Full wwPDB EM Validation Report ⓘ

Jun 28, 2025 – 11:30 pm BST

PDB ID	:	8BJA / pdb_00008bja
EMDB ID	:	EMD-16087
Title	:	Structure of the human UBR5 Dimer.
Authors	:	Hodakova, Z.; Grishkovskaya, I.; Haselbach, D.
Deposited on	:	2022-11-03
Resolution	:	3.00 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:

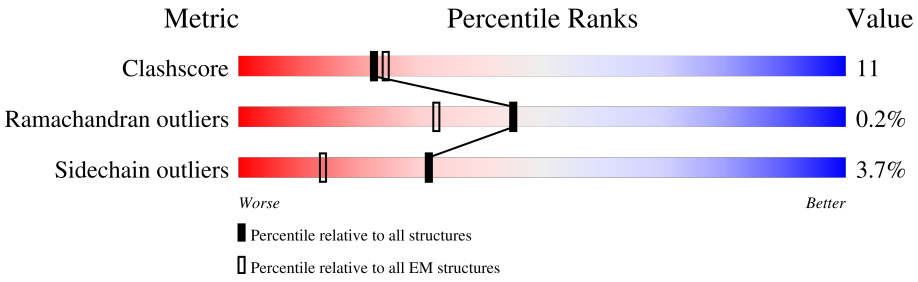
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 3.00 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	2830	9% 42% 13% · 45%
1	B	2830	11% 44% 13% · 42%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 25204 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 E3 ubiquitin-protein ligase UBR5.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	1638	Total	C	N	O	S	0	0
			12897	8178	2239	2384	96		
1	A	1563	Total	C	N	O	S	0	0
			12301	7806	2140	2265	90		

There are 64 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	2799	VAL	-	expression tag	UNP O95071
B	2800	GLY	-	expression tag	UNP O95071
B	2801	SER	-	expression tag	UNP O95071
B	2802	ALA	-	expression tag	UNP O95071
B	2803	TRP	-	expression tag	UNP O95071
B	2804	SER	-	expression tag	UNP O95071
B	2805	HIS	-	expression tag	UNP O95071
B	2806	PRO	-	expression tag	UNP O95071
B	2807	GLN	-	expression tag	UNP O95071
B	2808	PHE	-	expression tag	UNP O95071
B	2809	GLU	-	expression tag	UNP O95071
B	2810	LYS	-	expression tag	UNP O95071
B	2811	GLY	-	expression tag	UNP O95071
B	2812	GLY	-	expression tag	UNP O95071
B	2813	GLY	-	expression tag	UNP O95071
B	2814	SER	-	expression tag	UNP O95071
B	2815	GLY	-	expression tag	UNP O95071
B	2816	GLY	-	expression tag	UNP O95071
B	2817	GLY	-	expression tag	UNP O95071
B	2818	SER	-	expression tag	UNP O95071
B	2819	GLY	-	expression tag	UNP O95071
B	2820	GLY	-	expression tag	UNP O95071
B	2821	SER	-	expression tag	UNP O95071
B	2822	ALA	-	expression tag	UNP O95071
B	2823	TRP	-	expression tag	UNP O95071
B	2824	SER	-	expression tag	UNP O95071

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Chain	Residue	Modelled	Actual	Comment	Reference
B	2825	HIS	-	expression tag	UNP O95071
B	2826	PRO	-	expression tag	UNP O95071
B	2827	GLN	-	expression tag	UNP O95071
B	2828	PHE	-	expression tag	UNP O95071
B	2829	GLU	-	expression tag	UNP O95071
B	2830	LYS	-	expression tag	UNP O95071
A	2799	VAL	-	expression tag	UNP O95071
A	2800	GLY	-	expression tag	UNP O95071
A	2801	SER	-	expression tag	UNP O95071
A	2802	ALA	-	expression tag	UNP O95071
A	2803	TRP	-	expression tag	UNP O95071
A	2804	SER	-	expression tag	UNP O95071
A	2805	HIS	-	expression tag	UNP O95071
A	2806	PRO	-	expression tag	UNP O95071
A	2807	GLN	-	expression tag	UNP O95071
A	2808	PHE	-	expression tag	UNP O95071
A	2809	GLU	-	expression tag	UNP O95071
A	2810	LYS	-	expression tag	UNP O95071
A	2811	GLY	-	expression tag	UNP O95071
A	2812	GLY	-	expression tag	UNP O95071
A	2813	GLY	-	expression tag	UNP O95071
A	2814	SER	-	expression tag	UNP O95071
A	2815	GLY	-	expression tag	UNP O95071
A	2816	GLY	-	expression tag	UNP O95071
A	2817	GLY	-	expression tag	UNP O95071
A	2818	SER	-	expression tag	UNP O95071
A	2819	GLY	-	expression tag	UNP O95071
A	2820	GLY	-	expression tag	UNP O95071
A	2821	SER	-	expression tag	UNP O95071
A	2822	ALA	-	expression tag	UNP O95071
A	2823	TRP	-	expression tag	UNP O95071
A	2824	SER	-	expression tag	UNP O95071
A	2825	HIS	-	expression tag	UNP O95071
A	2826	PRO	-	expression tag	UNP O95071
A	2827	GLN	-	expression tag	UNP O95071
A	2828	PHE	-	expression tag	UNP O95071
A	2829	GLU	-	expression tag	UNP O95071
A	2830	LYS	-	expression tag	UNP O95071

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

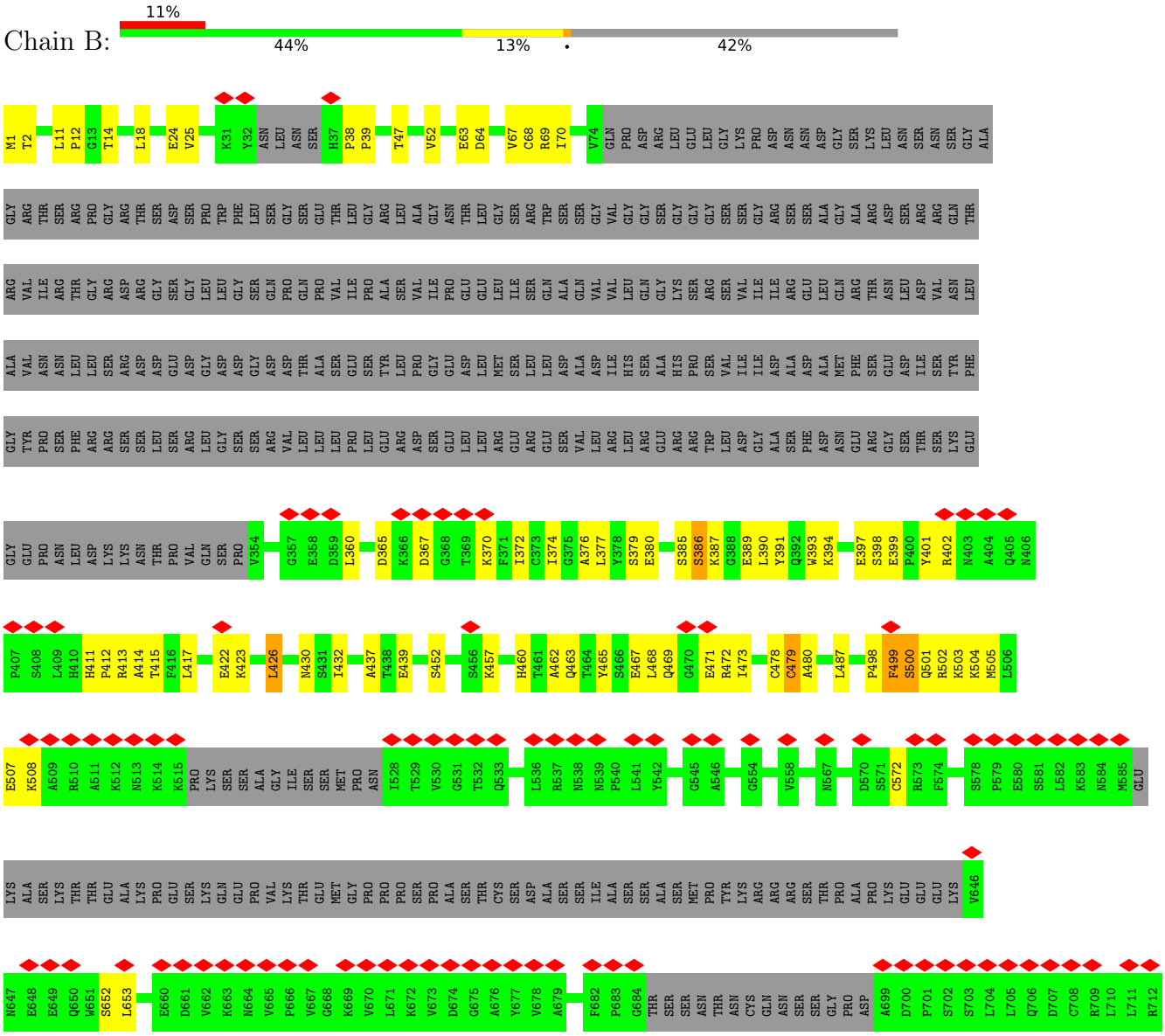
Mol	Chain	Residues	Atoms	AltConf
2	B	3	Total Zn 3 3	0
2	A	3	Total Zn 3 3	0

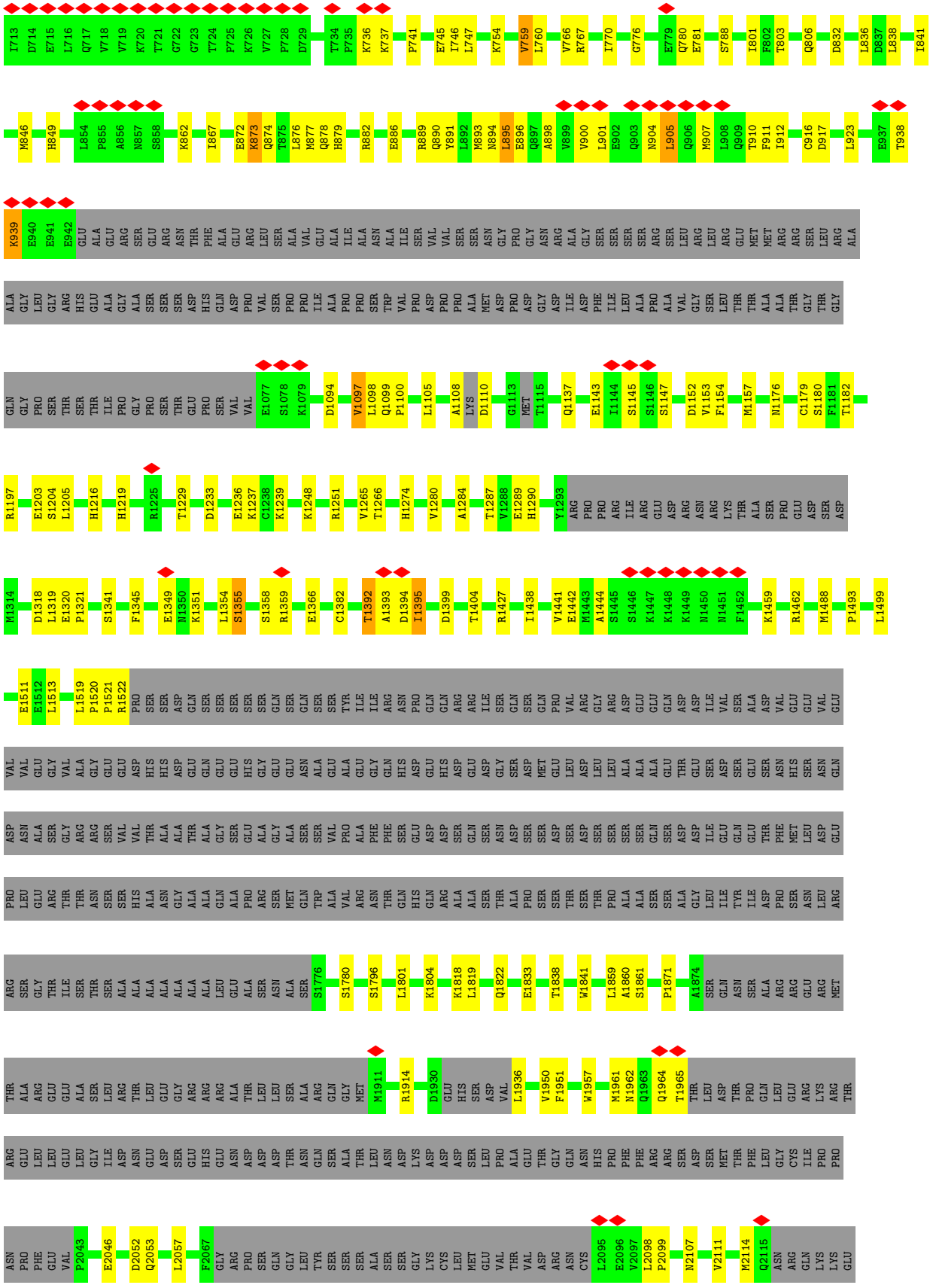
3 Residue-property plots (i)

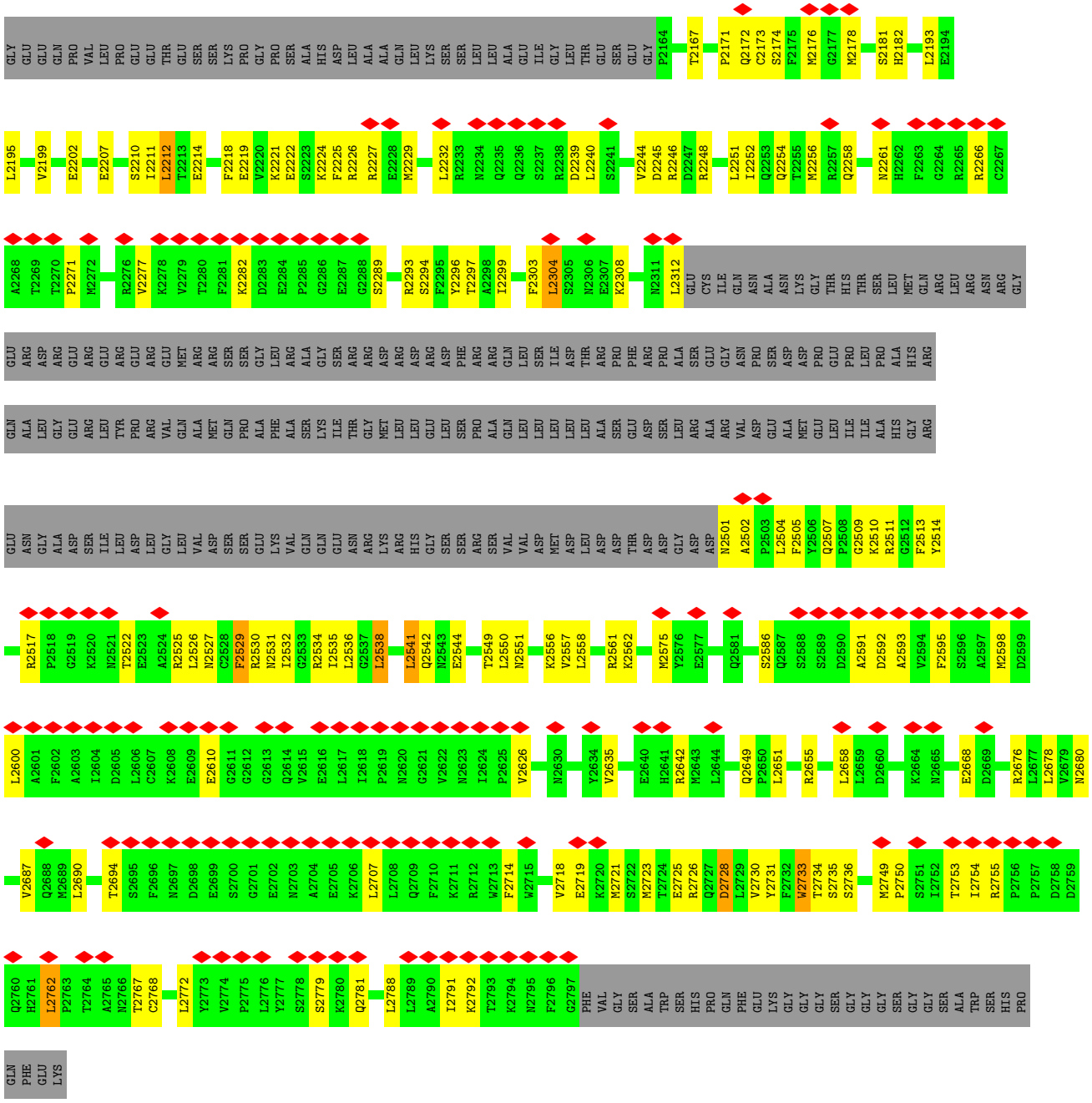
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: E3 ubiquitin-protein ligase UBR5

