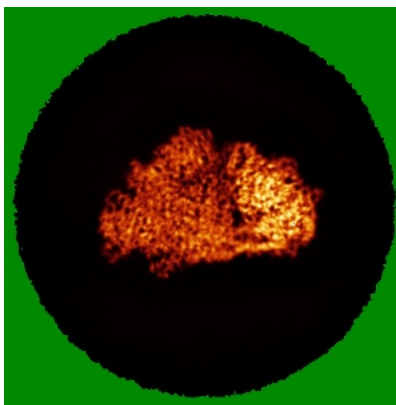
The images above show the largest variance slices of the map in three orthogonal directions.

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

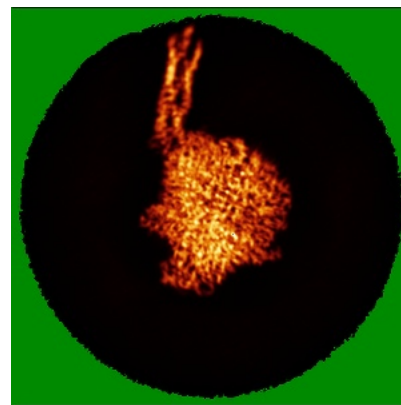
6.4.1 Primary map



X



Y

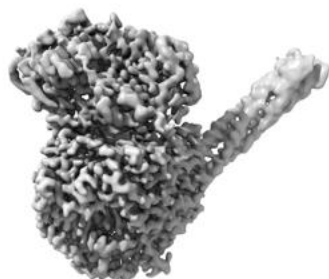


Z

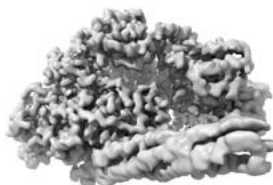
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

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

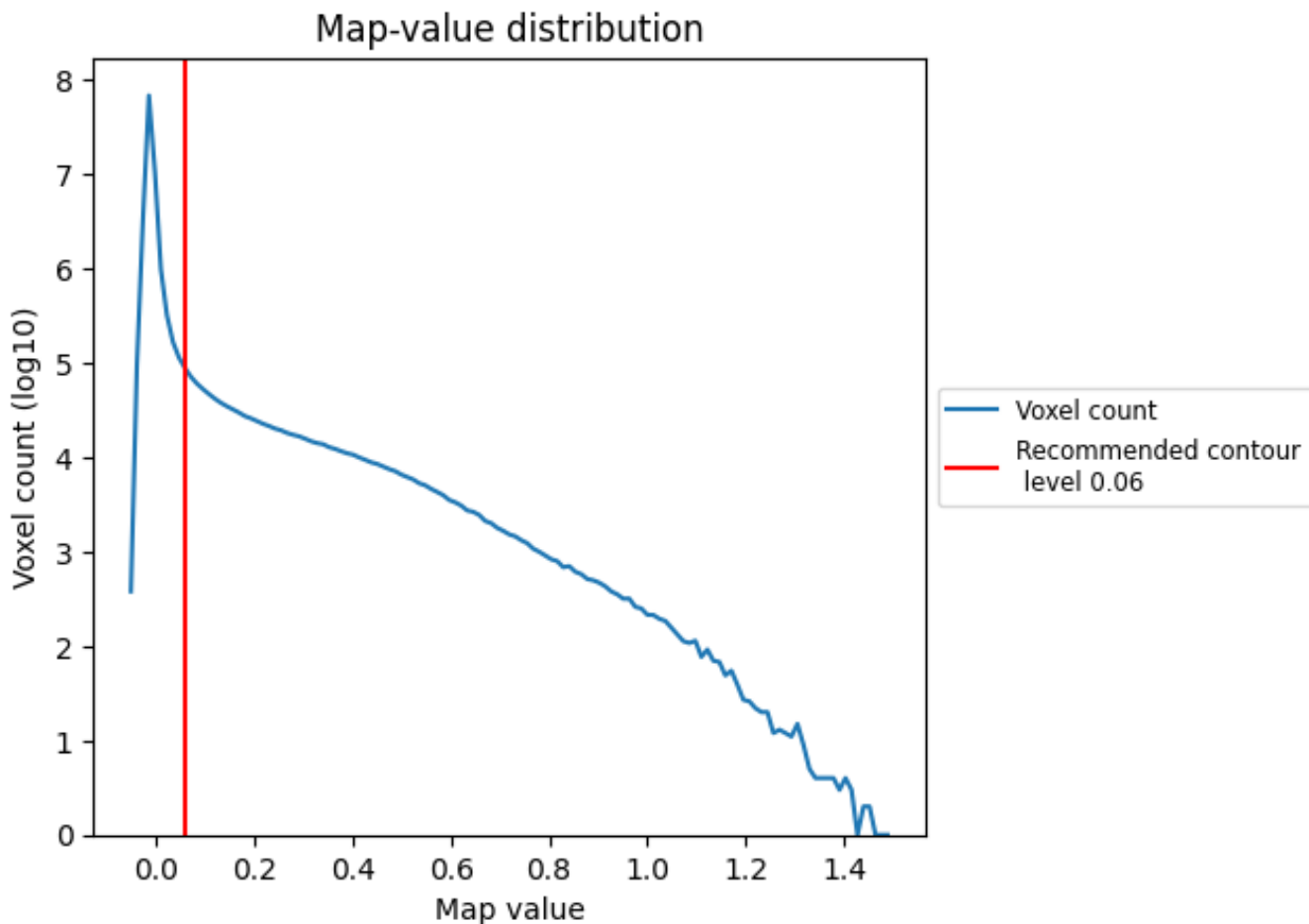
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

