Full wwPDB EM Validation Report ⓘ

Mar 30, 2025 – 02:15 am BST

PDB ID	:	9EUW / pdb_00009euw
EMDB ID	:	EMD-19988
Title	:	Lymphostatin, conformation 2 (composite structure)
Authors	:	Griessmann, M.; Rasmussen, T.; Bottcher, B.
Deposited on	:	2024-03-28
Resolution	:	2.80 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

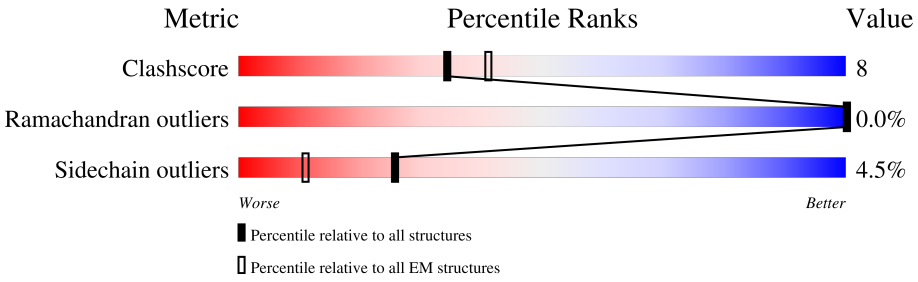
EMDB validation analysis	:	0.0.1.dev117
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.42

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 2.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	3229	67% 19% 13%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 22338 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 Efa1/LifA protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2803	22338	14119	3874	4269	76	0	0

There are 6 discrepancies between the modelled and reference sequences:

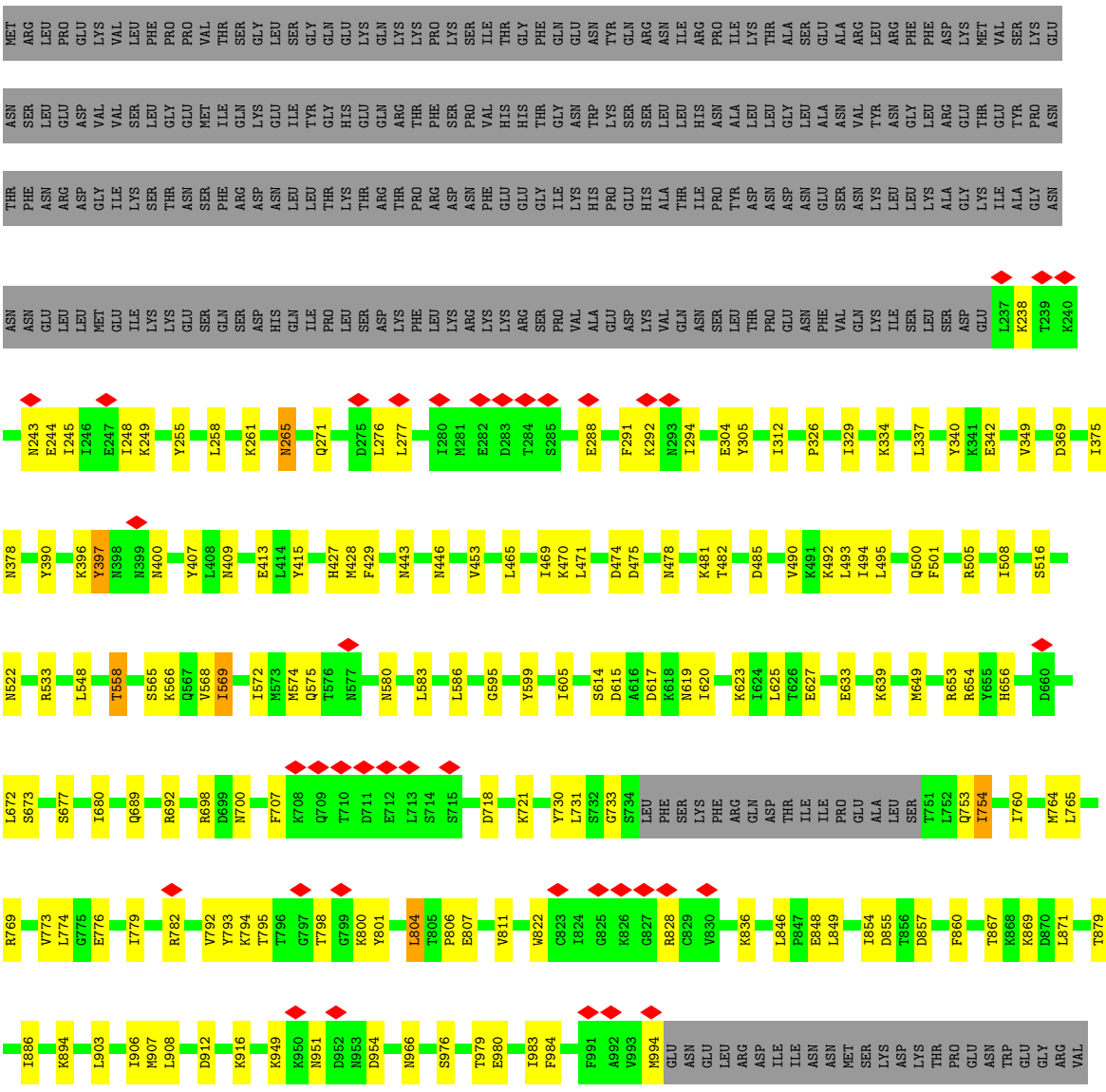
Chain	Residue	Modelled	Actual	Comment	Reference
A	3224	HIS	-	expression tag	UNP B7UI23
A	3225	HIS	-	expression tag	UNP B7UI23
A	3226	HIS	-	expression tag	UNP B7UI23
A	3227	HIS	-	expression tag	UNP B7UI23
A	3228	HIS	-	expression tag	UNP B7UI23
A	3229	HIS	-	expression tag	UNP B7UI23

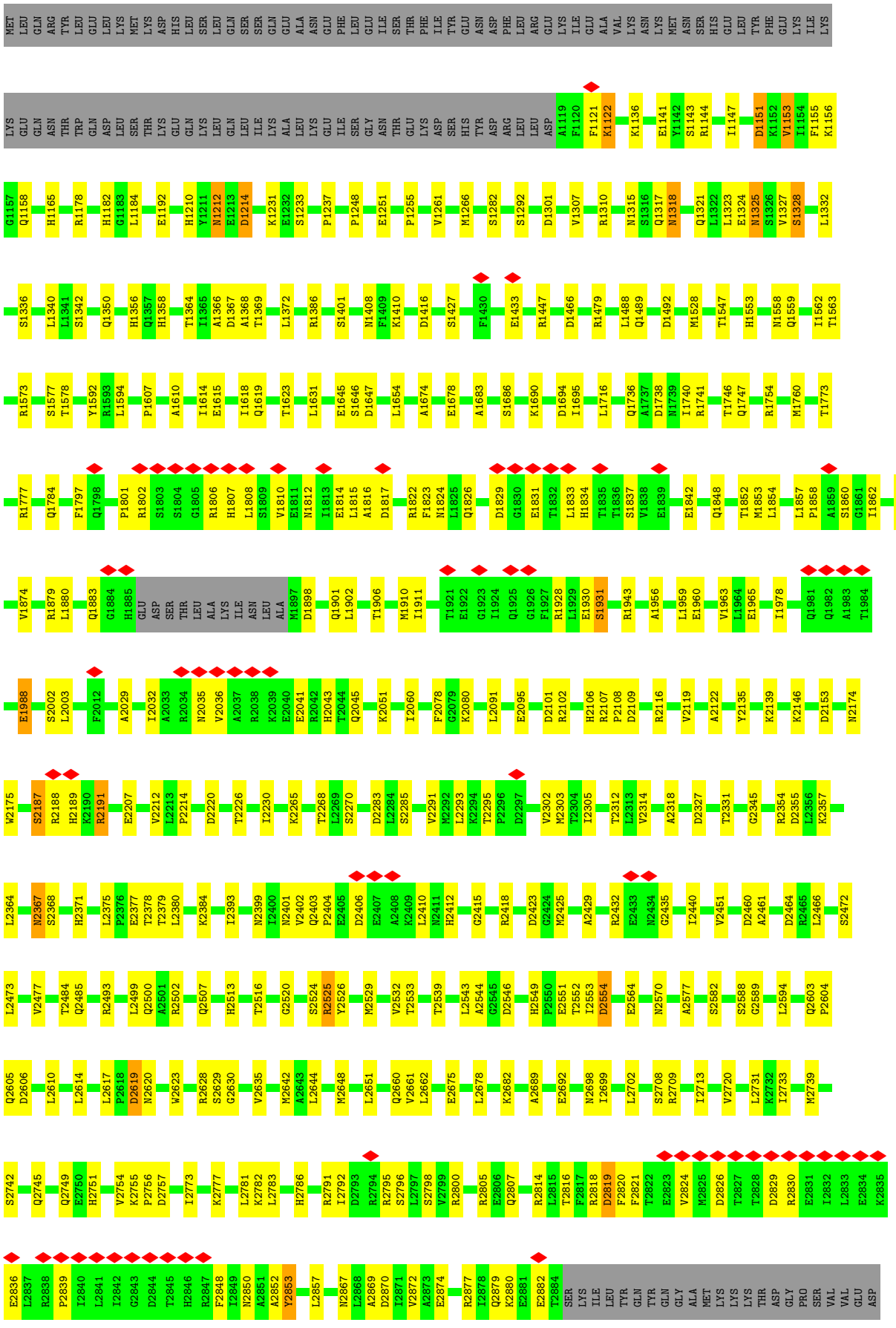
3 Residue-property plots (i)