Chain B:

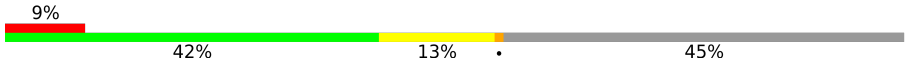


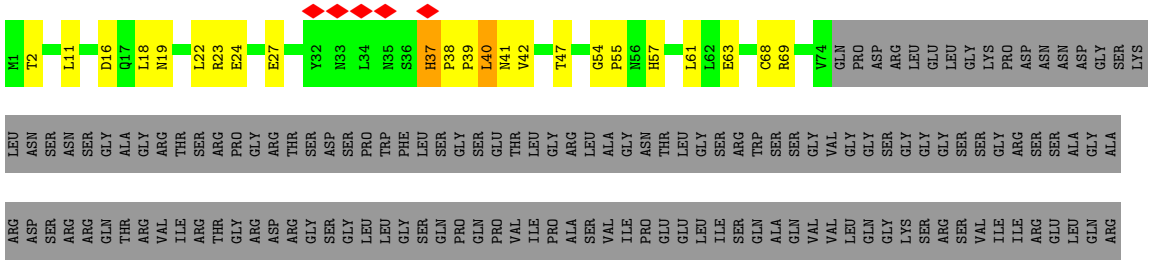

I713 D714 E715 L716 Q717 V718 V719 K720 T721 G722 G723 T724 P725 K726 V727 P728 D729 T734 P735 K736 K737 P741 E745 I746 L747 K754 V759 L760 V766 R767 I770 G776 E779 Q780 E781 S788 I801 F802 T803 Q806 D832 L836 D837 L838 I841
M846 H849 L854 P855 A856 N857 S868 K862 I867 E872 K873 Q874 T875 L876 M877 Q878 H879 R882 E886 R889 Q890 Y891 L892 M893 N894 L895 E896 Q897 A898 V899 V900 L901 E902 Q903 N904 L905 Q906 M907 L908 Q909 T910 F911 I912 C916 D917 L923 E937 T938
K939 E940 E941 E942 GLU ALA GLU ARG SER GLU ARG ASN THR PHE ALA GLU ARG LEU SER ALA VAL GLU ALA ILE ALA ASN ALA ILE SER VAL VAL SER SER ASN GLY PRO GLY ASN ARG ALA GLY SER SER SER ARG SER LEU ARG LEU ARG GLU MET MET ARG ARG SER LEU ARG ALA
ALA GLY LEU GLY ARG HIS GLU ALA GLY ALA SER SER ASP HIS GLN ASP PRO VAL SER PRO PRO ILE ALA PRO PRO SER TRP VAL PRO ASP PRO PRO ALA MET ASP PRO ASP GLY ASP ILE ASP PHE ILE LEU ALA PRO ALA VAL GLY SER LEU THR THR ALA ALA THR GLY THR GLY
GLN GLY PRO SER THR SER THR ILE PRO GLY PRO SER THR GLU PRO SER VAL VAL E1077 S1078 K1079 D1094 V1097 L1098 Q1099 P1100 L1105 A1108 LYS D1110 G1113 MET T1115 Q1137 E1143 I1144 S1145 S1146 S1147 D1152 V1153 F1154 M1157 N1176 C1179 S1180 F1181 T1182
R1197 E1203 S1204 L1205 H1216 H1219 R1225 T1229 D1233 E1236 K1237 C1238 K1239 K1248 R1251 V1265 T1266 H1274 V1280 A1284 T1287 V1288 E1289 H1290 Y1293 ARG PRO PRO ARG ILE ARG GLU ASP ARG ASN ARG LYS THR ALA SER PRO GLU ASP SER ASP
M1314 D1318 L1319 E1320 P1321 S1341 F1345 E1349 N1350 K1351 L1354 S1355 S1358 R1359 E1366 C1382 T1392 A1393 D1394 T1395 D1399 T1404 R1427 I1438 V1441 E1442 M1443 A1444 S1445 S1446 K1447 K1448 K1449 N1450 N1451 F1452 K1459 R1462 M1488 P1493 L1499
E1511 E1512 L1513 L1519 P1520 P1521 R1522 PRO SER SER ASP GLN SER SER SER SER SER GLN SER GLN SER SER TYR ILE ILE ARG ASN PRO GLN GLN ARG ARG ILE SER GLN SER GLN PRO VAL ARG GLY ARG ASP GLU GLU GLN ASP ASP ILE VAL SER ALA ASP VAL GLU GLU VAL GLU
VAL VAL GLU GLY VAL ALA GLY GLU GLU ASP HIS HIS ASP GLU GLN GLU GLU HIS GLY GLU GLU ASN ALA GLU ALA GLU GLY GLN HIS ASP GLU HIS ASP GLU ASP GLY SER ASP MET GLU LEU ASP LEU LEU ALA ALA ALA GLU THR GLU SER ASP SER ASN HIS SER ASN GLN
ASP ASN ALA SER GLY ARG ARG SER VAL VAL THR ALA ALA THR ALA GLY SER GLU ALA GLY ALA THR ALA GLY SER ASN ASP SER SER SER ASP SER SER ASP SER SER SER GLN SER ASP ASP ILE GLU GLN GLU THR PHE MET LEU ASP GLU
PRO LEU GLU ARG THR THR ALA ALA ASN GLY ALA ALA ALA GLN ALA PRO ARG SER MET GLN TRP ALA VAL ARG ASN THR GLN HIS GLN ARG ALA ALA SER THR SER THR PRO ALA ALA SER SER ALA GLY LEU ILE TYR ILE ASP PRO SER ASN LEU ARG
ARG SER GLY THR ILE SER THR SER ALA ALA ALA ALA ALA LEU GLU GLU ALA SER ASN ALA SER S1776 S1780 S1796 L1801 K1804 K1818 L1819 Q1822 E1833 T1838 W1841 L1859 A1860 S1861 P1871 A1874 SER GLN ASN SER ALA ARG ARG GLU ARG MET
THR ALA ARG GLU GLU ALA SER LEU ARG THR LEU GLU GLU GLY ARG ARG ARG ALA THR LEU LEU SER ALA ARG GLN GLY MET M1911 R1914 D1930 GLU HIS SER ASP VAL L1936 V1950 F1951 W1957 M1961 N1962 Q1963 Q1964 T1965 THR LEU ASP THR PRO GLN LEU GLU ARG LYS ARG THR
ARG GLU LEU LEU GLU GLU ASP SER GLU ASP HIS GLU ASN ASP ASP ASP THR ASN GLN SER ALA THR LEU ASN ASP LYS ASP ASP SER LEU PRO ALA GLU THR GLY GLN ASN HIS PRO PHE PHE ARG ARG SER ASP SER MET THR PHE LEU GLY CYS ILE PRO PRO
ASN PRO PHE GLU VAL P2043 E2046 D2052 Q2053 L2057 F2067 GLY ARG ALA PRO SER GLN GLY LEU TYR SER SER SER ALA SER SER GLY LYS CYS LEU MET GLU VAL THR VAL ASP ARG GLN CYS L2095 E2096 V2097 L2098 P2099 N2107 V2111 M2114 Q2115 ASN ARG GLN LYS LYS GLU

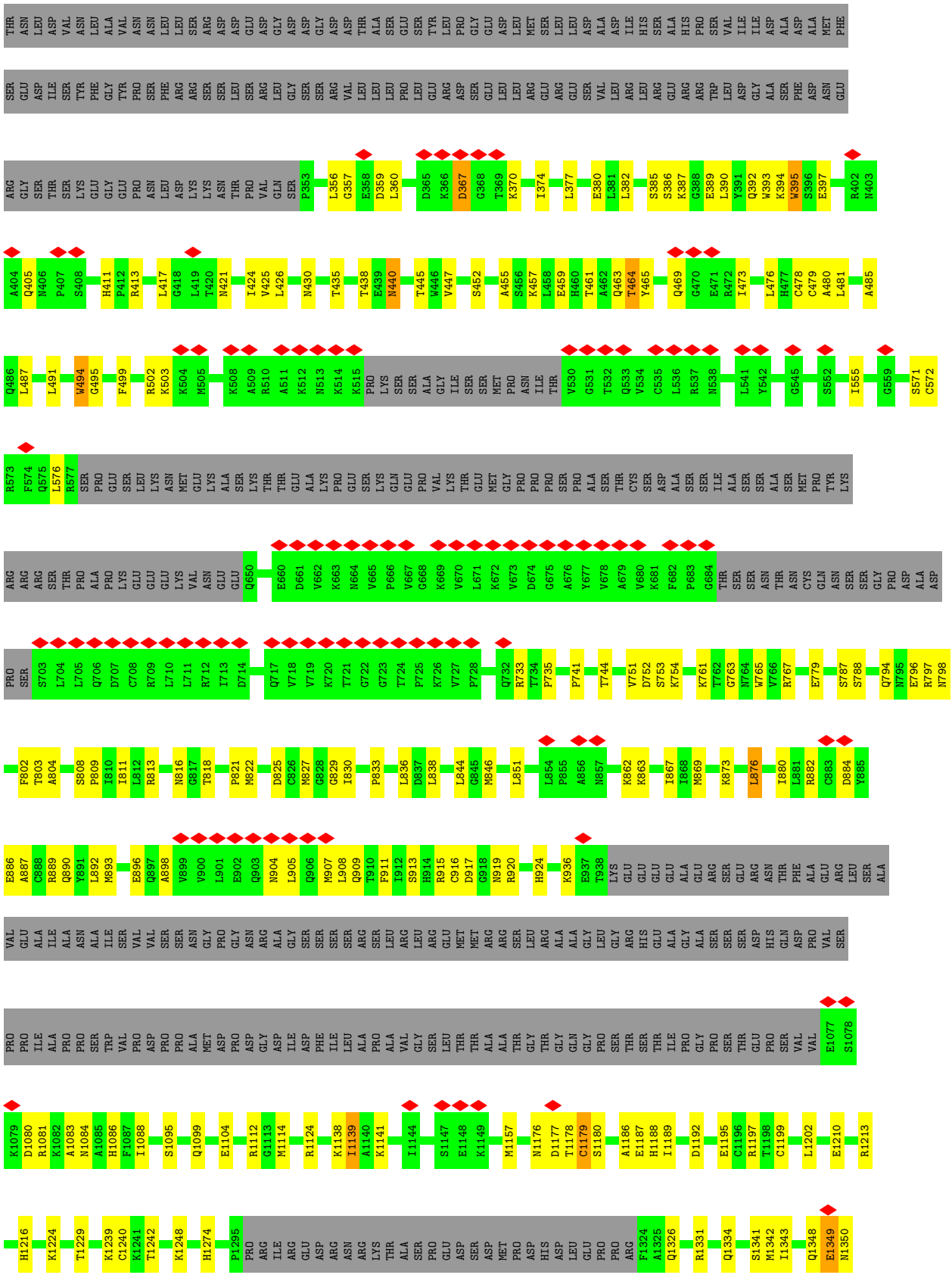


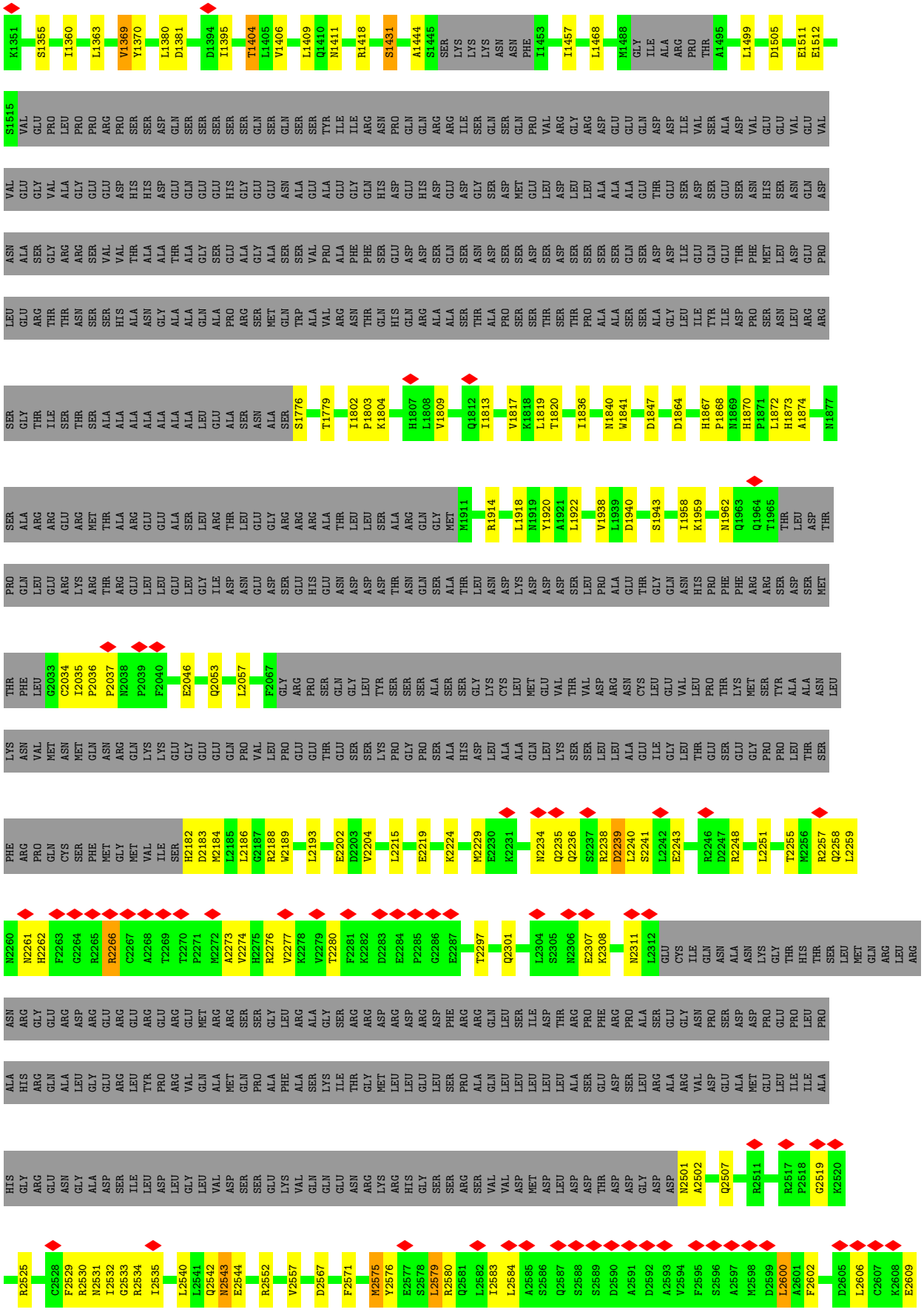
• Molecule 1: E3 ubiquitin-protein ligase UBR5