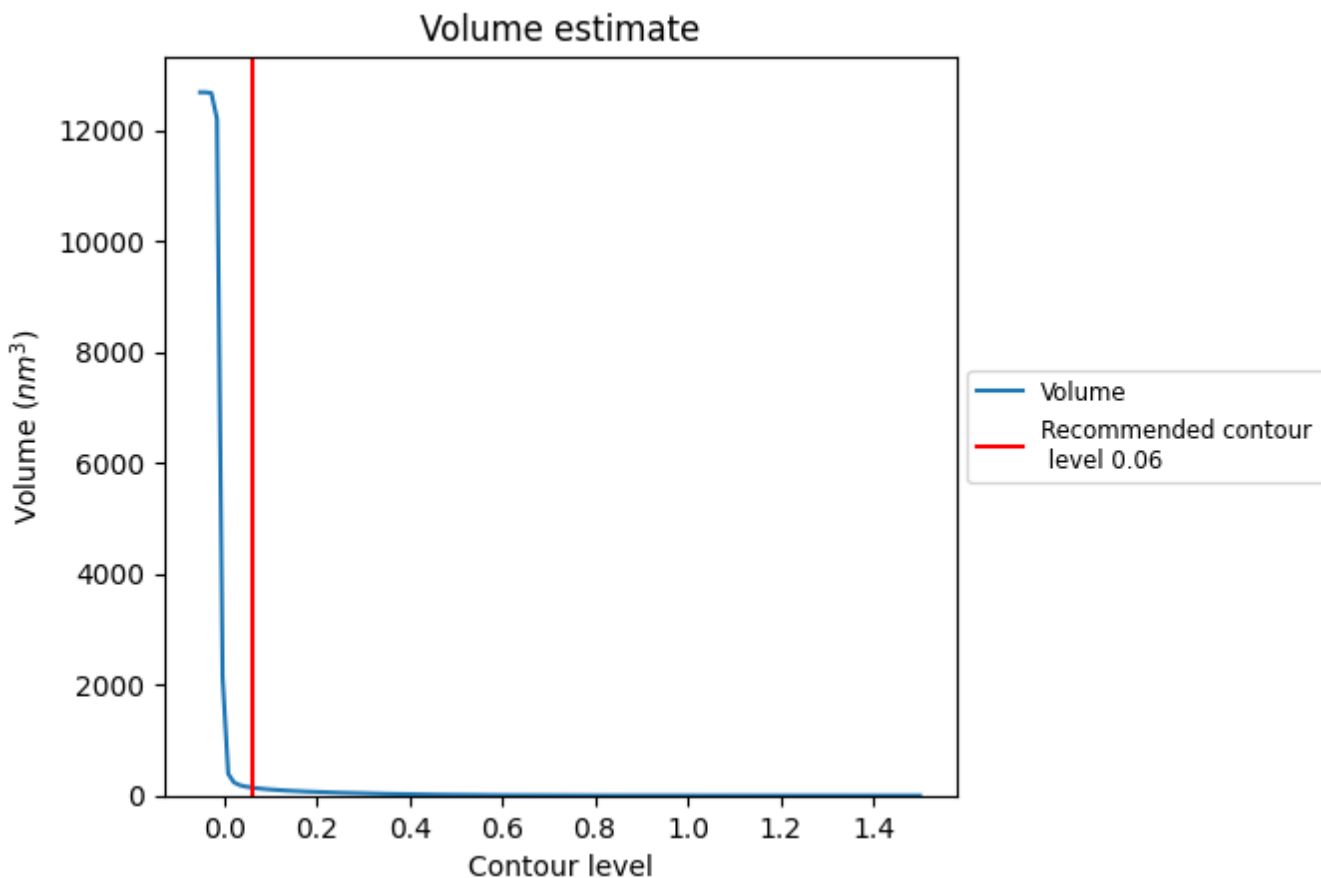
This section contains the results of statistical analysis of the map.