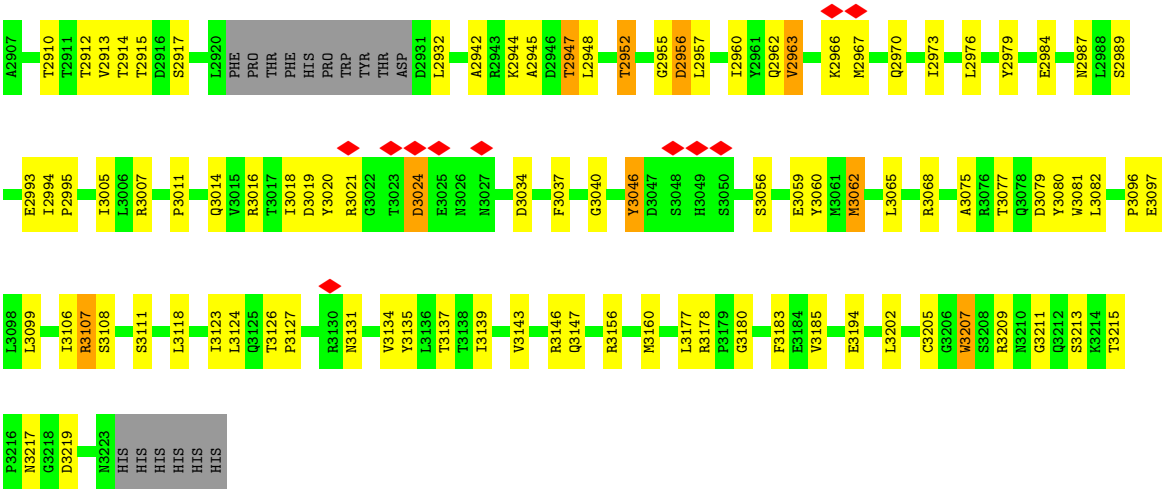
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Efa1/LifA protein

Chain A:




MET LEU GLN ARG TYR LEU GLU LEU LYS MET LYS ASP HIS LEU SER LEU GLN SER SER GLN GLU ALA ASN GLU PHE LEU GLU ILE SER THR PHE ILE TYR GLU ASN ASP PHE LEU ARG GLU LYS ILE GLU ALA VAL LYS ASN LYS MET ASN SER HIS GLU LEU TYR PHE GLU LYS ILE LYS
LYS GLU GLN ASN THR TRP GLN ASP LEU SER THR LYS GLU GLN LYS LEU GLN LEU ILE LYS ALA LEU LYS GLU ILE SER GLY ASN THR GLU LYS ASP SER HIS TYR ASP ARG LEU LEU ASP A1119 F1120 F1121 K1122 K1136 E1141 Y1142 S1143 R1144 I1147 D1151 K1152 V1153 I1154 F1155 K1156
G1157 Q1158 H1165 R1178 H1182 G1183 L1184 E1192 H1210 Y1211 N1212 E1213 D1214 K1231 E1232 S1233 P1237 P1248 E1251 P1255 V1261 M1266 S1282 S1292 D1301 V1307 R1310 N1315 S1316 Q1317 N1318 Q1321 L1322 L1323 E1324 N1325 S1326 V1327 S1328 L1332
S1336 L1340 L1341 S1342 Q1350 H1356 Q1357 H1358 T1364 I1365 A1366 D1367 A1368 T1369 L1372 R1386 S1401 N1408 F1409 K1410 D1416 S1427 F1430 E1433 R1447 D1466 R1479 L1488 Q1489 D1492 M1528 T1547 H1553 N1558 Q1559 I1562 T1563
R1573 S1577 T1578 Y1592 R1593 L1594 P1607 A1610 I1614 E1615 I1618 Q1619 T1623 L1631 E1645 S1646 D1647 L1654 A1674 E1678 A1683 S1686 K1690 D1694 I1695 L1716 Q1736 A1737 D1738 N1739 I1740 R1741 T1746 Q1747 R1764 M1760 T1773
R1777 Q1784 F1797 Q1798 P1801 R1802 S1803 S1804 G1805 R1806 H1807 L1808 S1809 V1810 E1811 N1812 I1813 E1814 L1815 A1816 D1817 R1822 F1823 N1824 L1825 Q1826 D1829 G1830 E1831 T1832 L1833 H1834 T1835 T1836 S1837 V1838 E1839 E1842 Q1848 T1852 M1853 L1854 L1857 P1858 A1859 S1860 G1861 I1862 D1866
V1874 R1879 L1880 Q1883 G1884 H1885 GLU ASP SER THR LEU ALA LYS ILE ASN LEU ALA M1897 D1898 Q1901 L1902 T1906 M1910 I1911 T1921 E1922 G1923 I1924 Q1925 G1926 F1927 R1928 L1929 E1930 S1931 R1943 A1956 L1959 E1960 V1963 L1964 E1965 I1978 Q1981 Q1982 A1983 T1984
E1988 S2002 L2003 F2012 A2029 I2032 A2033 R2034 N2035 V2036 A2037 R2038 K2039 E2040 E2041 R2042 H2043 T2044 Q2045 K2051 I2060 F2078 G2079 K2080 L2091 E2096 D2101 R2102 H2106 R2107 P2108 D2109 R2116 V2119 A2122 Y2135 K2139 K2146 D2153 N2174
W2175 S2187 R2188 H2189 K2190 R2191 E2207 V2212 L2213 P2214 D2220 T2226 I2230 K2265 T2268 L2269 S2270 D2283 L2284 S2285 V2291 M2292 L2293 K2294 T2295 P2296 D2297 V2302 M2303 T2304 I2305 T2312 L2313 V2314 A2318 D2327 T2331 G2345 R2354 D2355 L2356 K2357
L2364 N2367 S2368 H2371 L2375 P2376 E2377 T2378 T2379 L2380 K2384 I2393 N2399 I2400 N2401 V2402 Q2403 P2404 E2405 D2406 E2407 A2408 K2409 L2410 N2411 H2412 G2415 R2418 D2423 G2424 M2425 A2429 R2432 E2433 N2434 G2435 I2440 V2451 D2460 A2461 D2464 R2465 L2466 S2472
L2473 V2477 T2484 Q2485 R2493 L2499 Q2500 K2501 R2502 Q2507 H2513 T2516 G2520 S2524 R2525 Y2526 M2529 V2532 T2533 T2539 L2543 A2544 G2545 D2546 H2549 P2550 E2551 T2552 I2553 D2584 E2564 N2570 A2577 S2582 S2588 G2589 L2594 Q2603 P2604
Q2605 D2606 L2610 L2614 L2617 P2618 D2619 N2620 W2623 R2628 S2629 G2630 V2635 M2642 A2643 L2644 M2648 L2651 Q2660 V2661 L2662 E2675 L2678 K2682 A2689 E2692 N2698 I2699 L2702 S2708 R2709 I2713 V2720 L2731 K2732 I2733 M2739
S2742 Q2745 Q2749 E2750 H2751 V2754 K2755 P2756 D2757 I2773 K2777 L2781 K2782 L2783 H2786 R2791 I2792 D2793 R2794 R2795 S2796 L2797 S2798 V2799 R2800 R2805 E2806 Q2807 R2814 L2815 T2816 F2817 R2818 D2819 F2820 F2821 T2822 E2823 V2824 M2825 D2826 T2827 T2828 D2829 R2830 E2831 I2832 L2833 E2834 K2835
E2836 L2837 R2838 P2839 I2840 L2841 I2842 G2843 D2844 T2845 H2846 R2847 F2848 I2849 N2850 A2851 A2852 Y2853 L2857 N2867 L2868 A2869 D2870 I2871 V2872 A2873 E2874 R2877 I2878 Q2879 K2880 E2881 E2882 T2884 SER LYS ILE LEU TYR GLN TYR GLN GLY ALA MET LYS LYS THR ASP GLY PRO SER VAL VAL GLU ASP


A2907 T2910 T2911 T2912 V2913 T2914 T2915 D2916 S2917 L2920 PHE PRO THR PHE HIS PRO TRP TYR THR ASP D2931 L2932 A2942 H2943 K2944 A2945 D2946 T2947 L2948 T2952 G2955 D2956 L2957 I2960 Y2961 Q2962 V2963 K2966 M2967 Q2970 I2973 L2976 Y2979 E2984 N2987 L2988 S2989
E2993 I2994 P2995 I3005 L3006 R3007 P3011 Q3014 V3015 R3016 T3017 I3018 D3019 Y3020 R3021 G3022 T3023 D3024 E3025 N3026 M3027 D3034 F3037 G3040 Y3046 D3047 S3048 H3049 S3050 S3056 E3059 Y3060 M3061 M3062 L3065 R3068 A3075 R3076 T3077 Q3078 D3079 Y3080 W3081 L3082 P3096 E3097
L3098 L3099 I3106 R3107 S3108 S3111 L3118 I3123 L3124 Q3125 T3126 P3127 R3130 N3131 V3134 Y3135 L3136 T3137 T3138 I3139 V3143 R3146 Q3147 R3156 M3160 L3177 R3178 P3179 G3180 F3183 E3184 V3185 E3194 L3202 C3205 G3206 W3207 S3208 R3209 N3210 G3211 Q3212 S3213 K3214 T3215
P3216 N3217 G3218 D3219 N3223 HIS HIS HIS HIS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	182000	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 ($e^-/Å^2$)	70	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1400	Depositor
Magnification	130000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	68.256	Depositor
Minimum map value	-34.889	Depositor
Average map value	-0.007	Depositor
Map value standard deviation	1.109	Depositor
Recommended contour level	6.5	Depositor
Map size (Å)	378.4, 378.4, 378.4	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.946, 0.946, 0.946	Depositor

5 Model quality

5.1 Standard geometry

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	0.27	0/22775	0.49	0/30861

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

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	22338	0	22342	354	0
All	All	22338	0	22342	354	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.