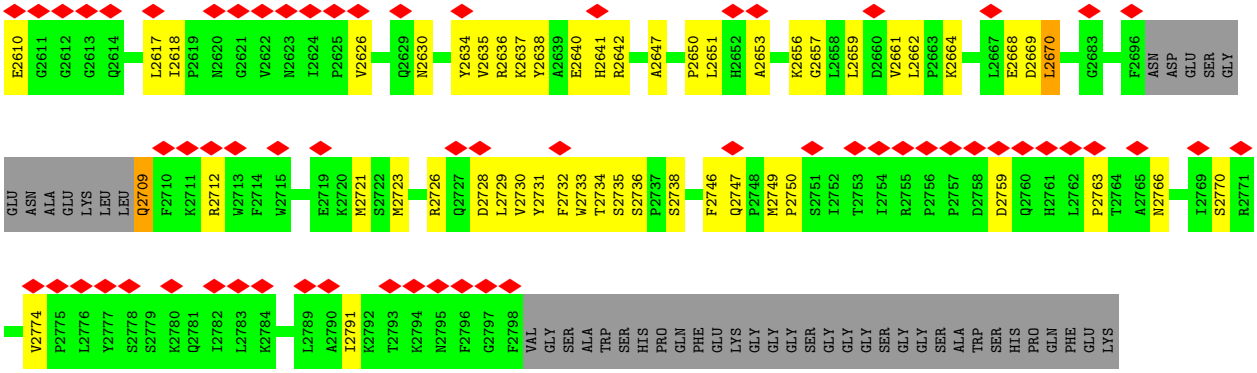
Chain A:






THR ASN LEU ASP VAL ASN LEU ALA VAL ASN ASN LEU LEU SER ARG ASP ASP GLU ASP GLY ASP ASP GLY ASP ASP THR ALA SER GLU SER TYR LEU PRO GLY GLU ASP LEU MET SER LEU LEU ASP ALA ASP ILE HIS SER ALA HIS PRO SER VAL ILE ILE ASP ALA ASP MET PHE
SER GLU ASP ILE SER TYR PHE GLY TYR PRO SER PHE ARG ARG SER SER LEU SER ARG LEU GLY SER SER ARG VAL LEU LEU LEU PRO LEU GLU ARG ASP SER GLU LEU LEU ARG GLU ARG GLU SER VAL LEU ARG LEU ARG GLU ARG ARG TRP LEU ASP GLY ALA SER PHE ASP ASN GLU
ARG GLY SER THR SER LYS GLU GLY GLU PRO ASN LEU ASP LYS LYS ASN THR PRO VAL GLN SER P353 L356 G357 E358 D359 L360 D365 K366 D367 G368 T369 K370 I374 L377 E380 L381 L382 S385 S386 K387 G388 E389 L390 Y391 Q392 W393 K394 W395 S396 E397 R402 N403
A404 Q405 N406 P407 S408 H411 P412 R413 L417 G418 L419 T420 N421 I424 V425 L426 N430 T435 T438 E439 N440 T445 W446 V447 S452 A455 S456 K457 L458 E459 H460 T461 A462 Q463 T464 Y465 Q469 G470 E471 R472 I473 L476 H477 C478 C479 A480 L481 A485
Q486 L487 L491 W494 G495 F499 R502 K503 K504 M505 K508 A509 R510 A511 K512 N513 K514 K515 PRO LYS SER SER ALA GLY ILE SER SER MET PRO ASN ILE THR V530 G531 T532 Q533 V534 C535 L536 R537 N538 L541 Y542 G545 S552 I555 G559 S571 C572
R573 F574 Q575 L576 R577 SER PRO GLU SER LEU LYS ASN MET GLU LYS ALA SER LYS THR THR GLU ALA LYS PRO GLU SER LYS GLN GLU PRO VAL LYS THR GLU MET GLY PRO PRO PRO SER PRO ALA SER THR CYS SER ASP ALA SER SER ILE ALA SER SER ASN SER MET PRO TYR LYS
ARG ARG ARG SER THR PRO ALA PRO LYS GLU GLU GLU LYS VAL ASN GLU GLU Q650 E660 D661 V662 K663 N664 V665 P666 V667 G668 K669 V670 L671 K672 V673 D674 G675 A676 Y677 V678 A679 V680 K681 F682 P683 G684 THR SER SER ASN THR ASN CYS GLN ASN SER SER GLY PRO ASP ALA ASP
PRO SER S703 L704 L705 Q706 D707 C708 R709 L710 L711 R712 I713 D714 Q717 V718 V719 K720 T721 G722 G723 T724 P725 K726 V727 P728 Q732 R733 T734 P735 P741 T744 V751 D752 S753 K754 K761 T762 G763 N764 W765 V766 R767 E779 S787 S788 Q794 N795 E796 R797 N798
F802 T803 A804 S808 P809 I810 I811 L812 R813 N816 G817 T818 P821 M822 D825 C826 M827 G828 G829 I830 P833 L836 D837 L838 L844 G845 M846 L851 L854 P855 A856 N857 K862 K863 I867 I868 M869 K873 L876 I880 L881 R882 C883 D884 Y885
E886 A887 C888 R889 Q890 Y891 L892 M893 E896 Q897 A898 V899 V900 L901 E902 Q903 N904 L905 Q906 M907 L908 Q909 T910 F911 I912 S913 H914 R915 C916 D917 G918 N919 R920 H924 K936 E937 T938 LYS GLU GLU GLU ALA GLU ARG SER GLU ARG ASN THR PHE ALA GLU ARG LEU SER ALA
VAL GLU ALA ILE ALA ASN ALA ILE SER VAL SER SER ASN GLY PRO GLY ASN ARG ALA ALA GLY SER SER SER SER ARG SER LEU ARG LEU ARG GLU MET MET ARG ARG SER LEU ARG ALA ALA ALA GLY LEU GLY ARG HIS GLU ALA GLY ALA SER SER ASP HIS GLN ASP PRO VAL SER
PRO PRO ILE ALA PRO PRO SER TRP VAL PRO ASP PRO PRO ALA MET ASP PRO ASP GLY ASP ILE ASP PHE ILE LEU ALA PRO ALA VAL GLY SER LEU THR THR ALA ALA THR GLY THR GLY GLN GLY PRO SER THR SER THR ILE PRO GLY PRO SER THR GLU PRO SER VAL VAL E1077 S1078
K1079 D1080 R1081 K1082 A1083 N1084 A1085 H1086 F1087 I1088 S1095 Q1099 E1104 R1112 G1113 M1114 R1124 K1138 I1139 A1140 K1141 I1144 S1147 E1148 K1149 M1157 N1176 D1177 T1178 C1179 S1180 A1186 E1187 H1188 I1189 D1192 E1195 C1196 R1197 T1198 C1199 L1202 E1210 R1213
H1216 K1224 T1229 K1239 C1240 K1241 T1242 K1248 H1274 P1295 PRO ARG ILE ARG GLU ASP ARG ASN ARG LYS THR ALA SER PRO GLU ASP SER ASP MET PRO ASP HIS ASP LEU GLU PRO PRO ARG F1324 A1325 Q1326 R1331 Q1334 S1341 M1342 I1343 Q1348 E1349 N1350




E2610 G2611 G2612 G2613 Q2614
L2617 I2618 P2619 N2620 G2621 V2622 N2623 I2624 P2625 V2626
Q2629 N2630
Y2634 V2635 R2636 K2637 Y2638 A2639 E2640 H2641 R2642
A2647
P2650 L2651 H2652 A2653
K2656 G2657 L2658 L2659 D2660 V2661 L2662 P2663 K2664
L2667 E2668 D2669 L2670
G2683
F2696 ASN ASP GLU SER GLY
GLU ASN ALA GLU LYS LEU LEU Q2709 F2710 K2711 R2712 W2713 F2714 W2715
E2719 K2720 M2721 S2722 M2723
R2726 Q2727 D2728 L2729 V2730 Y2731 F2732 W2733 T2734 S2735 S2736 P2737 S2738
F2746 Q2747 P2748 M2749 P2750 S2751 I2752 T2753 I2754 R2755 P2756 P2757 D2758 D2759 Q2760 H2761 L2762 P2763 T2764 A2765 N2766
I2769 S2770 R2771
V2774 P2775 L2776 Y2777 S2778 S2779 K2780 Q2781 I2782 L2783 K2784
L2789 A2790 I2791 K2792 T2793 K2794 N2795 F2796 G2797 F2798
VAL GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER GLY GLY GLY SER GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	288287	Depositor
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.330	Depositor
Minimum map value	-0.018	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.0632	Depositor
Map size (Å)	446.69998, 446.69998, 446.69998	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.489, 1.489, 1.489	Depositor

5 Model quality

5.1 Standard geometry

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	A	0.18	0/12550	0.42	1/17001 (0.0%)
1	B	0.19	0/13155	0.43	1/17813 (0.0%)
All	All	0.18	0/25705	0.42	2/34814 (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	A	0	1
1	B	0	2
All	All	0	3

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1369	VAL	N-CA-C	-5.49	104.01	110.21
1	B	2212	LEU	N-CA-C	-5.26	108.13	114.75

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	2266	ARG	Sidechain
1	B	2246	ARG	Sidechain
1	B	2248	ARG	Sidechain

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	12301	0	12343	269	0
1	B	12897	0	12962	263	0
2	A	3	0	0	0	0
2	B	3	0	0	0	0
All	All	25204	0	25305	525	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 11.