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.

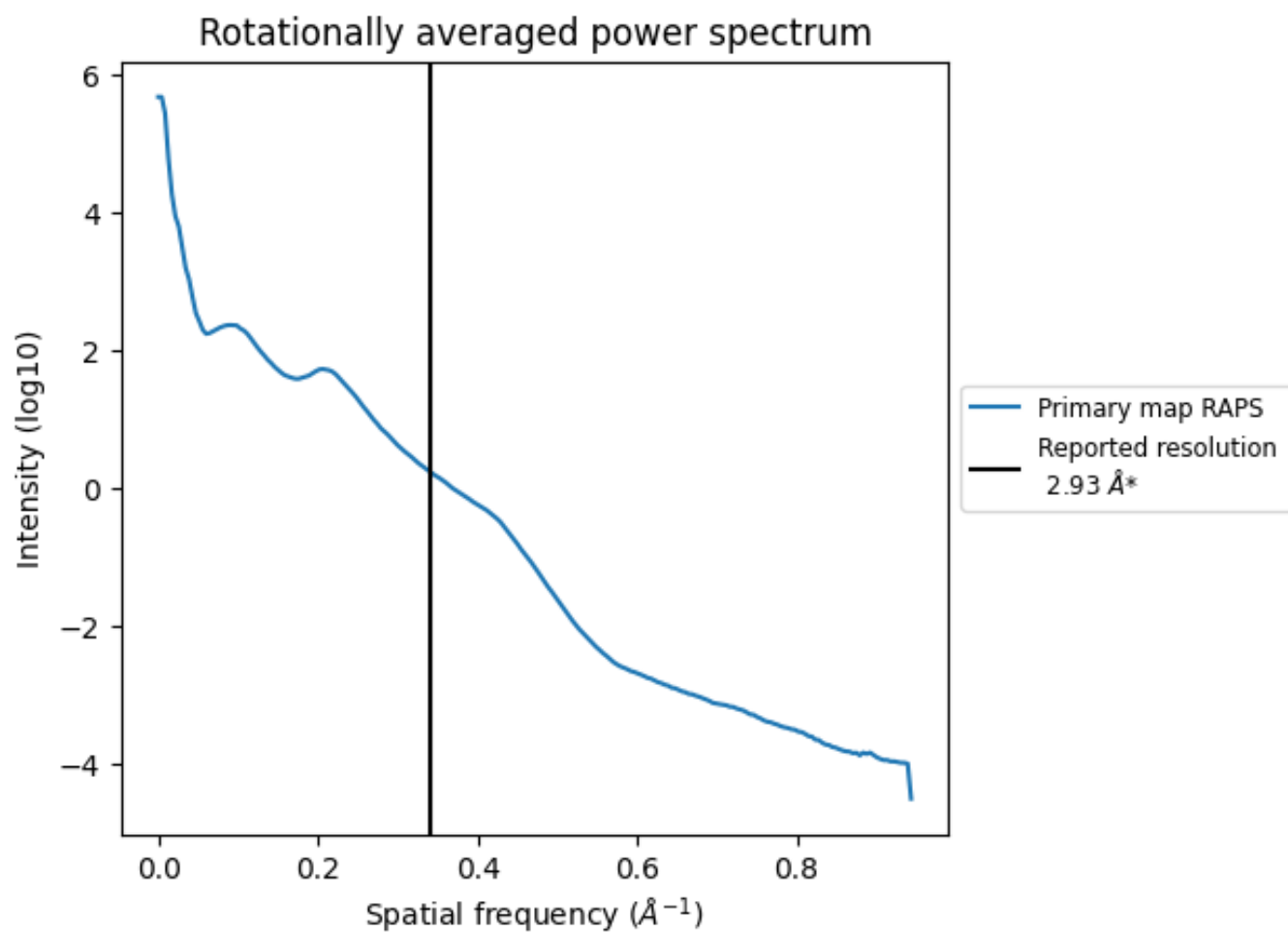
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 144 nm^3 ; this corresponds to an approximate mass of 130 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