All (354) 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:1857:LEU:HB3	1:A:1943:ARG:HH12	1.43	0.83
1:A:1853:MET:O	1:A:1857:LEU:HB2	1.84	0.77
1:A:1812:ASN:HB3	1:A:1826:GLN:H	1.51	0.75
1:A:2380:LEU:HD22	1:A:2425:MET:HG3	1.67	0.75
1:A:1683:ALA:HB2	1:A:1746:THR:HG21	1.69	0.75

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:615:ASP:O	1:A:619:ASN:ND2	2.20	0.75
1:A:2791:ARG:HH22	1:A:2800:ARG:HH21	1.35	0.75
1:A:867:THR:HG21	1:A:912:ASP:HB2	1.69	0.74
1:A:1122:LYS:H	1:A:1122:LYS:HD2	1.52	0.74
1:A:2507:GLN:NE2	1:A:2529:MET:SD	2.61	0.74
1:A:1754:ARG:HG2	1:A:1978:ILE:HD13	1.71	0.73
1:A:1489:GLN:HG2	1:A:1654:LEU:HD13	1.71	0.72
1:A:1842:GLU:OE2	1:A:1842:GLU:N	2.21	0.71
1:A:1965:GLU:N	1:A:1965:GLU:OE2	2.21	0.70
1:A:2805:ARG:NH1	1:A:2807:GLN:OE1	2.25	0.69
1:A:795:THR:HA	1:A:801:TYR:HA	1.75	0.68
1:A:2699:ILE:HD12	1:A:2702:LEU:HD11	1.76	0.67
1:A:2525:ARG:NH1	1:A:2554:ASP:OD2	2.27	0.67
1:A:1210:HIS:O	1:A:1210:HIS:ND1	2.26	0.67
1:A:1930:GLU:OE2	1:A:1930:GLU:N	2.22	0.66
1:A:2948:LEU:HB3	1:A:2960:ILE:HB	1.77	0.66
1:A:342:GLU:OE2	1:A:639:LYS:NZ	2.27	0.66
1:A:689:GLN:OE1	1:A:692:ARG:NH1	2.29	0.65
1:A:575:GLN:HE21	1:A:627:GLU:HG2	1.59	0.65
1:A:792:VAL:HG23	1:A:807:GLU:HB2	1.78	0.65
1:A:653:ARG:HD2	1:A:792:VAL:HG12	1.78	0.64
1:A:2731:LEU:HD22	1:A:2749:GLN:HE21	1.60	0.64
1:A:2440:ILE:HD13	1:A:2466:LEU:HD13	1.80	0.64
1:A:2532:VAL:HG13	1:A:2533:THR:HG23	1.81	0.64
1:A:1738:ASP:OD1	1:A:1741:ARG:NH2	2.30	0.63
1:A:340:TYR:O	1:A:505:ARG:NH2	2.32	0.63
1:A:2473:LEU:HD12	1:A:2477:VAL:HG21	1.80	0.62
1:A:765:LEU:HD12	1:A:779:ILE:HD12	1.82	0.62
1:A:2116:ARG:NH1	1:A:2122:ALA:O	2.33	0.61
1:A:2773:ILE:HD11	1:A:2783:LEU:HD23	1.82	0.61
1:A:1317:GLN:NE2	1:A:1321:GLN:OE1	2.33	0.61
1:A:2605:GLN:HB2	1:A:2635:VAL:HG23	1.84	0.60
1:A:446:ASN:ND2	1:A:848:GLU:OE2	2.33	0.60
1:A:1323:LEU:HD12	1:A:1332:LEU:HG	1.83	0.60
1:A:1822:ARG:HH12	1:A:1837:SER:HA	1.68	0.59
1:A:2226:THR:HG23	1:A:2293:LEU:HD21	1.84	0.59
1:A:2375:LEU:HB3	1:A:2378:THR:HB	1.84	0.59
1:A:2944:LYS:HB2	1:A:2962:GLN:HB2	1.83	0.59
1:A:3096:PRO:HA	1:A:3099:LEU:HD23	1.85	0.59
1:A:494:ILE:HG12	1:A:508:ILE:HG13	1.84	0.59
1:A:1178:ARG:NH1	1:A:1192:GLU:OE2	2.34	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1214:ASP:OD1	1:A:1214:ASP:N	2.34	0.58
1:A:2106:HIS:CE1	1:A:2108:PRO:HG3	2.38	0.58
1:A:2588:SER:OG	1:A:2589:GLY:N	2.36	0.57
1:A:2751:HIS:NE2	1:A:2816:THR:OG1	2.27	0.57
1:A:769:ARG:HH12	1:A:782:ARG:HA	1.69	0.57
1:A:677:SER:HB3	1:A:680:ILE:HG13	1.87	0.57
1:A:1401:SER:OG	1:A:1416:ASP:OD2	2.20	0.57
1:A:244:GLU:O	1:A:248:ILE:HD12	2.05	0.56
1:A:2857:LEU:HD13	1:A:2869:ALA:HB2	1.88	0.56
1:A:2546:ASP:OD2	1:A:2549:HIS:ND1	2.38	0.56
1:A:2651:LEU:HB2	1:A:2720:VAL:HB	1.88	0.56
1:A:375:ILE:HD13	1:A:428:MET:HE3	1.87	0.56
1:A:1350:GLN:HE22	1:A:1358:HIS:CE1	2.23	0.56
1:A:1822:ARG:HH22	1:A:1837:SER:HA	1.70	0.56
1:A:3024:ASP:OD1	1:A:3024:ASP:N	2.27	0.56
1:A:2910:THR:HA	1:A:2973:ILE:HG13	1.88	0.55
1:A:1301:ASP:OD2	1:A:1328:SER:OG	2.23	0.55
1:A:2619:ASP:OD1	1:A:2620:ASN:N	2.39	0.55
1:A:2955:GLY:O	1:A:2979:TYR:N	2.39	0.55
1:A:1248:PRO:HD2	1:A:1251:GLU:HG3	1.88	0.55
1:A:245:ILE:HA	1:A:248:ILE:HD12	1.88	0.55
1:A:245:ILE:O	1:A:249:LYS:HG2	2.06	0.55
1:A:3068:ARG:HD3	1:A:3075:ALA:HB1	1.88	0.55
1:A:443:ASN:ND2	1:A:848:GLU:OE1	2.31	0.55
1:A:871:LEU:HD22	1:A:906:ILE:HG23	1.88	0.55
1:A:1988:GLU:N	1:A:1988:GLU:OE2	2.39	0.55
1:A:2947:THR:HG23	1:A:3046:TYR:HB3	1.89	0.55
1:A:2661:VAL:HG22	1:A:2713:ILE:HD13	1.90	0.54
1:A:2689:ALA:HB3	1:A:2692:GLU:HB3	1.89	0.54
1:A:3107:ARG:HH12	1:A:3147:GLN:HB3	1.73	0.54
1:A:2404:PRO:HG3	1:A:2410:LEU:HD13	1.90	0.54
1:A:1488:LEU:HD11	1:A:1573:ARG:HB3	1.89	0.54
1:A:2354:ARG:HD2	1:A:2377:GLU:HB3	1.87	0.54
1:A:2367:ASN:OD1	1:A:2367:ASN:N	2.30	0.54
1:A:2516:THR:HB	1:A:2539:THR:HG23	1.88	0.54
1:A:3034:ASP:OD2	1:A:3060:TYR:OH	2.26	0.54
1:A:409:ASN:O	1:A:413:GLU:HG2	2.08	0.53
1:A:1816:ALA:HB2	1:A:1824:ASN:HD21	1.73	0.53
1:A:2987:ASN:HA	1:A:3007:ARG:HH22	1.73	0.53
1:A:248:ILE:HG13	1:A:276:LEU:HD13	1.90	0.53
1:A:566:LYS:HD2	1:A:804:LEU:HD13	1.90	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1807:HIS:O	1:A:1829:ASP:HA	2.08	0.53
1:A:288:GLU:HA	1:A:291:PHE:HD2	1.74	0.53
1:A:1447:ARG:NH2	1:A:1784:GLN:OE1	2.32	0.53
1:A:2187:SER:HB2	1:A:2188:ARG:HH21	1.73	0.53
1:A:255:TYR:OH	1:A:304:GLU:OE2	2.25	0.53
1:A:2942:ALA:HB1	1:A:2995:PRO:HD3	1.91	0.53
1:A:2603:GLN:HB2	1:A:2606:ASP:HB3	1.89	0.53
1:A:2628:ARG:HG2	1:A:2630:GLY:H	1.73	0.53
1:A:2819:ASP:OD1	1:A:2850:ASN:ND2	2.41	0.53
1:A:2910:THR:HG23	1:A:2973:ILE:HD11	1.89	0.53
1:A:614:SER:OG	1:A:617:ASP:OD1	2.26	0.53
1:A:984:PHE:CE2	1:A:1121:PHE:HA	2.44	0.53
1:A:2932:LEU:HD11	1:A:3016:ARG:HH21	1.73	0.53
1:A:3005:ILE:HD13	1:A:3018:ILE:HD12	1.90	0.53
1:A:1898:ASP:H	1:A:1901:GLN:HE21	1.57	0.53
1:A:2327:ASP:HA	1:A:2345:GLY:H	1.75	0.52
1:A:2594:LEU:HD22	1:A:2610:LEU:HD21	1.91	0.52
1:A:2733:ILE:HD12	1:A:2739:MET:SD	2.50	0.52
1:A:2220:ASP:N	1:A:2220:ASP:OD1	2.43	0.52
1:A:2423:ASP:HA	1:A:2451:VAL:HG21	1.91	0.52
1:A:3106:ILE:HD11	1:A:3134:VAL:HG12	1.91	0.52
1:A:575:GLN:NE2	1:A:627:GLU:HG2	2.24	0.52
1:A:2101:ASP:OD1	1:A:2135:TYR:OH	2.23	0.52
1:A:3123:ILE:HD12	1:A:3124:LEU:H	1.74	0.52
1:A:1860:SER:HB3	1:A:2035:ASN:HD22	1.73	0.52
1:A:1862:ILE:HD12	1:A:1862:ILE:O	2.09	0.52
1:A:2502:ARG:NH2	1:A:3194:GLU:O	2.43	0.52
1:A:334:LYS:HG2	1:A:501:PHE:HE2	1.75	0.51
1:A:1151:ASP:OD1	1:A:1151:ASP:N	2.41	0.51
1:A:2987:ASN:OD1	1:A:3007:ARG:NH2	2.42	0.51
1:A:3215:THR:OG1	1:A:3217:ASN:OD1	2.21	0.51