All (525) 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:2656:LYS:HA	1:A:2659:LEU:HB2	1.54	0.89
1:A:2709:GLN:N	1:A:2709:GLN:HE21	1.71	0.88
1:B:1216:HIS:HD2	1:B:1219:HIS:ND1	1.72	0.85
1:B:2749:MET:HE3	1:B:2750:PRO:HD2	1.60	0.83
1:B:1961:MET:HG3	1:B:2171:PRO:HB3	1.60	0.83
1:A:387:LYS:HE2	1:A:387:LYS:H	1.45	0.81
1:A:2542:GLN:O	1:A:2543:ASN:ND2	2.17	0.78
1:A:2749:MET:HG3	1:A:2750:PRO:HD2	1.66	0.77
1:A:1870:HIS:HD2	1:A:1872:LEU:H	1.32	0.77
1:A:752:ASP:OD1	1:A:753:SER:N	2.19	0.76
1:B:1488:MET:HB3	1:A:1841:TRP:HE1	1.52	0.74
1:A:2544:GLU:OE1	1:A:2544:GLU:N	2.21	0.73
1:A:424:ILE:HG22	1:A:438:THR:HG22	1.70	0.73
1:A:1187:GLU:OE1	1:A:1187:GLU:N	2.22	0.72
1:B:2507:GLN:HB3	1:B:2511:ARG:HH22	1.54	0.71
1:B:1248:LYS:HZ1	1:B:1251:ARG:HD3	1.55	0.70
1:B:471:GLU:HB2	1:B:487:LEU:HD13	1.73	0.70
1:A:1199:CYS:SG	1:A:1216:HIS:HE1	2.11	0.70
1:A:909:GLN:OE1	1:A:909:GLN:N	2.21	0.70
1:B:2053:GLN:N	1:B:2053:GLN:OE1	2.25	0.69
1:A:2723:MET:SD	1:A:2723:MET:N	2.60	0.69
1:A:2202:GLU:N	1:A:2202:GLU:OE1	2.24	0.69
1:A:2046:GLU:N	1:A:2046:GLU:OE2	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:479:CYS:SG	1:B:480:ALA:N	2.65	0.69
1:B:2256:MET:HG2	1:B:2312:LEU:HD22	1.74	0.69
1:B:1176:ASN:O	1:B:1251:ARG:NH2	2.27	0.68
1:B:2219:GLU:OE1	1:B:2219:GLU:N	2.26	0.67
1:A:796:GLU:OE2	1:A:796:GLU:N	2.27	0.67
1:A:2661:VAL:HG12	1:A:2662:LEU:HD22	1.75	0.67
1:A:1326:GLN:OE1	1:A:1326:GLN:N	2.18	0.67
1:A:2182:HIS:ND1	1:A:2184:MET:SD	2.64	0.67
1:B:1822:GLN:N	1:B:1822:GLN:OE1	2.27	0.67
1:B:2277:VAL:HG21	1:B:2538:LEU:HD11	1.77	0.66
1:A:2653:ALA:HA	1:A:2656:LYS:NZ	2.09	0.66
1:B:2202:GLU:N	1:B:2202:GLU:OE2	2.27	0.66
1:A:822:MET:HE1	1:A:830:ILE:HG12	1.77	0.66
1:B:411:HIS:HB3	1:B:414:ALA:HB2	1.77	0.66
1:B:2575:MET:HE3	1:B:2575:MET:O	1.96	0.65
1:A:890:GLN:N	1:A:890:GLN:OE1	2.30	0.65
1:A:61:LEU:HD12	1:A:374:ILE:HG12	1.78	0.65
1:B:893:MET:HA	1:B:896:GLU:HB3	1.79	0.64
1:A:1188:HIS:HB3	1:A:1229:THR:HB	1.78	0.64
1:A:2747:GLN:N	1:A:2747:GLN:OE1	2.30	0.64
1:B:1:MET:SD	1:B:1:MET:N	2.71	0.64
1:B:2245:ASP:HB3	1:B:2282:LYS:HB2	1.80	0.64
1:A:916:CYS:SG	1:A:917:ASP:N	2.70	0.64
1:B:2221:LYS:HG2	1:B:2224:LYS:HZ1	1.62	0.64
1:A:2617:LEU:HD23	1:A:2641:HIS:HD2	1.63	0.64
1:A:1104:GLU:N	1:A:1104:GLU:OE2	2.30	0.63
1:A:1248:LYS:HE3	1:A:1248:LYS:HA	1.81	0.63
1:A:2669:ASP:OD1	1:A:2670:LEU:N	2.31	0.63
1:B:893:MET:H	1:B:893:MET:HE3	1.64	0.62
1:B:1265:VAL:O	1:B:1274:HIS:NE2	2.32	0.62
1:A:2730:VAL:HA	1:A:2733:TRP:HB2	1.82	0.62
1:A:1342:MET:HE2	1:A:1342:MET:HA	1.80	0.62
1:A:2606:LEU:HD13	1:A:2610:GLU:HG2	1.81	0.62
1:B:463:GLN:OE1	1:B:463:GLN:N	2.32	0.62
1:B:846:MET:HB3	1:B:867:ILE:HG23	1.82	0.62
1:A:765:TRP:O	1:A:767:ARG:NH1	2.32	0.62
1:A:2236:GLN:NE2	1:A:2273:ALA:O	2.32	0.62
1:B:1914:ARG:NH1	1:A:1505:ASP:OD1	2.31	0.61
1:A:2248:ARG:NE	1:A:2307:GLU:OE2	2.32	0.61
1:B:2:THR:HG22	1:B:872:GLU:HA	1.82	0.61
1:A:1213:ARG:HG3	1:A:1213:ARG:HH11	1.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2219:GLU:N	1:A:2219:GLU:OE1	2.33	0.61
1:A:2636:ARG:HG3	1:A:2637:LYS:HD2	1.83	0.61
1:A:880:ILE:HG13	1:A:1088:ILE:HG21	1.83	0.61
1:A:2053:GLN:N	1:A:2053:GLN:OE1	2.33	0.61
1:B:2755:ARG:NH2	1:B:2762:LEU:O	2.33	0.61
1:A:779:GLU:OE1	1:A:779:GLU:N	2.25	0.61
1:B:2098:LEU:HD12	1:B:2099:PRO:HD2	1.82	0.61
1:A:1080:ASP:OD1	1:A:1081:ARG:N	2.33	0.61
1:A:2502:ALA:O	1:A:2525:ARG:NH2	2.33	0.61
1:B:1237:LYS:HE2	1:B:1237:LYS:H	1.66	0.60
1:B:1964:GLN:HB2	1:B:2171:PRO:HG2	1.83	0.60
1:B:2308:LYS:HA	1:B:2308:LYS:HE2	1.82	0.60
1:A:457:LYS:HE3	1:A:457:LYS:HA	1.83	0.60
1:A:440:ASN:OD1	1:A:440:ASN:N	2.35	0.60
1:A:2668:GLU:OE2	1:A:2668:GLU:N	2.23	0.60
1:A:1095:SER:O	1:A:1099:GLN:NE2	2.33	0.60
1:A:2557:VAL:HG11	1:A:2651:LEU:HG	1.82	0.60
1:A:1360:ILE:HG22	1:A:1363:LEU:HD12	1.83	0.59
1:B:2297:THR:HG21	1:B:2736:SER:HA	1.83	0.59
1:A:430:ASN:ND2	1:A:478:CYS:O	2.35	0.59
1:B:2229:MET:HE3	1:B:2229:MET:HA	1.84	0.59
1:A:2637:LYS:HE2	1:A:2637:LYS:HA	1.84	0.59
1:B:1818:LYS:HD3	1:B:1819:LEU:N	2.17	0.59
1:B:2509:GLY:O	1:B:2511:ARG:NH2	2.31	0.59
1:B:380:GLU:HA	1:B:394:LYS:HA	1.84	0.59
1:B:401:TYR:CE2	1:B:412:PRO:HD3	2.38	0.59
1:B:501:GLN:HA	1:B:504:LYS:HE3	1.84	0.59
1:B:1289:GLU:OE1	1:B:1289:GLU:N	2.34	0.58
1:A:2530:ARG:HH12	1:A:2534:ARG:CZ	2.16	0.58
1:B:1366:GLU:N	1:B:1366:GLU:OE1	2.36	0.58
1:B:1804:LYS:HE2	1:B:1804:LYS:N	2.18	0.58
1:B:2289:SER:OG	1:B:2768:CYS:O	2.21	0.58
1:B:2730:VAL:HA	1:B:2733:TRP:HB2	1.83	0.58
1:A:1920:TYR:HA	1:A:1938:VAL:HG21	1.84	0.58
1:B:2527:ASN:O	1:B:2531:ASN:N	2.34	0.58
1:B:399:GLU:OE2	1:B:402:ARG:HG3	2.02	0.58
1:B:393:TRP:NE1	1:B:398:SER:O	2.28	0.58
1:B:2304:LEU:HG	1:B:2514:TYR:CE2	2.39	0.58
1:A:1369:VAL:O	1:A:1370:TYR:HB2	2.03	0.58
1:B:2731:TYR:HD1	1:B:2735:SER:HA	1.69	0.58
1:A:1512:GLU:OE1	1:A:1512:GLU:N	2.35	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2502:ALA:O	1:B:2517:ARG:NH2	2.29	0.58
1:A:2656:LYS:H	1:A:2656:LYS:HD3	1.69	0.58
1:B:387:LYS:HE3	1:B:387:LYS:HA	1.86	0.57
1:B:1351:LYS:O	1:B:1351:LYS:NZ	2.31	0.57
1:A:18:LEU:HD11	1:A:811:ILE:HD11	1.86	0.57
1:B:480:ALA:HB2	1:B:806:GLN:HE22	1.70	0.57
1:A:741:PRO:HG2	1:A:744:THR:HG21	1.84	0.57
1:B:890:GLN:NE2	1:B:894:ASN:HD21	2.02	0.57
1:A:2579:LEU:HD21	1:A:2635:VAL:HG22	1.87	0.57
1:A:2276:ARG:NH1	1:A:2276:ARG:HB2	2.19	0.57
1:B:411:HIS:HD2	1:B:413:ARG:H	1.53	0.56
1:B:2244:VAL:O	1:B:2282:LYS:N	2.37	0.56
1:B:411:HIS:CD2	1:B:412:PRO:HD2	2.41	0.56
1:B:1392:THR:OG1	1:B:1393:ALA:N	2.36	0.56
1:B:2525:ARG:HG3	1:B:2525:ARG:HH11	1.70	0.56
1:B:2558:LEU:HA	1:B:2655:ARG:HD2	1.87	0.56
1:A:499:PHE:HA	1:A:502:ARG:HB2	1.87	0.56
1:B:1099:GLN:HB3	1:B:1100:PRO:HD3	1.88	0.56
1:A:825:ASP:OD1	1:A:829:GLY:N	2.38	0.56
1:B:411:HIS:CD2	1:B:413:ARG:H	2.24	0.56
1:A:1418:ARG:HG3	1:A:1418:ARG:HH11	1.71	0.56
1:B:397:GLU:N	1:B:397:GLU:OE1	2.37	0.56
1:B:1519:LEU:HD12	1:B:1520:PRO:HD2	1.88	0.56
1:B:1961:MET:HB3	1:B:2173:CYS:SG	2.45	0.56
1:B:900:VAL:HG23	1:B:901:LEU:HG	1.87	0.56
1:B:24:GLU:OE1	1:B:24:GLU:N	2.38	0.56
1:A:24:GLU:HA	1:A:27:GLU:HG3	1.88	0.55
1:A:827:MET:HE3	1:A:827:MET:HA	1.87	0.55
1:B:2558:LEU:HB3	1:B:2658:LEU:HD23	1.89	0.55
1:A:356:LEU:HD13	1:A:357:GLY:N	2.21	0.55
1:B:781:GLU:OE1	1:B:781:GLU:HA	2.07	0.55
1:A:765:TRP:CH2	1:A:767:ARG:HD3	2.41	0.55
1:A:1124:ARG:NE	1:A:1177:ASP:OD1	2.33	0.55
1:A:1334:GLN:HA	1:A:1404:THR:HG21	1.88	0.55
1:B:767:ARG:HD2	1:B:781:GLU:OE2	2.07	0.55
1:B:2174:SER:O	1:B:2174:SER:OG	2.23	0.55
1:A:2575:MET:HE1	1:A:2638:TYR:CZ	2.41	0.55
1:A:2721:MET:SD	1:A:2726:ARG:NH1	2.80	0.55
1:A:40:LEU:C	1:A:42:VAL:H	2.15	0.54
1:A:405:GLN:H	1:A:405:GLN:CD	2.16	0.54
1:B:52:VAL:HB	1:B:376:ALA:HB2	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1513:LEU:HD13	1:A:1922:LEU:HD22	1.89	0.54
1:A:1870:HIS:CD2	1:A:1872:LEU:H	2.19	0.54
1:B:499:PHE:O	1:B:503:LYS:N	2.40	0.54
1:B:907:MET:SD	1:B:907:MET:N	2.79	0.54
1:B:1399:ASP:OD1	1:B:1462:ARG:NH2	2.39	0.54
1:B:2779:SER:OG	1:B:2781:GLN:OE1	2.25	0.54
1:A:494:TRP:HD1	1:A:735:PRO:HA	1.71	0.54
1:B:780:GLN:N	1:B:780:GLN:OE1	2.41	0.54
1:B:2707:LEU:HD11	1:B:2754:ILE:HD13	1.88	0.54
1:B:889:ARG:HD3	1:B:890:GLN:N	2.23	0.54
1:A:898:ALA:O	1:A:904:ASN:ND2	2.41	0.54
1:A:1804:LYS:HE3	1:A:1804:LYS:HA	1.89	0.54
1:B:2296:TYR:CE2	1:B:2544:GLU:HG3	2.43	0.53
1:A:370:LYS:O	1:A:386:SER:N	2.39	0.53
1:A:461:THR:O	1:A:463:GLN:NE2	2.41	0.53
1:B:907:MET:HA	1:B:910:THR:HG22	1.90	0.53
1:A:844:LEU:HD13	1:A:869:MET:HB3	1.91	0.53
1:B:1108:ALA:O	1:B:1110:ASP:N	2.41	0.53
1:B:2218:PHE:CE1	1:B:2222:GLU:HB3	2.43	0.53
1:A:57:HIS:HB2	1:A:69:ARG:HH21	1.73	0.53
1:A:54:GLY:HA3	1:A:395:TRP:HZ2	1.73	0.53
1:A:2647:ALA:C	1:A:2650:PRO:HD2	2.34	0.53
1:B:874:GLN:HB3	1:B:877:MET:HB3	1.91	0.53
1:B:2676:ARG:NH1	1:B:2676:ARG:HB2	2.24	0.53
1:B:1444:ALA:HB2	1:B:1499:LEU:HB3	1.90	0.53
1:B:367:ASP:N	1:B:367:ASP:OD1	2.42	0.52
1:B:877:MET:HE3	1:B:877:MET:HA	1.91	0.52
1:B:2676:ARG:HB2	1:B:2676:ARG:HH11	1.74	0.52
1:B:893:MET:H	1:B:893:MET:CE	2.22	0.52
1:A:2239:ASP:N	1:A:2239:ASP:OD1	2.41	0.52
1:B:502:ARG:O	1:B:505:MET:HG3	2.10	0.52
1:B:2549:THR:HG22	1:B:2680:ASN:HD22	1.74	0.52
1:B:365:ASP:N	1:B:365:ASP:OD1	2.42	0.52
1:B:1290:HIS:CD2	1:B:1321:PRO:HB2	2.45	0.52
1:B:2211:ILE:HD12	1:B:2211:ILE:O	2.09	0.52
1:A:796:GLU:H	1:A:797:ARG:NH2	2.07	0.52
1:B:876:LEU:HD23	1:B:911:PHE:CE1	2.44	0.52
1:B:1236:GLU:HB2	1:B:1237:LYS:NZ	2.23	0.52
1:A:2533:GLY:HA3	1:A:2657:GLY:HA3	1.91	0.52
1:B:507:GLU:N	1:B:507:GLU:OE1	2.43	0.52
1:B:2610:GLU:OE1	1:B:2642:ARG:NH1	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2668:GLU:N	1:B:2668:GLU:OE1	2.42	0.52
1:A:2729:LEU:O	1:A:2733:TRP:N	2.40	0.52
1:B:498:PRO:HA	1:B:502:ARG:HB2	1.92	0.52
1:B:886:GLU:OE1	1:B:886:GLU:HA	2.10	0.52
1:A:18:LEU:HD22	1:A:809:PRO:HB2	1.91	0.52
1:A:1083:ALA:O	1:A:1086:HIS:ND1	2.28	0.52
1:B:401:TYR:HE2	1:B:412:PRO:HD3	1.75	0.52
1:B:2687:VAL:HG21	1:B:2719:GLU:HG2	1.91	0.51
1:B:1351:LYS:O	1:B:1521:PRO:HD3	2.10	0.51
1:A:2571:PHE:HE2	1:A:2642:ARG:HE	1.57	0.51
1:B:389:GLU:HG2	1:B:391:TYR:HE1	1.76	0.51
1:A:887:ALA:HA	1:A:890:GLN:HE22	1.74	0.51
1:B:1951:PHE:HE2	1:B:2193:LEU:HD21	1.75	0.51
1:B:2721:MET:SD	1:B:2721:MET:N	2.83	0.51
1:B:2114:MET:SD	1:B:2176:MET:HG2	2.51	0.51
1:B:2229:MET:HE1	1:B:2232:LEU:HD23	1.93	0.51
1:B:832:ASP:N	1:B:832:ASP:OD1	2.41	0.51
1:B:1152:ASP:OD1	1:B:1153:VAL:N	2.44	0.51
1:B:2591:ALA:O	1:B:2595:PHE:N	2.41	0.51
1:A:385:SER:OG	1:A:389:GLU:OE1	2.28	0.51
1:A:765:TRP:CZ2	1:A:767:ARG:HD3	2.46	0.51
1:A:2035:ILE:HG13	1:A:2037:PRO:HD2	1.91	0.51
1:A:2243:GLU:N	1:A:2258:GLN:OE1	2.43	0.51
1:A:2532:ILE:HG13	1:A:2535:ILE:HD11	1.92	0.51
1:B:370:LYS:O	1:B:386:SER:N	2.43	0.50
1:B:1233:ASP:O	1:B:1237:LYS:NZ	2.41	0.50
1:A:1331:ARG:O	1:A:1331:ARG:NH1	2.41	0.50
1:B:2600:LEU:O	1:B:2626:VAL:N	2.45	0.50
1:A:1124:ARG:HH21	1:A:1177:ASP:HA	1.75	0.50
1:B:2052:ASP:HB3	1:B:2053:GLN:OE1	2.11	0.50
1:B:2244:VAL:HA	1:B:2254:GLN:CD	2.37	0.50
1:A:880:ILE:H	1:A:880:ILE:HD12	1.76	0.50
1:A:435:THR:HG23	1:A:445:THR:HB	1.93	0.50
1:A:1836:ILE:O	1:A:1840:ASN:ND2	2.43	0.50
1:B:895:LEU:HD12	1:B:1097:VAL:HG21	1.93	0.50
1:A:2257:ARG:O	1:A:2261:ASN:ND2	2.45	0.50
1:B:916:CYS:SG	1:B:917:ASP:N	2.80	0.49
1:A:882:ARG:HH12	1:A:884:ASP:CG	2.18	0.49
1:A:1958:ILE:O	1:A:1962:ASN:ND2	2.45	0.49
1:A:2653:ALA:HA	1:A:2656:LYS:HZ2	1.75	0.49
1:A:2721:MET:HE1	1:A:2726:ARG:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2728:ASP:O	1:A:2732:PHE:N	2.35	0.49
1:B:2046:GLU:N	1:B:2046:GLU:OE1	2.45	0.49
1:B:2256:MET:HE1	1:B:2527:ASN:OD1	2.11	0.49
1:A:2251:LEU:O	1:A:2255:THR:OG1	2.25	0.49
1:A:2653:ALA:HA	1:A:2656:LYS:HZ3	1.74	0.49
1:B:468:LEU:HD13	1:B:473:ILE:HD11	1.93	0.49
1:B:2592:ASP:OD1	1:B:2593:ALA:N	2.45	0.49
1:A:2600:LEU:O	1:A:2626:VAL:N	2.35	0.49
1:B:2562:LYS:HD3	1:B:2562:LYS:C	2.37	0.49
1:A:905:LEU:HA	1:A:909:GLN:HE22	1.77	0.49
1:A:1240:CYS:SG	1:A:1242:THR:OG1	2.69	0.49
1:B:1860:ALA:HB2	1:B:1871:PRO:HG2	1.93	0.49
1:B:2542:GLN:HG2	1:B:2544:GLU:OE1	2.12	0.49
1:A:1080:ASP:O	1:A:1084:ASN:N	2.42	0.49
1:B:770:ILE:HD12	1:B:780:GLN:HE22	1.77	0.49
1:B:1394:ASP:O	1:B:1395:ILE:HD12	2.12	0.49
1:B:422:GLU:N	1:B:422:GLU:OE1	2.45	0.49
1:B:746:ILE:HD13	1:B:760:LEU:HD22	1.94	0.49
1:B:2530:ARG:NH1	1:B:2530:ARG:HB2	2.28	0.49
1:B:2728:ASP:HA	1:B:2731:TYR:HB3	1.94	0.49
1:A:2243:GLU:O	1:A:2258:GLN:NE2	2.45	0.49
1:A:359:ASP:OD1	1:A:360:LEU:N	2.46	0.49
1:A:2530:ARG:HD3	1:A:2656:LYS:HE2	1.95	0.49
1:A:798:ASN:O	1:A:813:ARG:NE	2.38	0.49
1:A:1406:VAL:HG23	1:A:1817:VAL:HG12	1.95	0.49
1:B:1796:SER:OG	1:B:1957:TRP:HD1	1.95	0.49
1:B:1392:THR:O	1:B:1459:LYS:NZ	2.44	0.48
1:A:367:ASP:OD1	1:A:367:ASP:N	2.34	0.48
1:A:1178:THR:HA	1:A:1242:THR:O	2.13	0.48
1:A:2575:MET:HE1	1:A:2638:TYR:CE1	2.48	0.48
1:B:68:CYS:SG	1:B:69:ARG:N	2.87	0.48
1:A:463:GLN:HB2	1:A:465:TYR:HE1	1.76	0.48
1:A:886:GLU:HB2	1:A:889:ARG:HH21	1.78	0.48
1:A:890:GLN:HA	1:A:893:MET:SD	2.54	0.48
1:A:2576:TYR:O	1:A:2580:ARG:N	2.46	0.48
1:B:1098:LEU:O	1:B:1099:GLN:C	2.56	0.48
1:A:390:LEU:HD23	1:A:411:HIS:CG	2.48	0.48