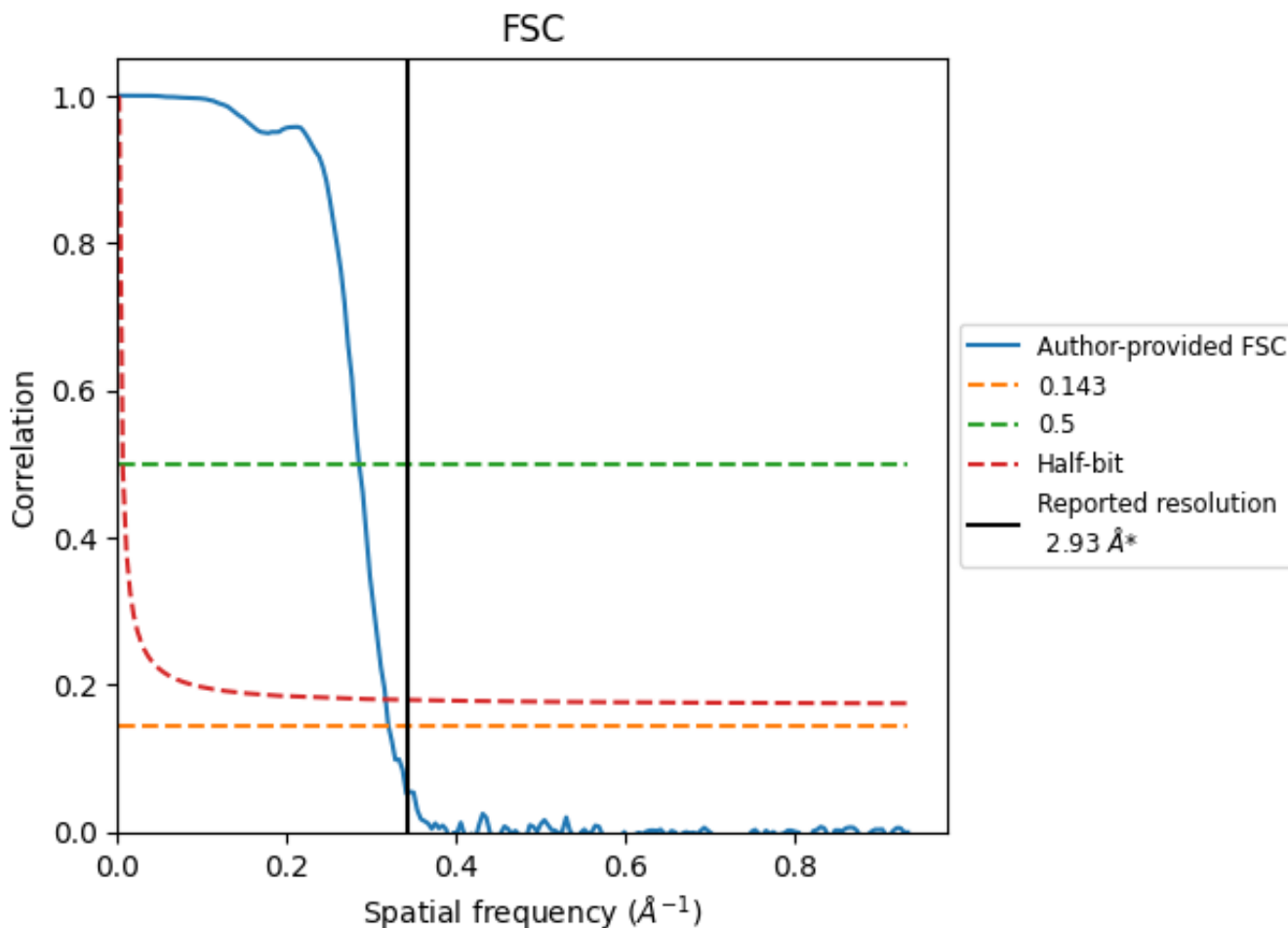


*Reported resolution corresponds to spatial frequency of 0.341 Å⁻¹

8 Fourier-Shell correlation [\(i\)](#)

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

8.1 FSC [\(i\)](#)



*Reported resolution corresponds to spatial frequency of 0.341 Å⁻¹

8.2 Resolution estimates [i](#)

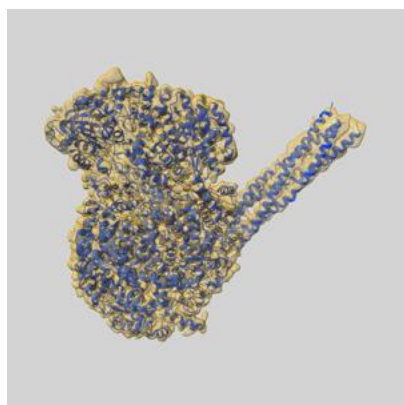
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.93	-	-
Author-provided FSC curve	3.13	3.51	3.16
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

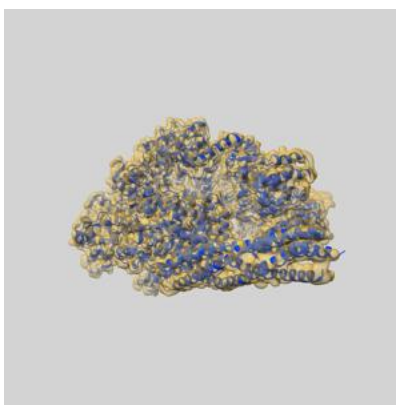
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-35864 and PDB model 8IZL. Per-residue inclusion information can be found in section 3 on page 4.