1:A:1364:THR:OG1	1:A:1367:ASP:OD1	2.28	0.51
1:A:1324:GLU:HG3	1:A:1325:ASN:OD1	2.10	0.51
1:A:2060:ILE:HD12	1:A:2078:PHE:HB2	1.92	0.51
1:A:2406:ASP:OD1	1:A:2406:ASP:N	2.40	0.51
1:A:2829:ASP:OD1	1:A:2830:ARG:N	2.44	0.51
1:A:2945:ALA:HA	1:A:2994:ILE:HD12	1.92	0.51
1:A:3062:MET:HE3	1:A:3062:MET:O	2.11	0.51
1:A:397:TYR:HD2	1:A:407:TYR:HB2	1.75	0.51
1:A:2318:ALA:HB1	1:A:2357:LYS:HE2	1.92	0.51
1:A:238:LYS:H	1:A:238:LYS:HD2	1.76	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:415:TYR:HB2	1:A:731:LEU:HB3	1.93	0.51
1:A:794:LYS:HD3	1:A:807:GLU:HG2	1.93	0.51
1:A:1857:LEU:HD23	1:A:1943:ARG:NH1	2.26	0.50
1:A:2644:LEU:HB3	1:A:3040:GLY:HA3	1.91	0.50
1:A:2754:VAL:HG12	1:A:2756:PRO:HD3	1.94	0.50
1:A:271:GLN:HA	1:A:774:LEU:HD23	1.94	0.50
1:A:2816:THR:HG21	1:A:2818:ARG:HH11	1.77	0.50
1:A:1815:LEU:HA	1:A:1823:PHE:HA	1.92	0.50
1:A:312:ILE:HD13	1:A:672:LEU:HD23	1.94	0.50
1:A:1956:ALA:O	1:A:1960:GLU:HG3	2.12	0.50
1:A:2485:GLN:OE1	1:A:2500:GLN:NE2	2.45	0.50
1:A:976:SER:OG	1:A:1151:ASP:OD1	2.26	0.50
1:A:3021:ARG:HG2	1:A:3024:ASP:O	2.12	0.50
1:A:575:GLN:OE1	1:A:575:GLN:N	2.45	0.50
1:A:1808:LEU:HD23	1:A:1902:LEU:HD12	1.94	0.50
1:A:2107:ARG:NH2	1:A:2109:ASP:OD2	2.44	0.49
1:A:649:MET:HG3	1:A:673:SER:HB2	1.94	0.49
1:A:718:ASP:HB3	1:A:721:LYS:HG3	1.94	0.49
1:A:1831:GLU:HB2	1:A:1833:LEU:HD11	1.94	0.49
1:A:243:ASN:N	1:A:243:ASN:OD1	2.43	0.49
1:A:2432:ARG:NH2	1:A:2472:SER:OG	2.39	0.49
1:A:481:LYS:NZ	1:A:485:ASP:OD2	2.44	0.49
1:A:1746:THR:HG23	1:A:1747:GLN:HG2	1.94	0.49
1:A:2957:LEU:HB3	1:A:2976:LEU:HB2	1.94	0.49
1:A:3082:LEU:HD23	1:A:3137:THR:HG22	1.95	0.49
1:A:907:MET:HE3	1:A:916:LYS:HG2	1.95	0.49
1:A:1559:GLN:NE2	1:A:1615:GLU:OE1	2.44	0.49
1:A:3217:ASN:ND2	1:A:3219:ASP:OD2	2.44	0.49
1:A:1427:SER:HB2	1:A:1547:THR:HG21	1.95	0.48
1:A:2212:VAL:HG12	1:A:2214:PRO:HD3	1.95	0.48
1:A:733:GLY:O	1:A:828:ARG:NH2	2.47	0.48
1:A:2564:GLU:HB3	1:A:2623:TRP:HE3	1.79	0.48
1:A:3056:SER:HB3	1:A:3059:GLU:HG3	1.96	0.48
1:A:894:LYS:NZ	1:A:894:LYS:HB3	2.29	0.48
1:A:1814:GLU:O	1:A:1824:ASN:N	2.35	0.48
1:A:2960:ILE:CD1	1:A:2973:ILE:HG22	2.43	0.48
1:A:1674:ALA:HB2	1:A:1690:LYS:HD2	1.94	0.48
1:A:2820:PHE:HA	1:A:2853:TYR:CD2	2.49	0.48
1:A:1592:TYR:CE2	1:A:1607:PRO:HG3	2.49	0.48
1:A:979:THR:O	1:A:983:ILE:HG13	2.14	0.48
1:A:1141:GLU:OE1	1:A:1141:GLU:N	2.40	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1356:HIS:HE1	1:A:1368:ALA:HB2	1.79	0.48
1:A:2544:ALA:N	1:A:2551:GLU:OE2	2.42	0.48
1:A:326:PRO:HB3	1:A:493:LEU:HB2	1.95	0.47
1:A:1833:LEU:O	1:A:1834:HIS:ND1	2.47	0.47
1:A:572:ILE:HG21	1:A:583:LEU:HD21	1.96	0.47
1:A:2291:VAL:HB	1:A:2303:MET:HB3	1.97	0.47
1:A:2520:GLY:HA3	1:A:2526:TYR:OH	2.14	0.47
1:A:1182:HIS:CE1	1:A:1282:SER:HB2	2.50	0.47
1:A:1479:ARG:HH22	1:A:1577:SER:HB3	1.78	0.47
1:A:1553:HIS:NE2	1:A:1645:GLU:OE1	2.41	0.47
1:A:2867:ASN:OD1	1:A:2870:ASP:N	2.44	0.47
1:A:3207:TRP:CD2	1:A:3209:ARG:HD3	2.49	0.47
1:A:846:LEU:HD23	1:A:849:LEU:HD13	1.96	0.47
1:A:1802:ARG:NE	1:A:1807:HIS:H	2.13	0.47
1:A:2651:LEU:HD11	1:A:2662:LEU:HB2	1.97	0.47
1:A:2484:THR:HG22	1:A:2499:LEU:HA	1.96	0.47
1:A:2879:GLN:OE1	1:A:2882:GLU:OE1	2.33	0.47
1:A:984:PHE:HE2	1:A:1121:PHE:HA	1.80	0.47
1:A:2966:LYS:HB2	1:A:2966:LYS:HE2	1.74	0.47
1:A:1829:ASP:HB3	1:A:1833:LEU:HD13	1.96	0.47
1:A:2795:ARG:NH2	1:A:2821:PHE:O	2.48	0.47
1:A:2957:LEU:HD23	1:A:2976:LEU:HD13	1.96	0.47
1:A:3118:LEU:HD21	1:A:3185:VAL:HG21	1.97	0.47
1:A:2207:GLU:OE1	1:A:2207:GLU:N	2.39	0.46
1:A:3123:ILE:HG23	1:A:3211:GLY:HA2	1.97	0.46
1:A:854:ILE:HG23	1:A:879:THR:HG23	1.98	0.46
1:A:2543:LEU:HD21	1:A:2553:ILE:HD11	1.97	0.46
1:A:2914:THR:H	1:A:2917:SER:HB3	1.79	0.46
1:A:869:LYS:HE2	1:A:869:LYS:HB2	1.63	0.46
1:A:886:ILE:HD13	1:A:886:ILE:HA	1.82	0.46
1:A:265:ASN:OD1	1:A:265:ASN:N	2.49	0.46
1:A:1879:ARG:O	1:A:1883:GLN:HG3	2.16	0.46
1:A:329:ILE:HD12	1:A:558:THR:HG21	1.98	0.46
1:A:2364:LEU:HD12	1:A:2371:HIS:CE1	2.49	0.46
1:A:2493:ARG:HH21	1:A:2513:HIS:HB3	1.80	0.46
1:A:2742:SER:HB3	1:A:2745:GLN:HG3	1.97	0.46
1:A:3097:GLU:OE1	1:A:3097:GLU:N	2.47	0.46
1:A:654:ARG:HD2	1:A:656:HIS:CE1	2.51	0.46
1:A:2283:ASP:OD1	1:A:2285:SER:OG	2.31	0.46
1:A:966:ASN:O	1:A:1144:ARG:NH2	2.49	0.46
1:A:2102:ARG:HG3	1:A:2191:ARG:NH1	2.31	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3068:ARG:NH1	1:A:3079:ASP:OD1	2.42	0.46
1:A:390:TYR:HH	1:A:730:TYR:HH	1.63	0.46
1:A:773:VAL:HA	1:A:776:GLU:HG3	1.98	0.46
1:A:2364:LEU:HB2	1:A:2404:PRO:HA	1.98	0.46
1:A:2401:ASN:O	1:A:2403:GLN:HG3	2.16	0.46
1:A:1558:ASN:O	1:A:1562:ILE:HG12	2.15	0.46
1:A:2993:GLU:N	1:A:2993:GLU:OE1	2.48	0.46
1:A:782:ARG:HH21	1:A:1214:ASP:HB2	1.80	0.45
1:A:2755:LYS:HD3	1:A:2818:ARG:HB3	1.98	0.45
1:A:2791:ARG:HH22	1:A:2800:ARG:NH2	2.08	0.45
1:A:754:ILE:H	1:A:754:ILE:HG12	1.54	0.45
1:A:1610:ALA:O	1:A:1614:ILE:HG13	2.16	0.45
1:A:2952:THR:HG23	1:A:2956:ASP:H	1.81	0.45
1:A:1880:LEU:HD21	1:A:1963:VAL:HG11	1.99	0.45
1:A:599:TYR:OH	1:A:633:GLU:OE2	2.27	0.45
1:A:1386:ARG:HD2	1:A:1386:ARG:HA	1.68	0.45
1:A:2913:VAL:HG22	1:A:2976:LEU:HG	1.98	0.45
1:A:568:VAL:O	1:A:572:ILE:HG12	2.17	0.45
1:A:1212:ASN:ND2	1:A:1214:ASP:OD1	2.46	0.45
1:A:277:LEU:HD12	1:A:294:ILE:HG23	1.97	0.45
1:A:575:GLN:HB3	1:A:623:LYS:HE3	1.98	0.45
1:A:342:GLU:OE1	1:A:342:GLU:N	2.43	0.44
1:A:580:ASN:HD22	1:A:800:LYS:HD2	1.82	0.44
1:A:2384:LYS:HD2	1:A:2393:ILE:HG21	2.00	0.44
1:A:2415:GLY:N	1:A:2429:ALA:O	2.44	0.44
1:A:1773:THR:O	1:A:1777:ARG:HG3	2.17	0.44
1:A:305:TYR:CD1	1:A:774:LEU:HG	2.52	0.44
1:A:3134:VAL:HG21	1:A:3160:MET:HE1	2.00	0.44