1:A:1124:ARG:NH2	1:A:1177:ASP:O	2.44	0.48
1:B:878:GLN:HE22	1:B:882:ARG:CZ	2.26	0.48
1:B:2529:PHE:O	1:B:2532:ILE:HG22	2.14	0.48
1:A:2238:ARG:NH2	1:A:2274:VAL:HG12	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:47:THR:N	1:B:63:GLU:OE1	2.46	0.48
1:B:1248:LYS:HA	1:B:1248:LYS:HE3	1.94	0.48
1:A:761:LYS:NZ	1:A:763:GLY:O	2.41	0.48
1:A:893:MET:HA	1:A:896:GLU:HB3	1.95	0.48
1:B:898:ALA:HB1	1:B:907:MET:HE2	1.96	0.48
1:B:1203:GLU:CD	1:B:1204:SER:H	2.22	0.47
1:B:2504:LEU:HD23	1:B:2517:ARG:HH22	1.79	0.47
1:A:2311:ASN:OD1	1:A:2311:ASN:N	2.47	0.47
1:A:2746:PHE:CG	1:A:2750:PRO:HD3	2.49	0.47
1:B:426:LEU:HD23	1:B:437:ALA:HB3	1.95	0.47
1:B:1522:ARG:HA	1:A:1864:ASP:HB3	1.95	0.47
1:A:794:GLN:NE2	1:A:816:ASN:OD1	2.47	0.47
1:A:873:LYS:HA	1:A:873:LYS:HE2	1.95	0.47
1:A:494:TRP:HE3	1:A:495:GLY:H	1.63	0.47
1:B:2266:ARG:NH1	1:B:2271:PRO:O	2.47	0.47
1:A:1395:ILE:HG12	1:A:1395:ILE:O	2.15	0.47
1:A:1847:ASP:OD2	1:A:2188:ARG:NH2	2.48	0.47
1:A:2519:GLY:HA3	1:A:2525:ARG:NH1	2.29	0.47
1:B:2224:LYS:HD3	1:B:2225:PHE:N	2.30	0.47
1:B:2507:GLN:HB3	1:B:2511:ARG:NH2	2.26	0.47
1:A:38:PRO:N	1:A:39:PRO:HD2	2.29	0.47
1:A:893:MET:HE3	1:A:893:MET:H	1.78	0.47
1:A:936:LYS:O	1:A:936:LYS:HD3	2.14	0.47
1:A:24:GLU:H	1:A:24:GLU:CD	2.22	0.47
1:B:737:LYS:O	1:B:776:GLY:HA2	2.15	0.47
1:A:47:THR:OG1	1:A:63:GLU:OE1	2.28	0.47
1:A:463:GLN:HB2	1:A:465:TYR:CE1	2.50	0.47
1:A:1139:ILE:HD11	1:A:1157:MET:HE1	1.96	0.47
1:A:1195:GLU:HB3	1:A:1224:LYS:HZ2	1.80	0.47
1:A:2602:PHE:CD2	1:A:2618:ILE:HG12	2.50	0.47
1:A:2729:LEU:HD13	1:A:2791:ILE:HD11	1.96	0.47
1:B:1358:SER:OG	1:B:1359:ARG:N	2.41	0.46
1:A:2186:LEU:HD21	1:A:2215:LEU:HD21	1.96	0.46
1:A:2240:LEU:HD13	1:A:2241:SER:N	2.29	0.46
1:A:2276:ARG:HB2	1:A:2276:ARG:CZ	2.44	0.46
1:B:1205:LEU:HD13	1:B:1237:LYS:HD2	1.97	0.46
1:A:846:MET:HG3	1:A:867:ILE:HG12	1.97	0.46
1:A:862:LYS:C	1:A:862:LYS:HD2	2.40	0.46
1:B:876:LEU:HD22	1:B:891:TYR:CD1	2.50	0.46
1:B:912:ILE:HG13	1:B:1105:LEU:HD13	1.97	0.46
1:B:1961:MET:HE3	1:B:2171:PRO:HB3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1961:MET:HG3	1:B:2171:PRO:CB	2.39	0.46
1:A:425:VAL:HG23	1:A:426:LEU:HG	1.97	0.46
1:A:1176:ASN:HB3	1:A:1210:GLU:CD	2.40	0.46
1:A:2529:PHE:CD2	1:A:2650:PRO:HB3	2.51	0.46
1:B:67:VAL:HG21	1:B:374:ILE:HD11	1.96	0.46
1:B:360:LEU:HD12	1:B:360:LEU:HA	1.84	0.46
1:B:2195:LEU:O	1:B:2199:VAL:HG23	2.15	0.46
1:B:2598:MET:HE1	1:B:2600:LEU:HG	1.96	0.46
1:A:11:LEU:HD23	1:A:863:LYS:HB3	1.98	0.46
1:A:754:LYS:HD2	1:A:754:LYS:C	2.40	0.46
1:B:1216:HIS:CD2	1:B:1219:HIS:ND1	2.65	0.46
1:B:1345:PHE:O	1:B:1427:ARG:NH2	2.48	0.46
1:B:469:GLN:O	1:B:472:ARG:NH2	2.46	0.46
1:B:1197:ARG:HG2	1:B:1197:ARG:HH11	1.81	0.46
1:A:499:PHE:O	1:A:503:LYS:N	2.37	0.46
1:A:1213:ARG:HG3	1:A:1213:ARG:NH1	2.31	0.46
1:A:2519:GLY:HA3	1:A:2525:ARG:HH11	1.81	0.46
1:B:1951:PHE:CE2	1:B:2193:LEU:HD21	2.51	0.45
1:B:2107:ASN:O	1:B:2111:VAL:HG23	2.16	0.45
1:B:2792:LYS:O	1:B:2792:LYS:NZ	2.42	0.45
1:A:2234:ASN:OD1	1:A:2235:GLN:N	2.48	0.45
1:A:2602:PHE:HD1	1:A:2626:VAL:HG22	1.81	0.45
1:B:1182:THR:HB	1:B:1319:LEU:HB2	1.98	0.45
1:B:1318:ASP:OD1	1:B:1318:ASP:N	2.33	0.45
1:A:2749:MET:HE2	1:A:2749:MET:HB2	1.80	0.45
1:B:2239:ASP:OD1	1:B:2240:LEU:N	2.49	0.45
1:A:733:ARG:O	1:A:735:PRO:HD3	2.16	0.45
1:A:1197:ARG:HH21	1:A:1202:LEU:HD11	1.80	0.45
1:A:1803:PRO:HB2	1:A:1804:LYS:HD2	1.97	0.45
1:B:390:LEU:H	1:B:390:LEU:HD23	1.80	0.45
1:B:1320:GLU:OE1	1:B:1320:GLU:HA	2.16	0.45
1:A:2668:GLU:H	1:A:2668:GLU:CD	2.20	0.45
1:A:908:LEU:H	1:A:908:LEU:HD23	1.82	0.45
1:B:766:VAL:HG23	1:B:788:SER:HB2	1.98	0.45
1:B:876:LEU:HD12	1:B:879:HIS:HB2	1.99	0.45
1:B:893:MET:HE3	1:B:893:MET:N	2.30	0.45
1:B:1266:THR:HG23	1:B:1341:SER:HB2	1.99	0.45
1:B:2525:ARG:HG3	1:B:2525:ARG:NH1	2.31	0.45
1:A:476:LEU:HD23	1:A:485:ALA:HA	1.99	0.45
1:A:893:MET:H	1:A:893:MET:CE	2.29	0.45
1:A:2583:ILE:HD11	1:A:2635:VAL:HG21	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:770:ILE:HD12	1:B:780:GLN:NE2	2.31	0.45
1:B:2510:LYS:HB2	1:B:2513:PHE:CD2	2.52	0.45
1:B:2721:MET:HG3	1:B:2725:GLU:OE1	2.16	0.45
1:A:1112:ARG:HG3	1:A:1114:MET:HG3	1.99	0.45
1:A:1348:GLN:O	1:A:1349:GLU:HB3	2.17	0.45
1:A:2182:HIS:CG	1:A:2183:ASP:H	2.35	0.45
1:B:1137:GLN:HG2	1:B:1154:PHE:CE1	2.52	0.45
1:B:2678:LEU:HD12	1:B:2678:LEU:HA	1.78	0.45
1:B:2723:MET:SD	1:B:2723:MET:N	2.89	0.45
1:A:19:ASN:O	1:A:23:ARG:HG3	2.17	0.45
1:A:892:LEU:HD23	1:A:892:LEU:HA	1.73	0.45
1:A:2759:ASP:OD1	1:A:2759:ASP:N	2.50	0.45
1:B:1094:ASP:OD1	1:B:1094:ASP:C	2.60	0.45
1:B:2308:LYS:NZ	1:B:2501:ASN:OD1	2.34	0.45
1:B:2505:PHE:HD2	1:B:2514:TYR:HD2	1.63	0.45
1:A:55:PRO:HD2	1:A:395:TRP:CZ2	2.51	0.45
1:A:2542:GLN:HB2	1:A:2544:GLU:OE1	2.17	0.44
1:A:821:PRO:HG2	1:A:833:PRO:HB3	2.00	0.44
1:A:479:CYS:HB3	1:A:751:VAL:HG22	2.00	0.44
1:A:2224:LYS:NZ	1:A:2224:LYS:HB3	2.32	0.44
1:B:25:VAL:HG23	1:B:838:LEU:HD21	2.00	0.44
1:B:2258:GLN:HA	1:B:2261:ASN:HD21	1.83	0.44
1:B:2680:ASN:N	1:B:2680:ASN:OD1	2.50	0.44
1:B:2296:TYR:HA	1:B:2299:ILE:HG22	2.00	0.44
1:A:804:ALA:HB3	1:A:808:SER:HB3	1.99	0.44
1:A:2259:LEU:HB2	1:A:2531:ASN:HD21	1.83	0.44
1:B:736:LYS:HG3	1:B:737:LYS:HG2	1.99	0.44
1:A:380:GLU:OE2	1:A:392:GLN:HA	2.17	0.44
1:A:394:LYS:HB3	1:A:397:GLU:OE1	2.16	0.44
1:A:480:ALA:C	1:A:481:LEU:HD23	2.43	0.44
1:B:2182:HIS:CD2	1:B:2182:HIS:H	2.35	0.44
1:B:2513:PHE:HB3	1:B:2551:ASN:HB3	2.00	0.44
1:B:2721:MET:HG2	1:B:2726:ARG:NH1	2.33	0.44
1:A:37:HIS:ND1	1:A:38:PRO:HD2	2.33	0.44
1:A:915:ARG:HD2	1:A:919:ASN:OD1	2.17	0.44
1:A:2297:THR:O	1:A:2301:GLN:HG2	2.18	0.44
1:B:759:VAL:HG12	1:B:801:ILE:HD11	2.00	0.44
1:A:1138:LYS:O	1:A:1141:LYS:NZ	2.51	0.44
1:A:2189:TRP:O	1:A:2193:LEU:HG	2.18	0.43
1:A:2733:TRP:HB3	1:A:2734:THR:HG23	1.99	0.43
1:B:430:ASN:HB2	1:B:478:CYS:SG	2.57	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1841:TRP:HZ3	1:B:1950:VAL:HG11	1.82	0.43
1:B:2526:LEU:HD13	1:B:2649:GLN:NE2	2.32	0.43
1:B:2714:PHE:O	1:B:2718:VAL:HG23	2.18	0.43
1:B:399:GLU:C	1:B:399:GLU:OE1	2.61	0.43
1:B:423:LYS:HE3	1:B:439:GLU:CD	2.43	0.43
1:B:2207:GLU:O	1:B:2210:SER:OG	2.30	0.43
1:B:2211:ILE:HA	1:B:2214:GLU:OE1	2.18	0.43
1:A:1444:ALA:HB2	1:A:1499:LEU:HB3	2.00	0.43
1:A:2709:GLN:N	1:A:2709:GLN:NE2	2.53	0.43
1:B:1147:SER:O	1:B:1147:SER:OG	2.33	0.43
1:A:862:LYS:HD2	1:A:863:LYS:HG3	2.01	0.43
1:A:1179:CYS:SG	1:A:1180:SER:N	2.92	0.43
1:A:1940:ASP:O	1:A:1943:SER:OG	2.35	0.43
1:A:904:ASN:HA	1:A:907:MET:HE1	2.01	0.43
1:B:385:SER:OG	1:B:386:SER:N	2.52	0.43
1:B:505:MET:HA	1:B:508:LYS:HE2	2.01	0.43
1:A:2664:LYS:HA	1:A:2664:LYS:HE3	2.00	0.43
1:B:38:PRO:N	1:B:39:PRO:HD2	2.34	0.43
1:B:1965:THR:HG22	1:B:2171:PRO:O	2.19	0.43
1:A:1381:ASP:OD1	1:A:1431:SER:OG	2.34	0.43
1:B:905:LEU:HB3	1:B:907:MET:SD	2.59	0.42
1:A:452:SER:HA	1:A:455:ALA:HB3	2.01	0.42
1:A:1186:ALA:N	1:A:1187:GLU:OE1	2.52	0.42
1:A:2308:LYS:HZ3	1:A:2501:ASN:C	2.27	0.42
1:A:2534:ARG:HD2	1:A:2657:GLY:HA2	2.00	0.42
1:B:504:LYS:HA	1:B:507:GLU:OE2	2.20	0.42
1:B:2788:LEU:HA	1:B:2791:ILE:HB	2.01	0.42
1:A:464:THR:OG1	1:A:469:GLN:NE2	2.48	0.42
1:A:851:LEU:H	1:A:851:LEU:HD12	1.84	0.42
1:A:16:ASP:OD1	1:A:16:ASP:N	2.51	0.42
1:B:379:SER:HB2	1:B:380:GLU:OE1	2.19	0.42
1:B:2252:ILE:HD12	1:B:2303:PHE:CE1	2.54	0.42
1:A:393:TRP:CD1	1:A:393:TRP:C	2.98	0.42
1:A:2240:LEU:HB3	1:A:2277:VAL:HG22	2.01	0.42
1:B:1442:GLU:HG3	1:A:1914:ARG:HD3	2.00	0.42
1:A:18:LEU:O	1:A:22:LEU:HG	2.20	0.42
1:B:1349:GLU:HB3	1:B:1355:SER:CB	2.49	0.42
1:A:421:ASN:OD1	1:A:421:ASN:N	2.44	0.42
1:A:2630:ASN:O	1:A:2634:TYR:N	2.45	0.42
1:B:2731:TYR:CD1	1:B:2735:SER:HA	2.51	0.42
1:A:377:LEU:HD23	1:A:382:LEU:HG	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:389:GLU:OE1	1:A:389:GLU:N	2.53	0.42
1:A:1809:VAL:HG13	1:A:1813:ILE:HD12	2.00	0.42
1:A:2763:PRO:HG3	1:A:2774:VAL:HG13	2.02	0.42
1:B:70:ILE:HD12	1:B:70:ILE:HA	1.87	0.42
1:B:862:LYS:HA	1:B:862:LYS:HE2	2.01	0.42
1:A:387:LYS:HE2	1:A:387:LYS:N	2.25	0.42
1:B:499:PHE:HB3	1:B:500:SER:H	1.63	0.42
1:B:741:PRO:HG2	1:B:767:ARG:HH21	1.85	0.42
1:B:939:LYS:H	1:B:939:LYS:HD3	1.85	0.42
1:A:1331:ARG:HG3	1:A:1331:ARG:HH11	1.84	0.42
1:A:1348:GLN:C	1:A:1350:ASN:H	2.28	0.42
1:B:68:CYS:SG	1:B:360:LEU:HG	2.60	0.41
1:B:745:GLU:C	1:B:745:GLU:OE1	2.63	0.41
1:A:473:ILE:HD13	1:A:487:LEU:HD11	2.03	0.41
1:A:2035:ILE:CG1	1:A:2037:PRO:HD2	2.50	0.41
1:B:387:LYS:HA	1:B:387:LYS:CE	2.50	0.41
1:B:465:TYR:HB3	1:B:467:GLU:H	1.84	0.41
1:A:2552:ARG:HG2	1:A:2567:ASP:HB2	2.02	0.41
1:B:1239:LYS:NZ	1:B:1239:LYS:HB3	2.35	0.41
1:A:1873:HIS:CG	1:A:1874:ALA:N	2.89	0.41
1:A:2709:GLN:HA	1:A:2712:ARG:HG3	2.02	0.41
1:B:1859:LEU:HD23	1:B:1936:LEU:HD13	2.02	0.41
1:A:1331:ARG:NH1	1:A:1331:ARG:HG3	2.34	0.41
1:A:1959:LYS:HA	1:A:1959:LYS:HD2	1.82	0.41
1:A:2057:LEU:HD12	1:A:2057:LEU:HA	1.57	0.41
1:A:2229:MET:C	1:A:2229:MET:HE2	2.46	0.41
1:A:2640:GLU:OE2	1:A:2640:GLU:N	2.53	0.41
1:B:1511:GLU:OE1	1:B:1511:GLU:C	2.63	0.41
1:B:2534:ARG:H	1:B:2534:ARG:HG2	1.59	0.41
1:A:413:ARG:HB3	1:A:417:LEU:HD23	2.03	0.41
1:B:1284:ALA:O	1:B:1287:THR:HG22	2.20	0.41
1:B:2525:ARG:HD2	1:B:2525:ARG:C	2.45	0.41
1:B:2532:ILE:O	1:B:2536:LEU:HG	2.20	0.41
1:A:68:CYS:SG	1:A:360:LEU:HD21	2.60	0.41
1:A:465:TYR:O	1:A:469:GLN:NE2	2.53	0.41
1:A:2602:PHE:CD1	1:A:2626:VAL:HG22	2.56	0.41
1:B:432:ILE:HD11	1:B:480:ALA:O	2.21	0.41
1:B:877:MET:SD	1:B:916:CYS:HB2	2.61	0.41
1:B:2226:ARG:HB3	1:B:2227:ARG:HH12	1.84	0.41
1:B:2690:LEU:O	1:B:2694:THR:OG1	2.29	0.41
1:A:2731:TYR:HD1	1:A:2735:SER:HA	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:754:LYS:NZ	1:B:770:ILE:HD13	2.36	0.41
1:B:760:LEU:HB2	1:B:767:ARG:CZ	2.51	0.41
1:B:876:LEU:HD23	1:B:911:PHE:HE1	1.84	0.41
1:B:904:ASN:OD1	1:B:904:ASN:N	2.54	0.41
1:B:1143:GLU:O	1:B:1145:SER:N	2.53	0.41
1:A:39:PRO:HG2	1:A:40:LEU:HD22	2.03	0.41
1:A:1274:HIS:HB3	1:A:1342:MET:CE	2.50	0.41
1:A:1343:ILE:HA	1:A:1380:LEU:HD13	2.02	0.41
1:B:480:ALA:HB2	1:B:806:GLN:NE2	2.36	0.41
1:B:1197:ARG:HG2	1:B:1197:ARG:NH1	2.36	0.41
1:B:2057:LEU:HD12	1:B:2057:LEU:HA	1.87	0.41
1:B:2557:VAL:HG21	1:B:2651:LEU:HD13	2.02	0.41
1:A:459:GLU:OE1	1:A:459:GLU:HA	2.21	0.41
1:A:761:LYS:C	1:A:767:ARG:HH22	2.28	0.41
1:A:802:PHE:CD2	1:A:844:LEU:HD23	2.56	0.41
1:A:876:LEU:HD23	1:A:911:PHE:CE1	2.56	0.41
1:A:920:ARG:HG2	1:A:924:HIS:HB3	2.02	0.41
1:A:2297:THR:HG21	1:A:2736:SER:HA	2.03	0.41
1:A:2540:LEU:HD23	1:A:2540:LEU:HA	1.86	0.41
1:A:2723:MET:HA	1:A:2726:ARG:HG3	2.03	0.41
1:B:1179:CYS:SG	1:B:1180:SER:N	2.94	0.41
1:B:2252:ILE:O	1:B:2256:MET:HB2	2.21	0.41
1:B:2293:ARG:NH2	1:B:2767:THR:O	2.54	0.41
1:A:886:GLU:O	1:A:889:ARG:HB3	2.21	0.41
1:A:2617:LEU:HD23	1:A:2641:HIS:CD2	2.49	0.41
1:B:2541:LEU:HB3	1:B:2542:GLN:OE1	2.20	0.40
1:A:1239:LYS:H	1:A:1239:LYS:HG2	1.77	0.40
1:A:1409:LEU:O	1:A:1418:ARG:NE	2.54	0.40
1:A:1511:GLU:OE1	1:A:1511:GLU:C	2.64	0.40
1:A:1867:HIS:HD2	1:A:1868:PRO:HD2	1.84	0.40
1:B:11:LEU:HD23	1:B:12:PRO:HA	2.02	0.40
1:B:1438:ILE:HG23	1:A:1918:LEU:HD13	2.03	0.40
1:B:1493:PRO:O	1:B:1780:SER:HB3	2.21	0.40
1:B:2212:LEU:HD23	1:B:2212:LEU:HA	1.88	0.40
1:B:2522:THR:O	1:B:2526:LEU:HG	2.21	0.40
1:B:2556:LYS:HG2	1:B:2561:ARG:HB3	2.02	0.40
1:A:1195:GLU:OE1	1:A:1197:ARG:HD2	2.21	0.40
1:A:2240:LEU:O	1:A:2277:VAL:HA	2.22	0.40
1:A:2766:ASN:O	1:A:2770:SER:N	2.55	0.40
1:B:745:GLU:OE1	1:B:747:LEU:HD22	2.21	0.40
1:B:2099:PRO:O	1:A:1370:TYR:OH	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:880:ILE:HD12	1:A:880:ILE:N	2.36	0.40
1:A:882:ARG:O	1:A:1081:ARG:NH1	2.55	0.40
1:A:1468:LEU:HD22	1:A:1802:ILE:HD11	2.04	0.40
1:B:457:LYS:HD2	1:B:457:LYS:HA	1.91	0.40
1:A:2034:CYS:O	1:A:2036:PRO:HD3	2.21	0.40
1:A:2262:HIS:CE1	1:A:2266:ARG:HE	2.39	0.40
1:B:417:LEU:HD12	1:B:460:HIS:O	2.22	0.40
1:B:1833:GLU:C	1:B:1833:GLU:OE1	2.64	0.40
1:B:1962:ASN:ND2	1:B:2181:SER:HA	2.37	0.40
1:B:2753:THR:N	1:B:2772:LEU:O	2.45	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	1533/2830 (54%)	1456 (95%)	75 (5%)	2 (0%)	48 81
1	B	1604/2830 (57%)	1506 (94%)	93 (6%)	5 (0%)	37 70
All	All	3137/5660 (55%)	2962 (94%)	168 (5%)	7 (0%)	45 77