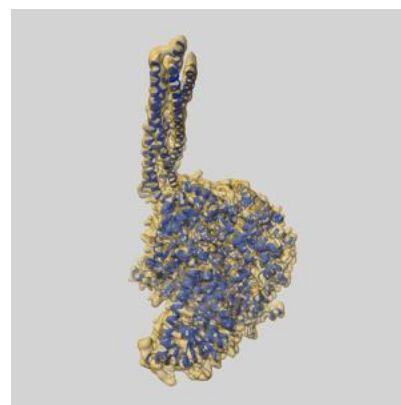
9.1 Map-model overlay [i](#)



X



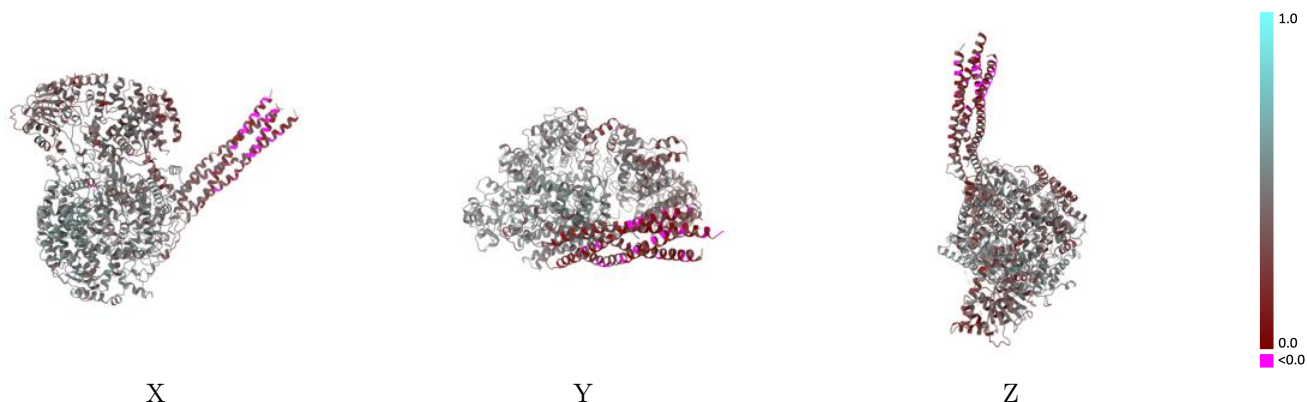
Y



Z

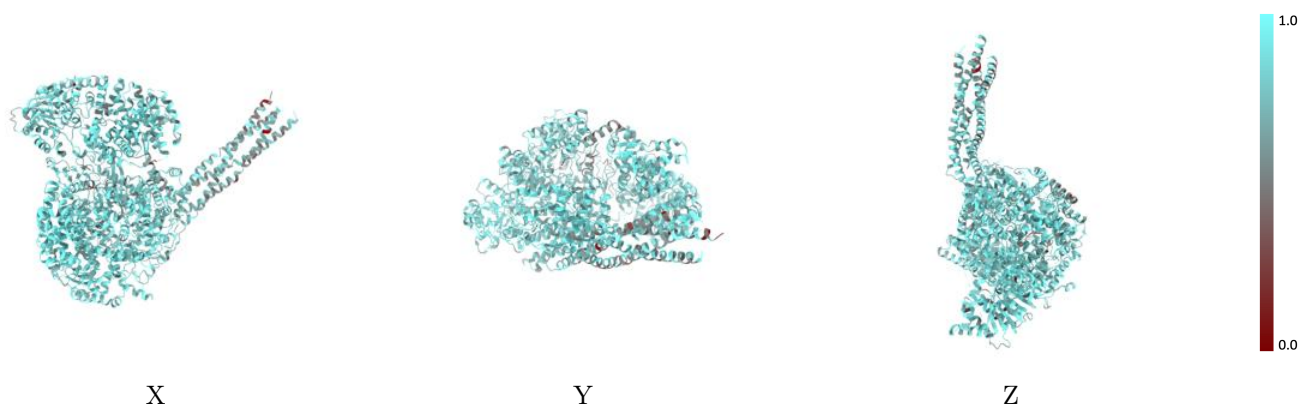
The images above show the 3D surface view of the map at the recommended contour level 0.06 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