1:A:2364:LEU:HD21	1:A:2402:VAL:HG13	1.99	0.44
1:A:1559:GLN:O	1:A:1563:THR:OG1	2.29	0.44
1:A:1858:PRO:HG3	1:A:1943:ARG:NH2	2.33	0.44
1:A:288:GLU:HG2	1:A:292:LYS:HE3	2.00	0.44
1:A:793:TYR:CE1	1:A:806:PRO:HB3	2.53	0.44
1:A:3131:ASN:HD21	1:A:3178:ARG:HH22	1.64	0.44
1:A:3146:ARG:HE	1:A:3146:ARG:HB3	1.47	0.44
1:A:599:TYR:HB2	1:A:605:ILE:HD11	1.99	0.44
1:A:1874:VAL:HG13	1:A:1911:ILE:HD13	1.98	0.44
1:A:2368:SER:HB2	1:A:2371:HIS:CE1	2.53	0.44
1:A:2303:MET:HG2	1:A:2305:ILE:HD11	2.00	0.44
1:A:2312:THR:HG23	1:A:2331:THR:HB	1.99	0.44
1:A:1182:HIS:HE2	1:A:1292:SER:HG	1.62	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2678:LEU:HD12	1:A:2678:LEU:HA	1.79	0.43
1:A:3123:ILE:HD12	1:A:3124:LEU:N	2.32	0.43
1:A:1854:LEU:HD23	1:A:1854:LEU:HA	1.87	0.43
1:A:2270:SER:HA	1:A:2314:VAL:HB	2.00	0.43
1:A:2461:ALA:HA	1:A:2464:ASP:OD2	2.18	0.43
1:A:3139:ILE:HD12	1:A:3139:ILE:HA	1.84	0.43
1:A:1988:GLU:H	1:A:1988:GLU:CD	2.20	0.43
1:A:2106:HIS:HE1	1:A:2139:LYS:HE3	1.84	0.43
1:A:3065:LEU:HD23	1:A:3156:ARG:HB2	1.99	0.43
1:A:255:TYR:CZ	1:A:261:LYS:HD3	2.53	0.43
1:A:1340:LEU:HD12	1:A:1340:LEU:HA	1.90	0.43
1:A:1614:ILE:O	1:A:1618:ILE:HG13	2.19	0.43
1:A:1797:PHE:CZ	1:A:1810:VAL:HG21	2.53	0.43
1:A:2660:GLN:HA	1:A:2660:GLN:OE1	2.19	0.43
1:A:2792:ILE:HD12	1:A:2821:PHE:CE2	2.52	0.43
1:A:2836:GLU:O	1:A:2839:PRO:HD2	2.18	0.43
1:A:349:VAL:HG21	1:A:490:VAL:HG21	2.01	0.43
1:A:1155:PHE:HB2	1:A:1158:GLN:HG2	1.99	0.43
1:A:2850:ASN:HD21	1:A:2852:ALA:HB3	1.84	0.43
1:A:3177:LEU:HD23	1:A:3177:LEU:HA	1.82	0.43
1:A:2577:ALA:HA	1:A:2582:SER:HA	2.00	0.43
1:A:3107:ARG:HE	1:A:3107:ARG:HB3	1.59	0.43
1:A:2191:ARG:H	1:A:2191:ARG:HE	1.67	0.43
1:A:2932:LEU:HD22	1:A:2989:SER:HB2	2.01	0.43
1:A:3183:PHE:HB3	1:A:3202:LEU:HD13	2.01	0.43
1:A:760:ILE:O	1:A:764:MET:HG3	2.19	0.42
1:A:1736:GLN:O	1:A:1740:ILE:HG12	2.19	0.42
1:A:337:LEU:O	1:A:505:ARG:NH2	2.45	0.42
1:A:1716:LEU:HD23	1:A:1716:LEU:HA	1.88	0.42
1:A:2029:ALA:O	1:A:2032:ILE:HG12	2.19	0.42
1:A:2783:LEU:HD12	1:A:2783:LEU:HA	1.68	0.42
1:A:2036:VAL:HG13	1:A:2045:GLN:HB3	2.01	0.42
1:A:2230:ILE:HD11	1:A:2295:THR:HG21	2.00	0.42
1:A:2603:GLN:OE1	1:A:2604:PRO:HD2	2.19	0.42
1:A:903:LEU:O	1:A:907:MET:HG3	2.20	0.42
1:A:1817:ASP:HB3	1:A:1822:ARG:HB2	2.00	0.42
1:A:2393:ILE:HA	1:A:2399:ASN:HB2	2.01	0.42
1:A:2432:ARG:N	1:A:2435:GLY:O	2.44	0.42
1:A:3135:TYR:CD2	1:A:3143:VAL:HG21	2.54	0.42
1:A:3207:TRP:CE2	1:A:3209:ARG:HD3	2.53	0.42
1:A:465:LEU:HD23	1:A:465:LEU:HA	1.87	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:500:GLN:HG2	1:A:501:PHE:CD2	2.55	0.42
1:A:908:LEU:HD23	1:A:908:LEU:HA	1.89	0.42
1:A:2041:GLU:HB3	1:A:2043:HIS:CE1	2.55	0.42
1:A:1315:ASN:HB2	1:A:1318:ASN:OD1	2.20	0.42
1:A:3127:PRO:HD3	1:A:3213:SER:HB2	2.02	0.42
1:A:516:SER:O	1:A:522:ASN:ND2	2.52	0.41
1:A:617:ASP:HA	1:A:620:ILE:HG22	2.02	0.41
1:A:976:SER:O	1:A:980:GLU:HG2	2.19	0.41
1:A:1307:VAL:HG12	1:A:1310:ARG:HH21	1.85	0.41
1:A:1615:GLU:O	1:A:1619:GLN:HB3	2.19	0.41
1:A:1928:ARG:HG3	1:A:1931:SER:HB2	2.02	0.41
1:A:2091:LEU:HD23	1:A:2091:LEU:HA	1.94	0.41
1:A:469:ILE:HD13	1:A:836:LYS:HG2	2.02	0.41
1:A:1153:VAL:HG22	1:A:1184:LEU:HD13	2.00	0.41
1:A:1801:PRO:HG2	1:A:1833:LEU:CD2	2.50	0.41
1:A:2379:THR:OG1	1:A:2423:ASP:OD2	2.29	0.41
1:A:2824:VAL:HG21	1:A:2848:PHE:CG	2.55	0.41
1:A:1366:ALA:O	1:A:1369:THR:OG1	2.32	0.41
1:A:1695:ILE:HG21	1:A:1740:ILE:HD12	2.02	0.41
1:A:2460:ASP:OD1	1:A:2461:ALA:N	2.53	0.41
1:A:2879:GLN:OE1	1:A:2879:GLN:HA	2.19	0.41
1:A:3037:PHE:O	1:A:3077:THR:HG21	2.20	0.41
1:A:595:GLY:HA3	1:A:625:LEU:HD11	2.03	0.41
1:A:966:ASN:HB2	1:A:1255:PRO:HB3	2.02	0.41
1:A:397:TYR:O	1:A:400:ASN:N	2.52	0.41
1:A:2174:ASN:OD1	1:A:2175:TRP:N	2.53	0.41
1:A:2820:PHE:HE2	1:A:2872:VAL:HG21	1.84	0.41
1:A:2963:VAL:HB	1:A:2970:GLN:O	2.20	0.41
1:A:1848:GLN:O	1:A:1852:THR:HG22	2.20	0.41
1:A:2080:LYS:HB2	1:A:2095:GLU:HG2	2.02	0.41
1:A:1408:ASN:HD21	1:A:1410:LYS:HE3	1.86	0.41
1:A:2354:ARG:HG3	1:A:2355:ASP:CG	2.41	0.41
1:A:2751:HIS:CD2	1:A:2814:ARG:HG2	2.55	0.41
1:A:478:ASN:O	1:A:482:THR:HG22	2.21	0.41
1:A:795:THR:OG1	1:A:798:THR:O	2.36	0.41
1:A:2418:ARG:HB3	1:A:2418:ARG:NH1	2.36	0.41
1:A:3126:THR:HG23	1:A:3180:GLY:H	1.86	0.41
1:A:378:ASN:ND2	1:A:1646:SER:OG	2.45	0.41
1:A:565:SER:O	1:A:569:ILE:HG22	2.20	0.41
1:A:2877:ARG:NH1	1:A:2880:LYS:HD2	2.36	0.41
1:A:471:LEU:HD23	1:A:471:LEU:HA	1.86	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1760:MET:SD	1:A:2003:LEU:HD11	2.61	0.40
1:A:2648:MET:HE3	1:A:3080:TYR:O	2.20	0.40
1:A:3014:GLN:HE22	1:A:3016:ARG:HH12	1.69	0.40
1:A:396:LYS:HA	1:A:396:LYS:HD3	1.65	0.40
1:A:1327:VAL:HG23	1:A:1372:LEU:HD22	2.03	0.40
1:A:2698:ASN:OD1	1:A:2698:ASN:N	2.54	0.40
1:A:949:LYS:NZ	1:A:951:ASN:OD1	2.54	0.40
1:A:1690:LYS:NZ	1:A:1694:ASP:OD2	2.52	0.40
1:A:2268:THR:HA	1:A:2312:THR:HB	2.03	0.40
1:A:3011:PRO:HB3	1:A:3081:TRP:CE2	2.56	0.40
1:A:329:ILE:CD1	1:A:558:THR:HG21	2.51	0.40
1:A:548:LEU:HD23	1:A:548:LEU:HA	1.85	0.40
1:A:1136:LYS:HA	1:A:1147:ILE:HD13	2.03	0.40
1:A:1594:LEU:HD13	1:A:1614:ILE:HD11	2.03	0.40
1:A:2682:LYS:HE2	1:A:2682:LYS:HB3	1.80	0.40
1:A:258:LEU:HD23	1:A:258:LEU:HA	1.91	0.40
1:A:1210:HIS:CD2	1:A:1237:PRO:HG2	2.57	0.40
1:A:1906:THR:O	1:A:1910:MET:HG3	2.21	0.40
1:A:1959:LEU:HD23	1:A:1959:LEU:HA	1.93	0.40
1:A:2484:THR:HG21	1:A:2499:LEU:HD22	2.04	0.40
1:A:2782:LYS:HG3	1:A:2874:GLU:OE1	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	2791/3229 (86%)	2708 (97%)	82 (3%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2187	SER