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	462	ALA
1	B	499	PHE
1	B	873	LYS
1	A	41	ASN
1	A	2204	VAL
1	B	2178	MET
1	B	1395	ILE

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	1366/2439 (56%)	1317 (96%)	49 (4%)	30	64
1	B	1438/2439 (59%)	1384 (96%)	54 (4%)	28	62
All	All	2804/4878 (58%)	2701 (96%)	103 (4%)	31	63

All (103) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	14	THR
1	B	18	LEU
1	B	64	ASP
1	B	372	ILE
1	B	377	LEU
1	B	386	SER
1	B	415	THR
1	B	426	LEU
1	B	452	SER
1	B	479	CYS
1	B	500	SER
1	B	572	CYS
1	B	652	SER
1	B	653	LEU
1	B	759	VAL
1	B	803	THR
1	B	836	LEU
1	B	841	ILE
1	B	849	HIS
1	B	873	LYS
1	B	895	LEU
1	B	905	LEU
1	B	923	LEU
1	B	938	THR
1	B	939	LYS
1	B	1097	VAL
1	B	1157	MET

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Mol	Chain	Res	Type
1	B	1229	THR
1	B	1280	VAL
1	B	1354	LEU
1	B	1355	SER
1	B	1382	CYS
1	B	1392	THR
1	B	1404	THR
1	B	1441	VAL
1	B	1801	LEU
1	B	1838	THR
1	B	1861	SER
1	B	2167	THR
1	B	2172	GLN
1	B	2251	LEU
1	B	2294	SER
1	B	2304	LEU
1	B	2529	PHE
1	B	2535	ILE
1	B	2538	LEU
1	B	2541	LEU
1	B	2550	LEU
1	B	2586	SER
1	B	2635	VAL
1	B	2728	ASP
1	B	2733	TRP
1	B	2734	THR
1	B	2762	LEU
1	A	2	THR
1	A	37	HIS
1	A	40	LEU
1	A	367	ASP
1	A	395	TRP
1	A	440	ASN
1	A	447	VAL
1	A	464	THR
1	A	491	LEU
1	A	494	TRP
1	A	555	ILE
1	A	571	SER
1	A	572	CYS
1	A	576	LEU
1	A	787	SER

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Mol	Chain	Res	Type
1	A	788	SER
1	A	803	THR
1	A	818	THR
1	A	836	LEU
1	A	838	LEU
1	A	876	LEU
1	A	913	SER
1	A	1139	ILE
1	A	1179	CYS
1	A	1189	ILE
1	A	1192	ASP
1	A	1341	SER
1	A	1349	GLU
1	A	1355	SER
1	A	1404	THR
1	A	1411	ASN
1	A	1431	SER
1	A	1457	ILE
1	A	1776	SER
1	A	1779	THR
1	A	1819	LEU
1	A	1820	THR
1	A	2239	ASP
1	A	2280	THR
1	A	2507	GLN
1	A	2543	ASN
1	A	2575	MET
1	A	2579	LEU
1	A	2584	LEU
1	A	2600	LEU
1	A	2609	GLU
1	A	2670	LEU
1	A	2709	GLN
1	A	2738	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	30	ASN
1	B	405	GLN
1	B	411	HIS
1	B	486	GLN

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Mol	Chain	Res	Type
1	B	513	ASN
1	B	794	GLN
1	B	806	GLN
1	B	816	ASN
1	B	890	GLN
1	B	1290	HIS
1	B	1326	GLN
1	B	1374	GLN
1	B	1852	GLN
1	B	1869	ASN
1	B	2107	ASN
1	B	2110	ASN
1	B	2697	ASN
1	A	50	GLN
1	A	469	GLN
1	A	780	GLN
1	A	1350	ASN
1	A	1374	GLN
1	A	1962	ASN
1	A	2058	GLN
1	A	2641	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 6 ligands modelled in this entry, 6 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 (i)

There are no chain breaks in this entry.

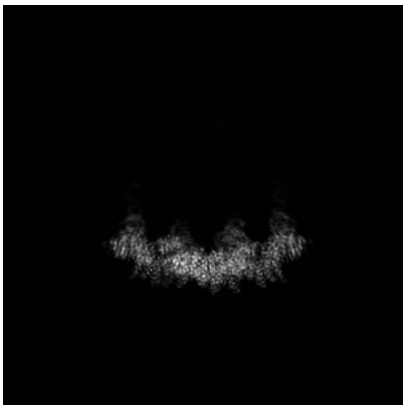
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-16087. These allow visual inspection of the internal detail of the map and identification of artifacts.