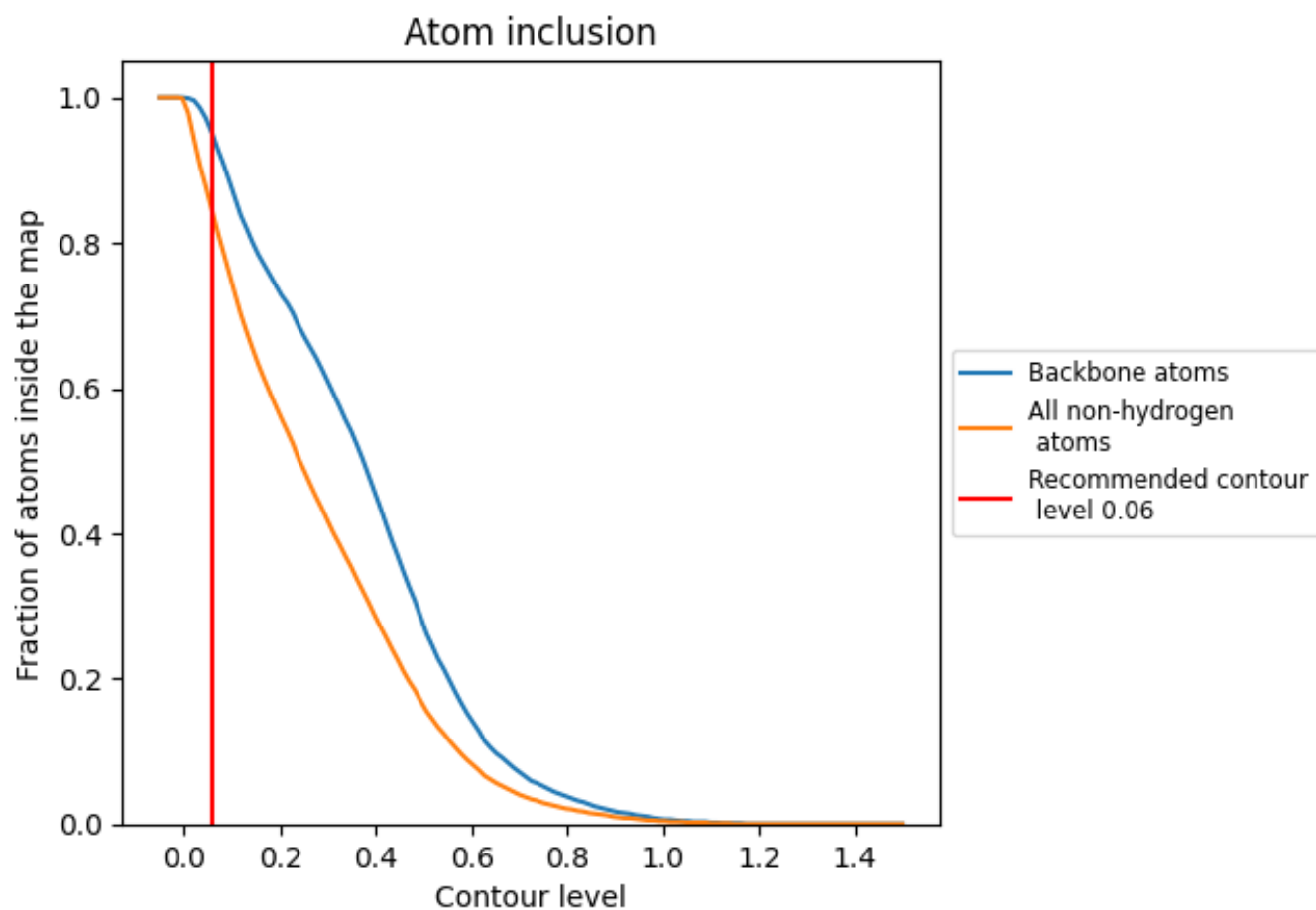
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.06).













9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8430	 0.4200
A	 0.8590	 0.4450
B	 0.7660	 0.2650
C	 0.7320	 0.2430
D	 0.6770	 0.1700
E	 0.6810	 0.1670