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	2490/2885 (86%)	2379 (96%)	111 (4%)	23 55

All (111) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	265	ASN
1	A	369	ASP
1	A	397	TYR
1	A	427	HIS
1	A	429	PHE
1	A	453	VAL
1	A	470	LYS
1	A	474	ASP
1	A	475	ASP
1	A	492	LYS
1	A	495	LEU
1	A	533	ARG
1	A	558	THR
1	A	569	ILE
1	A	574	MET
1	A	586	LEU
1	A	698	ARG
1	A	700	ASN
1	A	707	PHE
1	A	753	GLN
1	A	754	ILE
1	A	804	LEU
1	A	811	VAL
1	A	822	TRP
1	A	855	ASP
1	A	857	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	860	PHE
1	A	954	ASP
1	A	994	MET
1	A	1122	LYS
1	A	1143	SER
1	A	1151	ASP
1	A	1153	VAL
1	A	1156	LYS
1	A	1165	HIS
1	A	1212	ASN
1	A	1214	ASP
1	A	1231	LYS
1	A	1233	SER
1	A	1261	VAL
1	A	1266	MET
1	A	1318	ASN
1	A	1325	ASN
1	A	1328	SER
1	A	1336	SER
1	A	1342	SER
1	A	1433	GLU
1	A	1466	ASP
1	A	1492	ASP
1	A	1528	MET
1	A	1578	THR
1	A	1623	THR
1	A	1631	LEU
1	A	1647	ASP
1	A	1678	GLU
1	A	1686	SER
1	A	1806	ARG
1	A	1866	ASP
1	A	1931	SER
1	A	1988	GLU
1	A	2002	SER
1	A	2051	LYS
1	A	2119	VAL
1	A	2146	LYS
1	A	2153	ASP
1	A	2189	HIS
1	A	2191	ARG
1	A	2265	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2302	VAL
1	A	2367	ASN
1	A	2412	HIS
1	A	2524	SER
1	A	2525	ARG
1	A	2552	THR
1	A	2554	ASP
1	A	2570	ASN
1	A	2614	LEU
1	A	2617	LEU
1	A	2619	ASP
1	A	2629	SER
1	A	2642	MET
1	A	2675	GLU
1	A	2708	SER
1	A	2709	ARG
1	A	2757	ASP
1	A	2777	LYS
1	A	2781	LEU
1	A	2786	HIS
1	A	2796	SER
1	A	2798	SER
1	A	2819	ASP
1	A	2826	ASP
1	A	2853	TYR
1	A	2912	THR
1	A	2915	THR
1	A	2947	THR
1	A	2952	THR
1	A	2956	ASP
1	A	2963	VAL
1	A	2967	MET
1	A	2984	GLU
1	A	3019	ASP
1	A	3020	TYR
1	A	3024	ASP
1	A	3046	TYR
1	A	3062	MET
1	A	3107	ARG
1	A	3108	SER
1	A	3111	SER
1	A	3205	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	3207	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	271	GLN
1	A	1350	GLN
1	A	1358	HIS
1	A	1901	GLN
1	A	2106	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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.

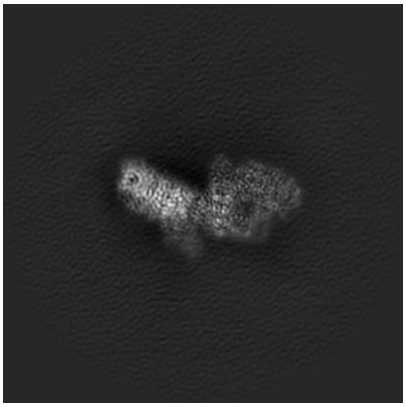
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-19988. These allow visual inspection of the internal detail of the map and identification of artifacts.

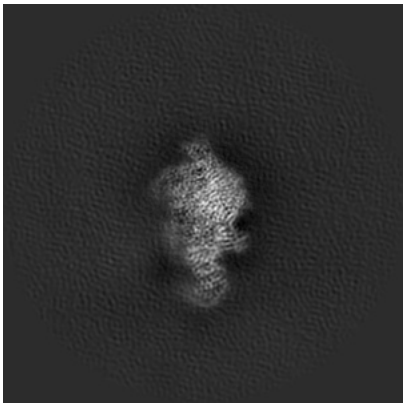
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

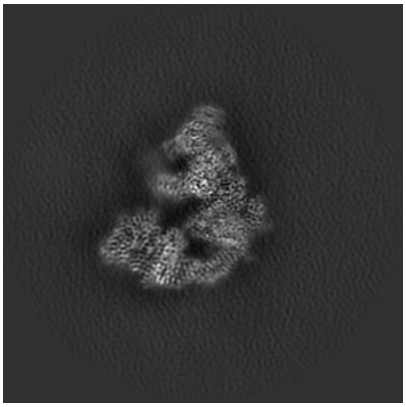
6.1.1 Primary map



X



Y

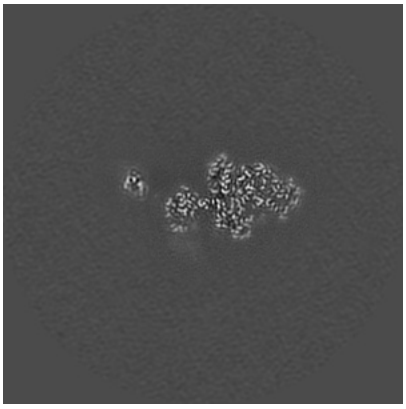


Z

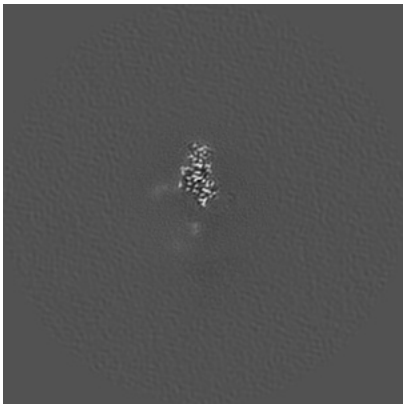
The images above show the map projected in three orthogonal directions.

6.2 Central slices

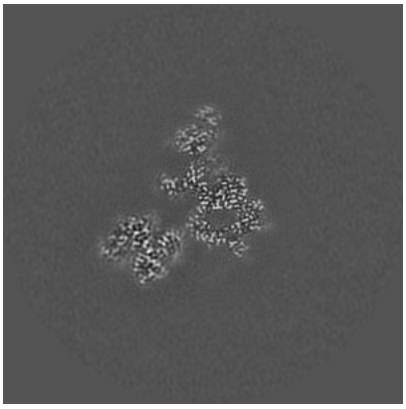
6.2.1 Primary map



X Index: 200



Y Index: 200

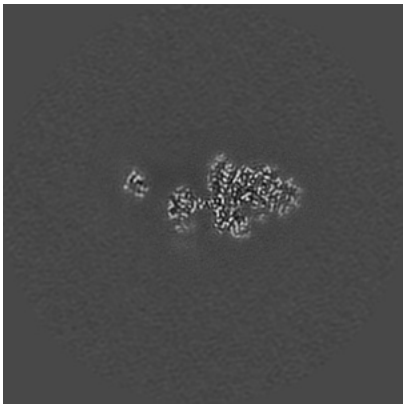


Z Index: 200

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

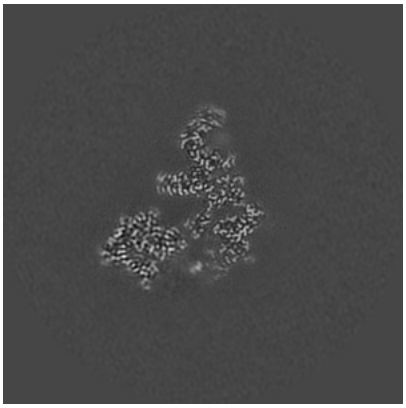
6.3 Largest variance slices (i)

6.3.1 Primary map



X Index: 198

Y Index: 161

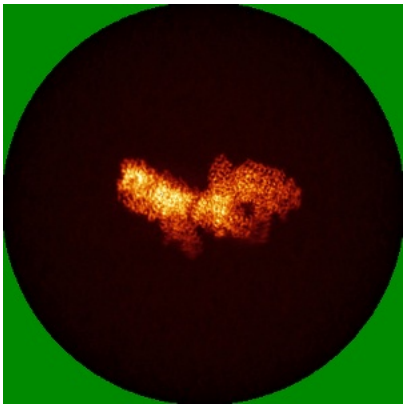


Z Index: 207

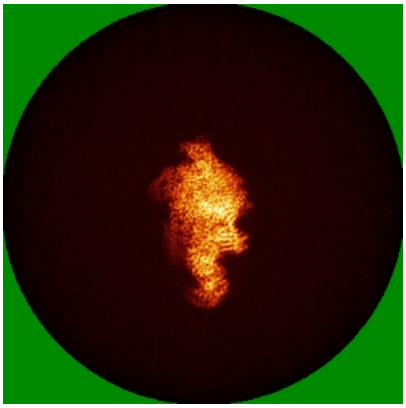
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