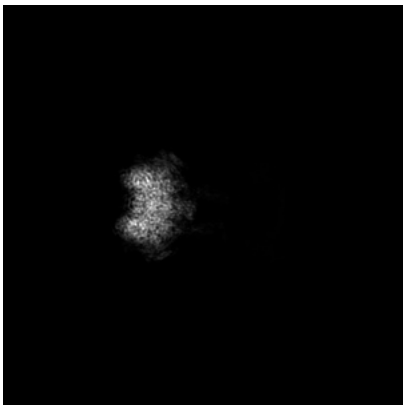
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

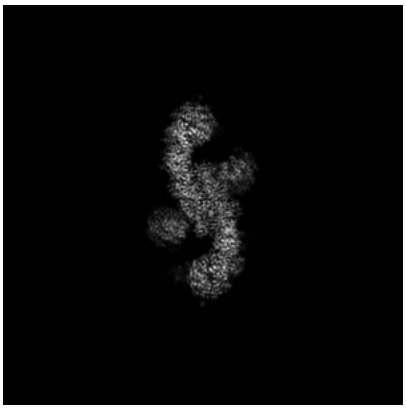
6.1.1 Primary map



X

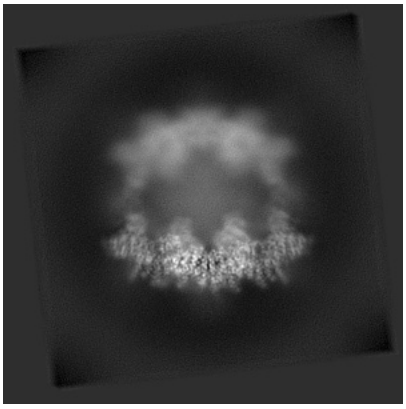


Y

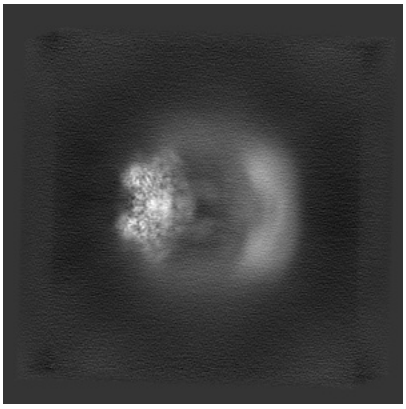


Z

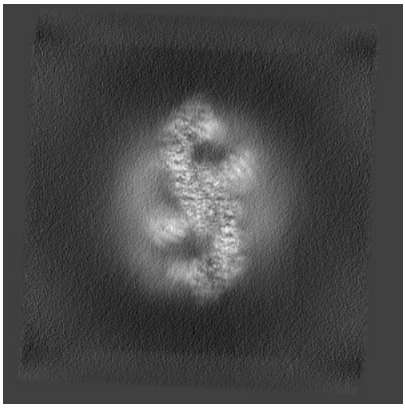
6.1.2 Raw map



X



Y



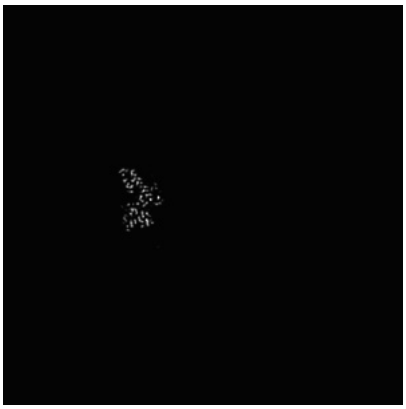
Z

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

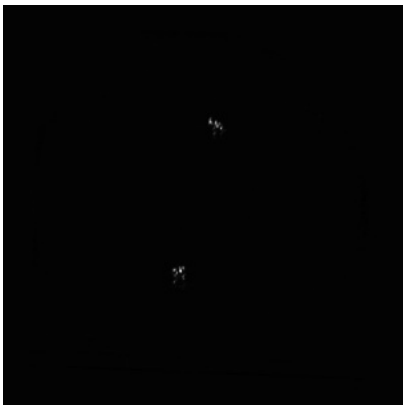
6.2 Central slices (i)

6.2.1 Primary map

X Index: 150

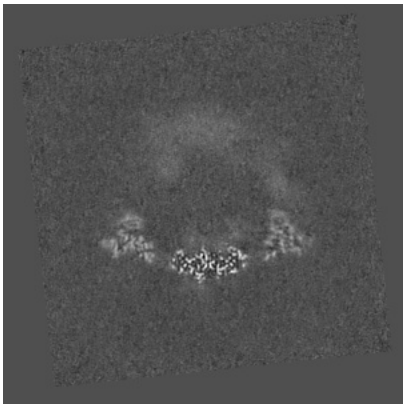


Y Index: 150

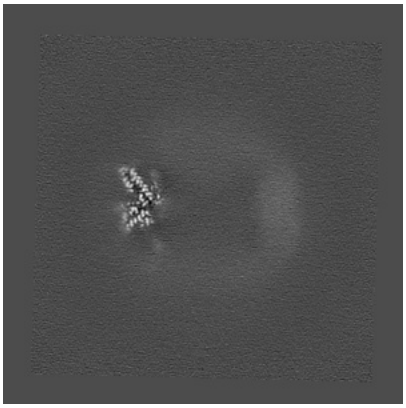


Z Index: 150

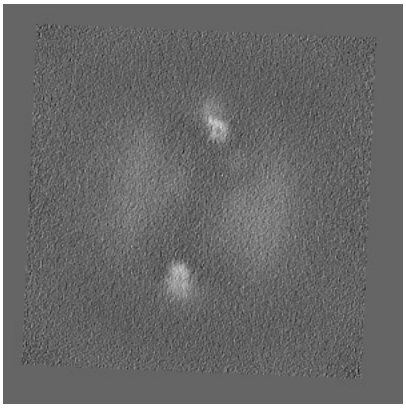
6.2.2 Raw map



X Index: 150



Y Index: 150

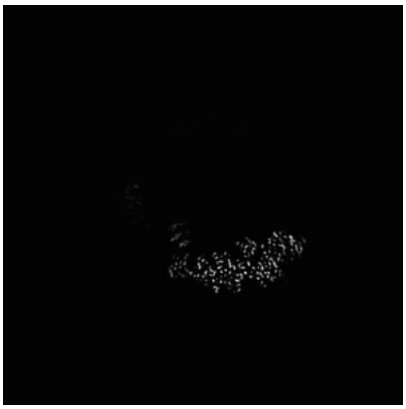


Z Index: 150

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

6.3 Largest variance slices (i)

6.3.1 Primary map

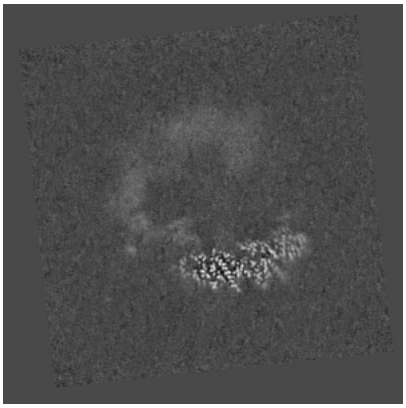


X Index: 135

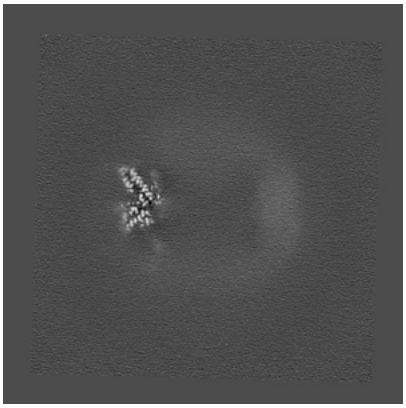
Y Index: 172

Z Index: 107

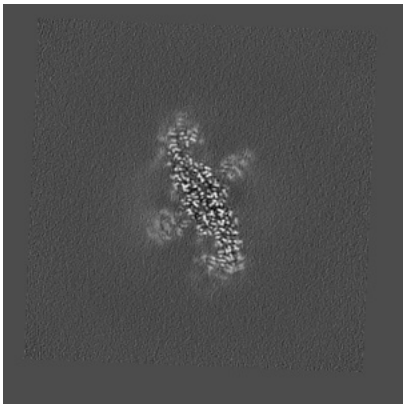
6.3.2 Raw map



X Index: 137



Y Index: 150

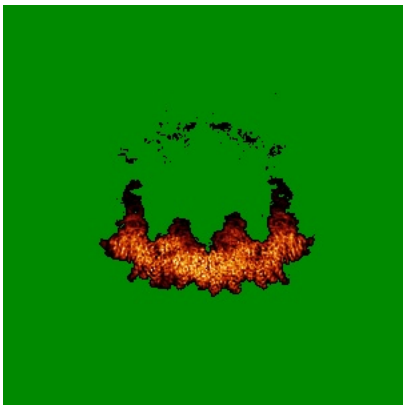


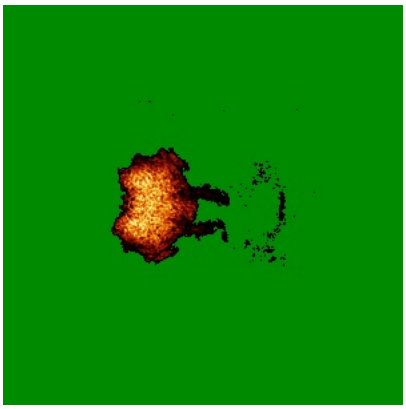
Z Index: 107

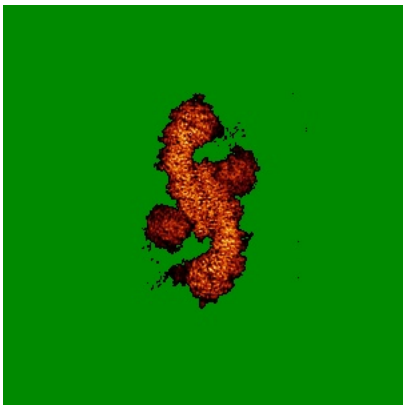
The images above show the largest variance slices of the map in three orthogonal directions.

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

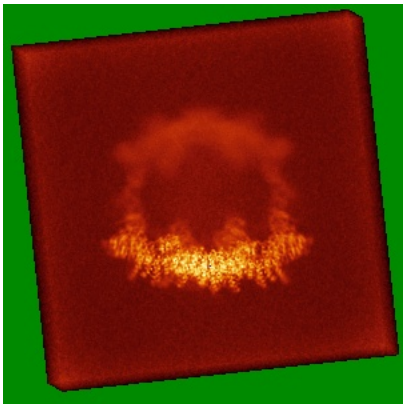
6.4.1 Primary map

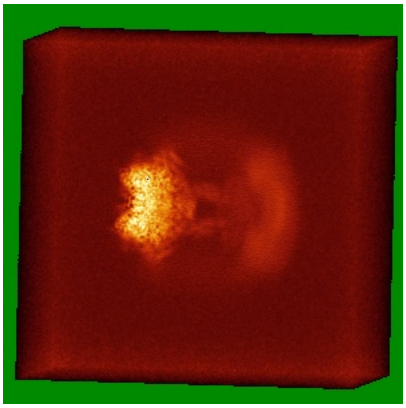

X

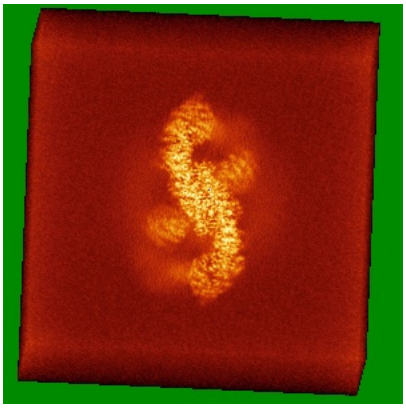

Y


Z

6.4.2 Raw map


X

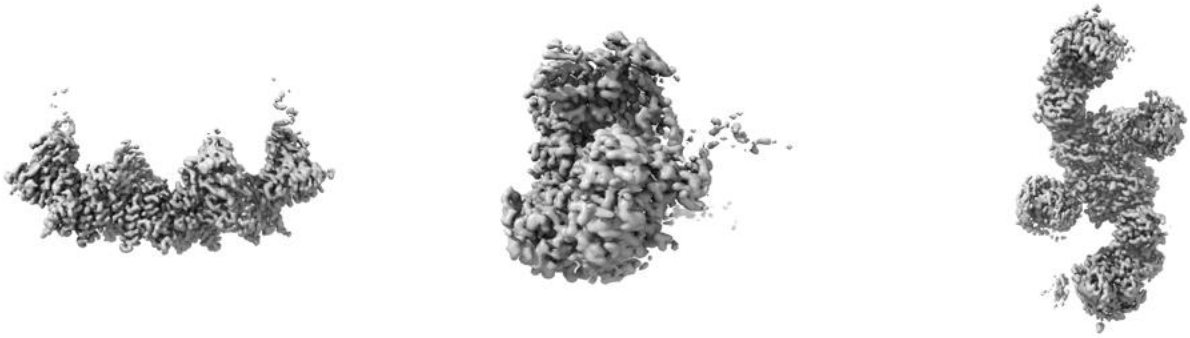

Y


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 0.0632. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

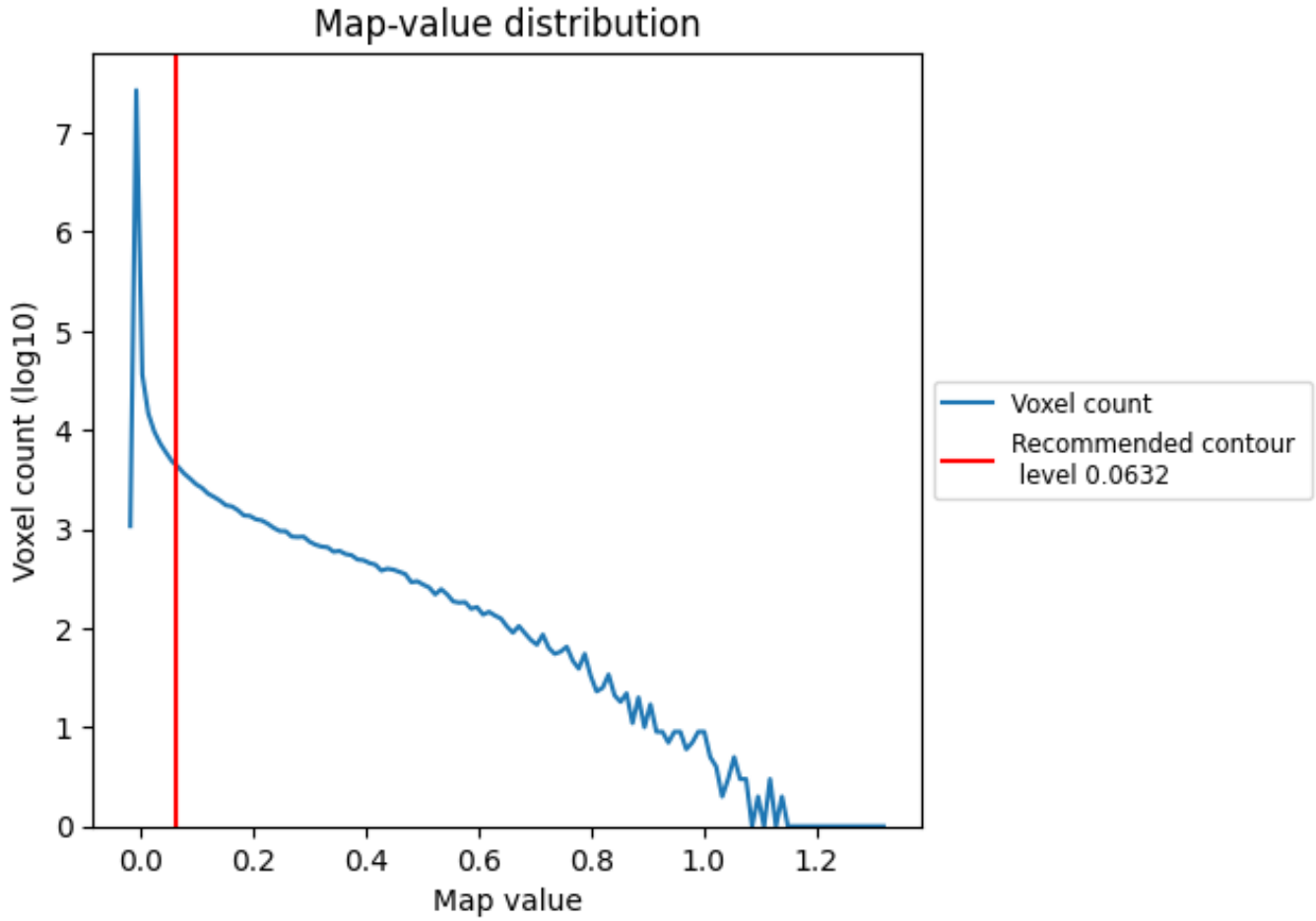
6.6 Mask visualisation (i)