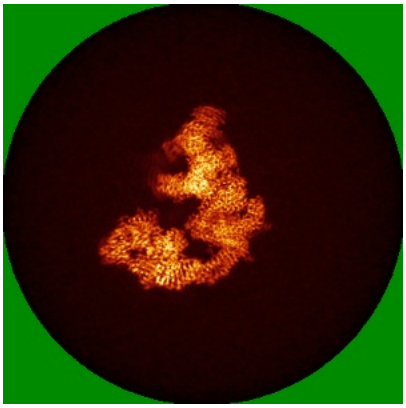
6.4.1 Primary map



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

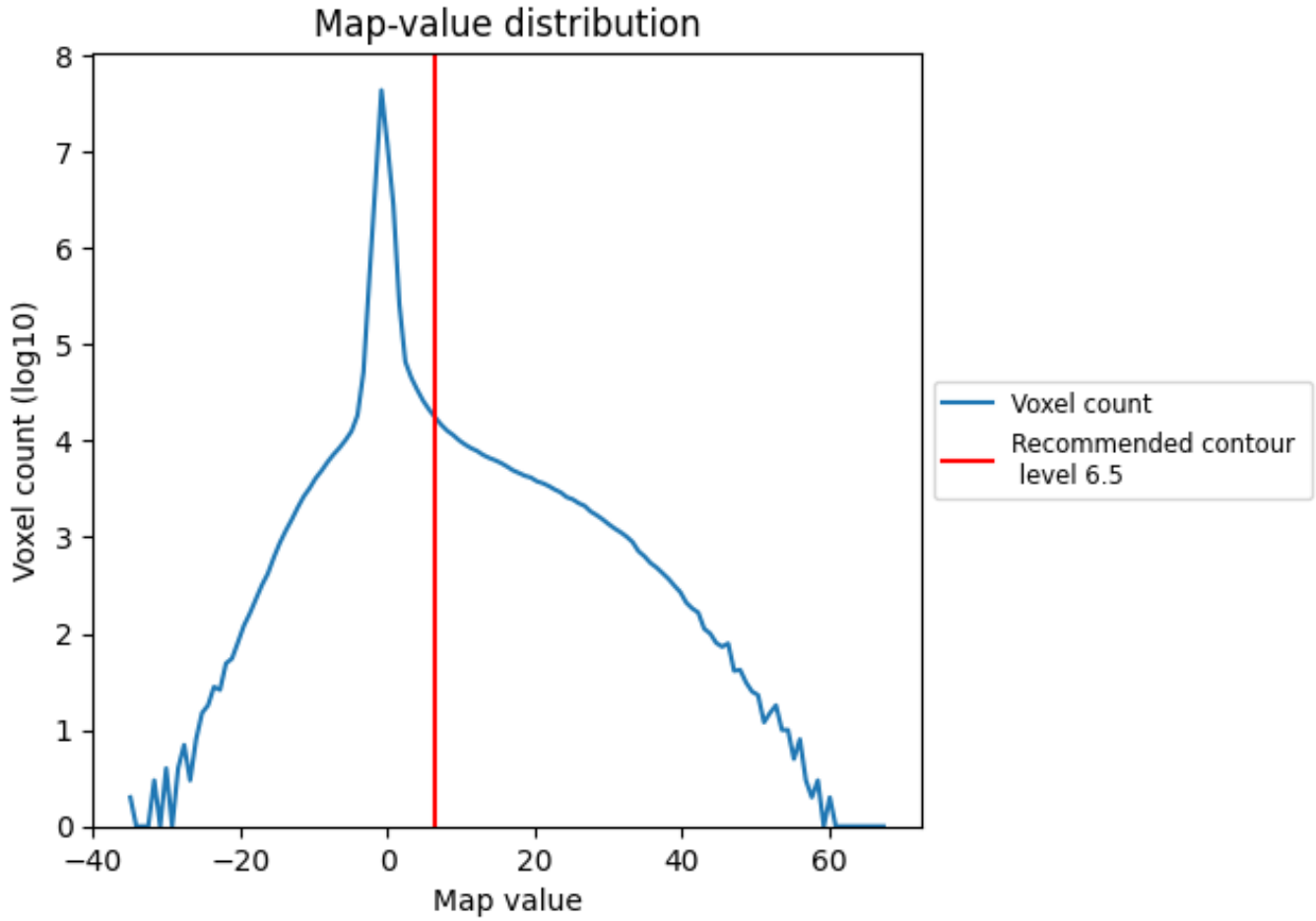
6.6 Mask visualisation (i)

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

7 Map analysis

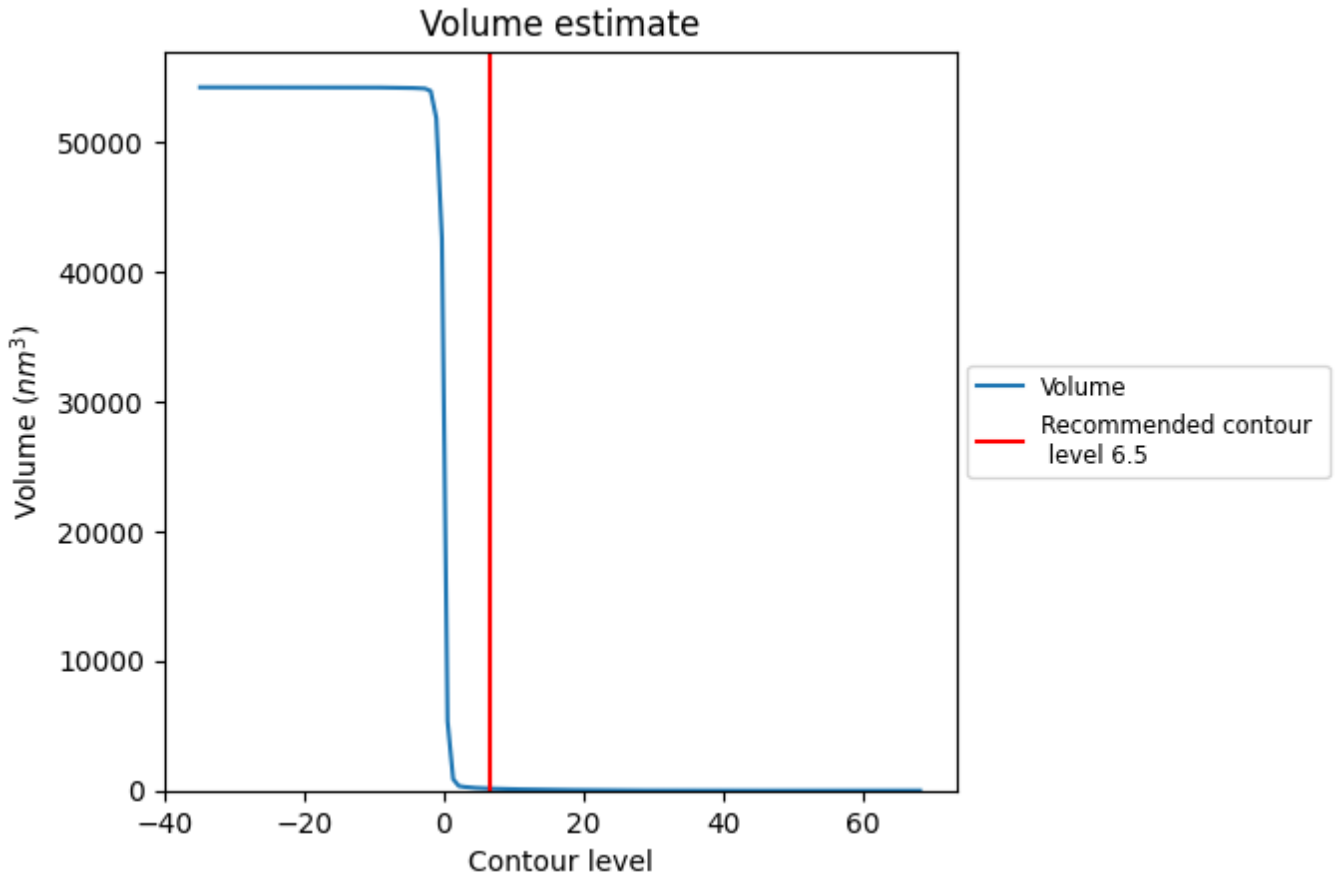
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

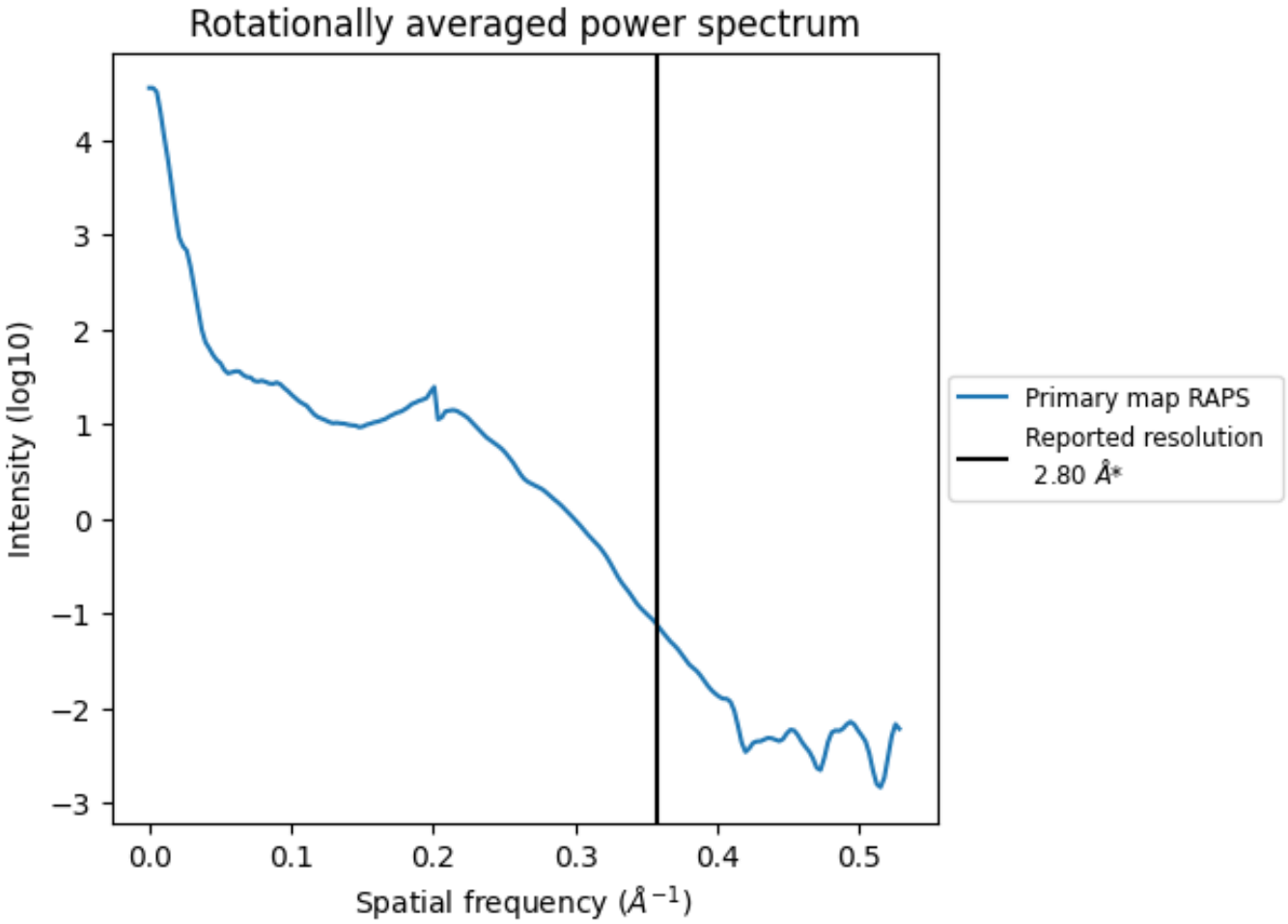
7.2 Volume estimate



The volume at the recommended contour level is 156 nm^3; this corresponds to an approximate mass of 141 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 0.357 Å^{-1}

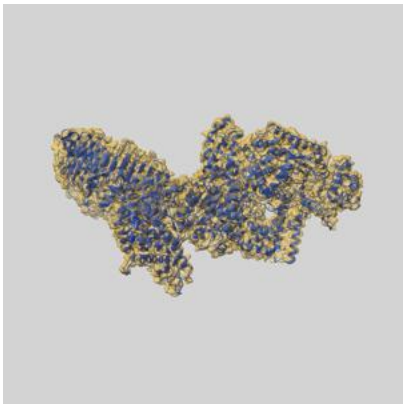
8 Fourier-Shell correlation (i)

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

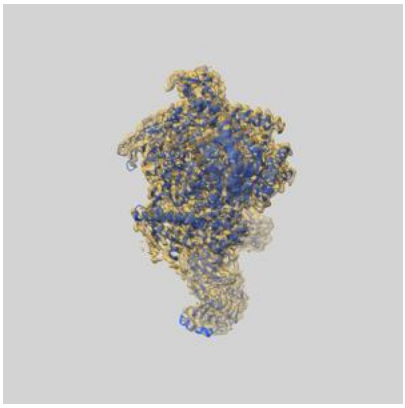
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-19988 and PDB model 9EUW. Per-residue inclusion information can be found in section 3 on page 4.

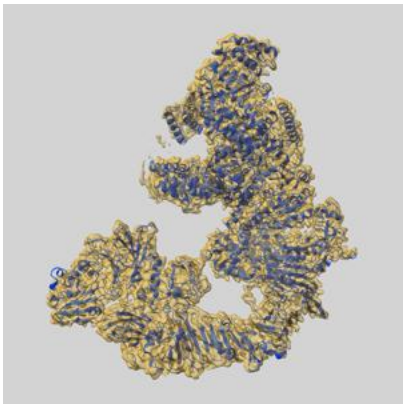
9.1 Map-model overlay



X



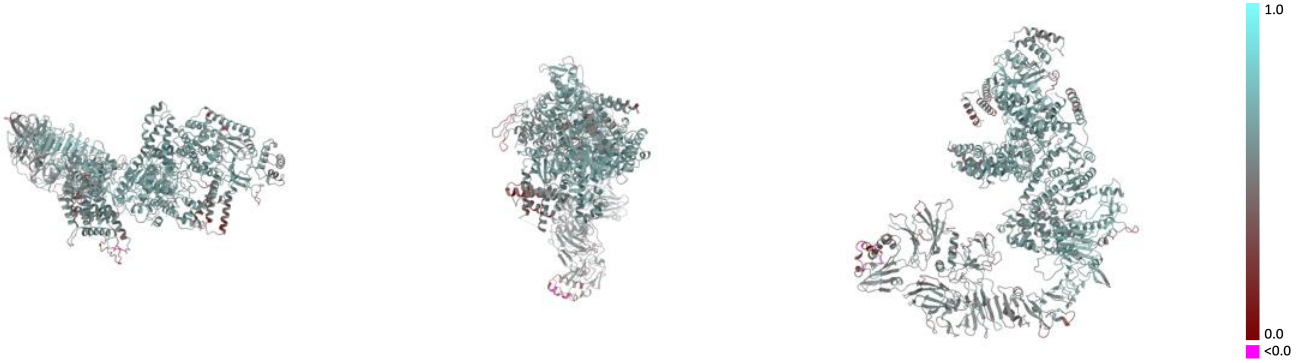
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 6.5 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.

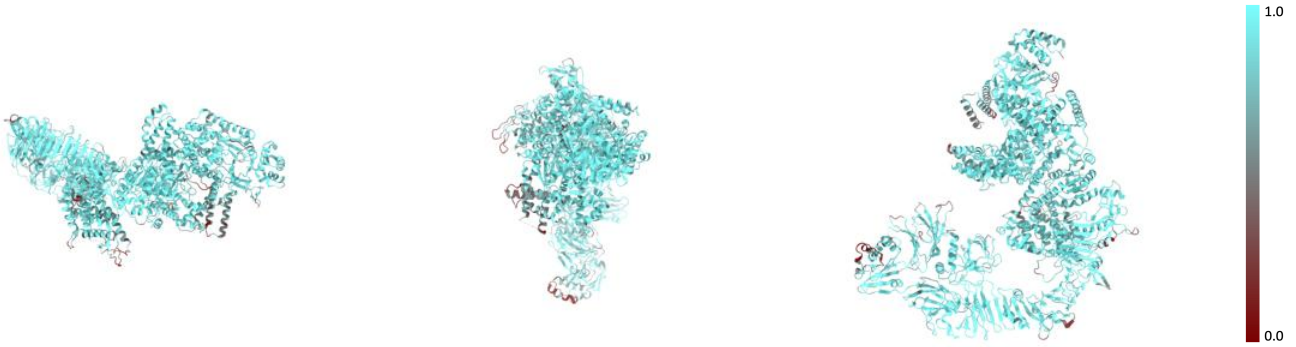
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

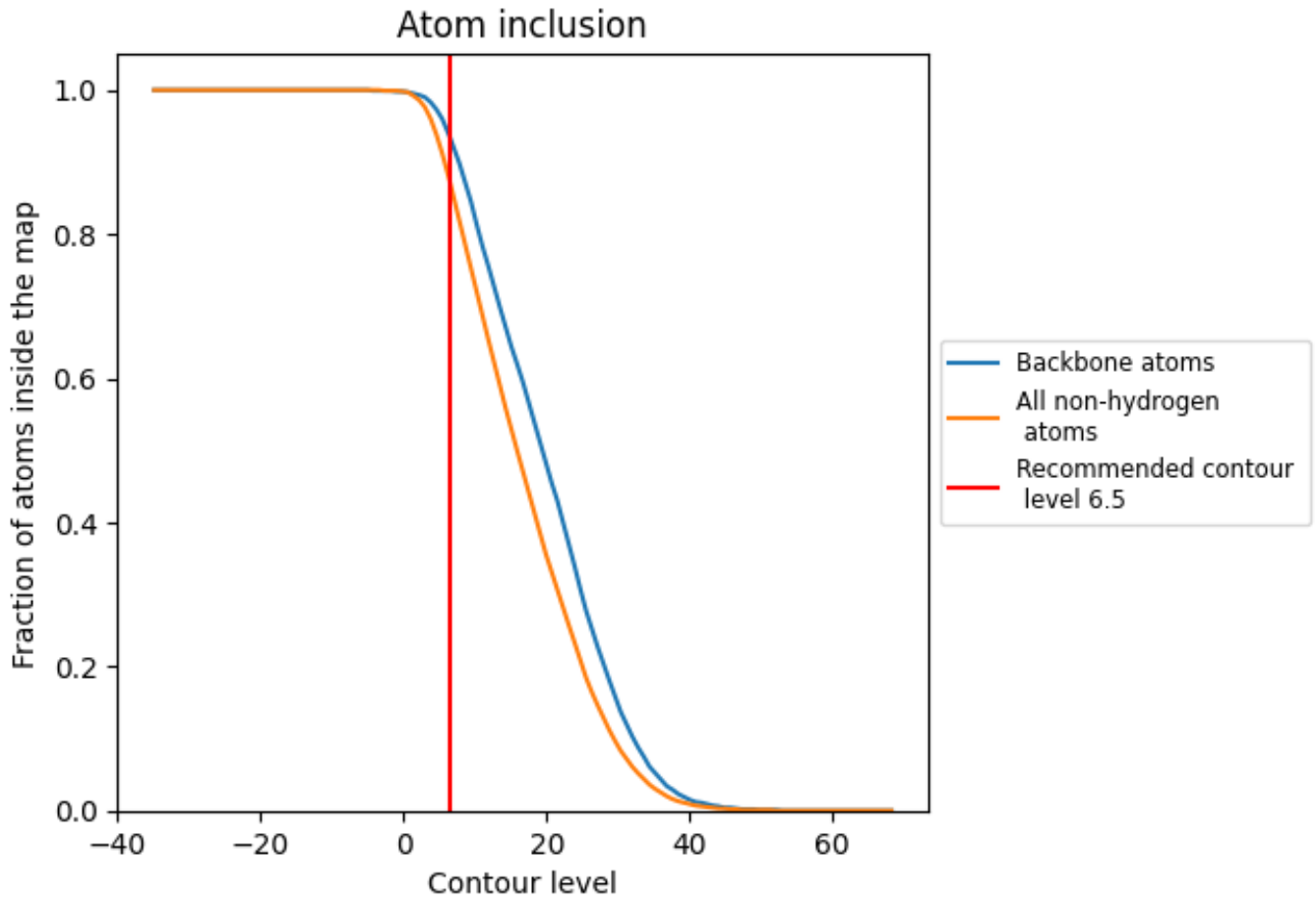
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (6.5).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 87% 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 (6.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8720	0.5430
A	0.8720	0.5430