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

7 Map analysis

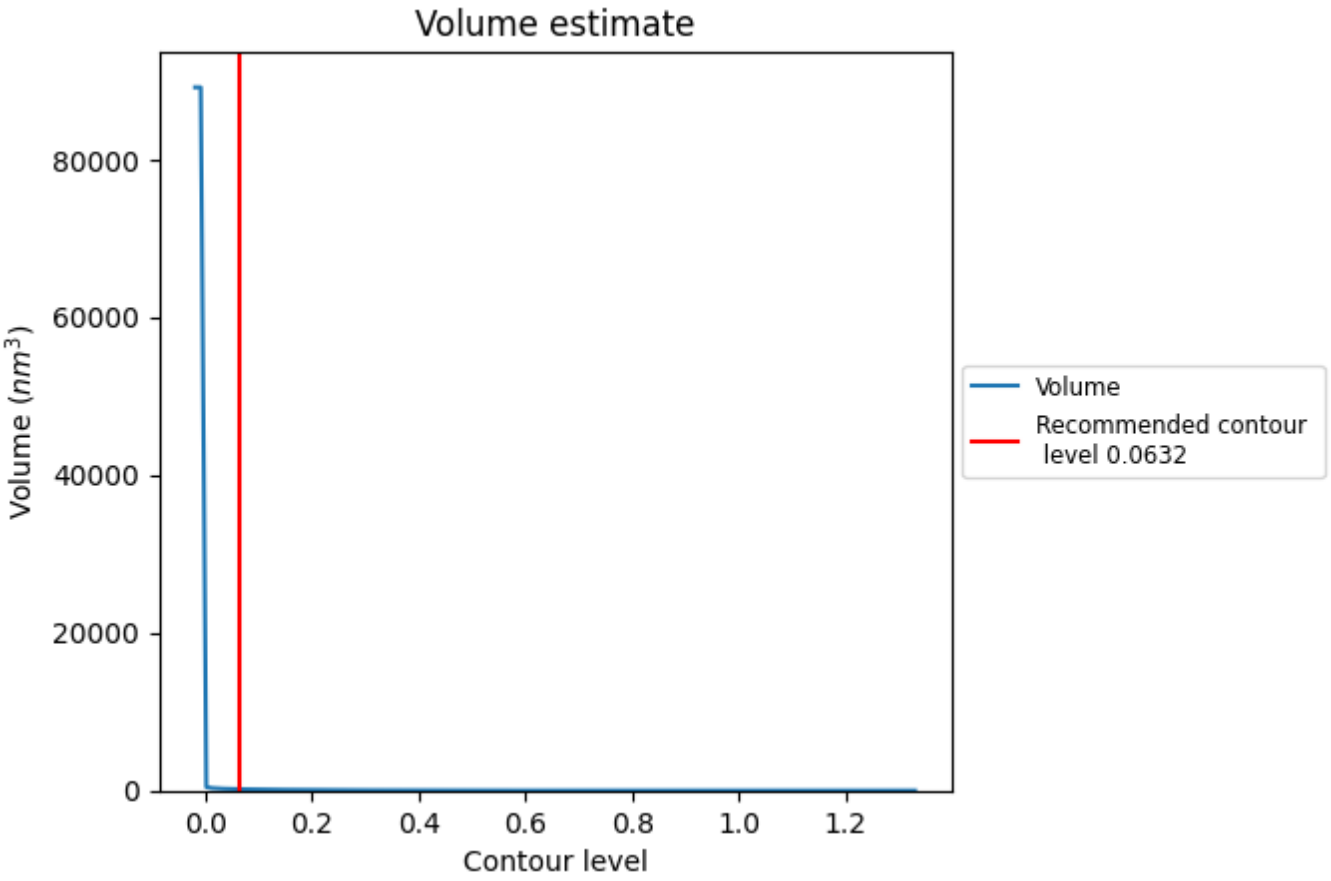
This section contains the results of statistical analysis of the map.

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.

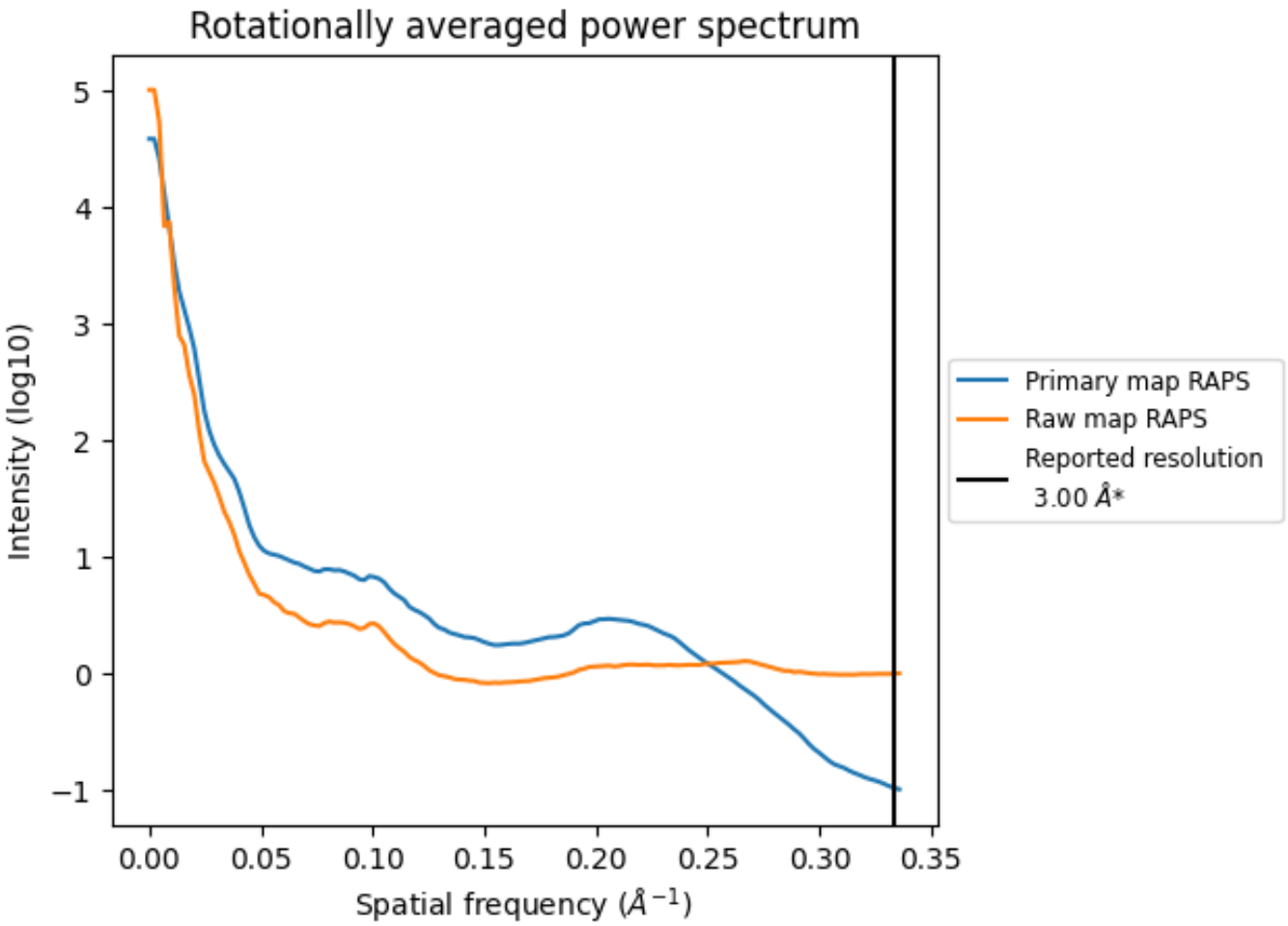
7.2 Volume estimate



The volume at the recommended contour level is 180 nm^3; this corresponds to an approximate mass of 162 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)

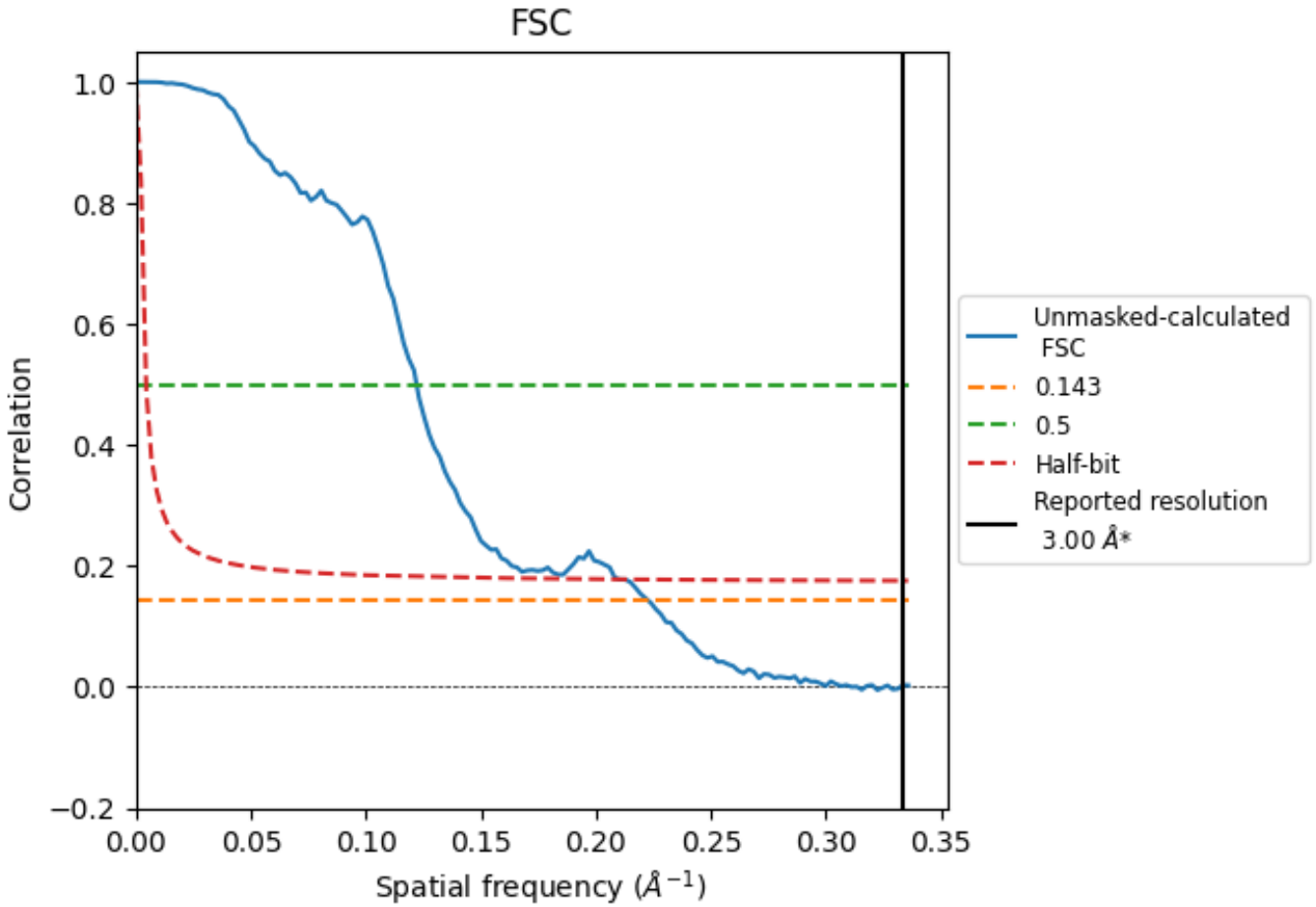


*Reported resolution corresponds to spatial frequency of 0.333 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.333 Å^{-1}

8.2 Resolution estimates (i)

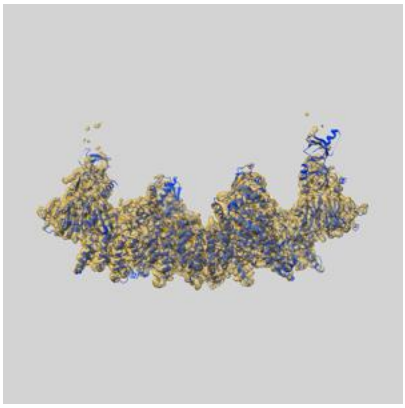
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	-	3.00	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.49	8.20	4.76

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.5 CUT-OFF 8.20 differs from the reported value 3.0 by more than 10 %

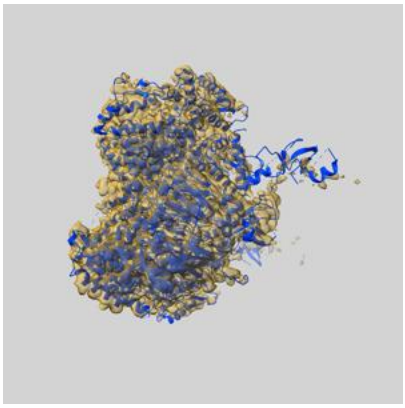
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-16087 and PDB model 8BJA. Per-residue inclusion information can be found in section 3 on page 6.

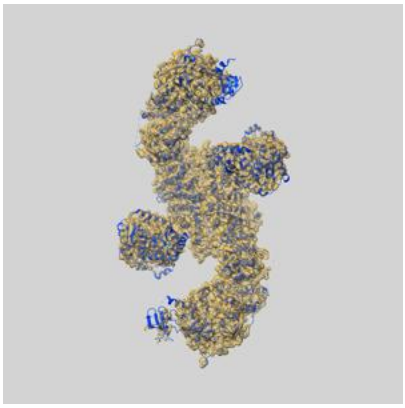
9.1 Map-model overlay



X



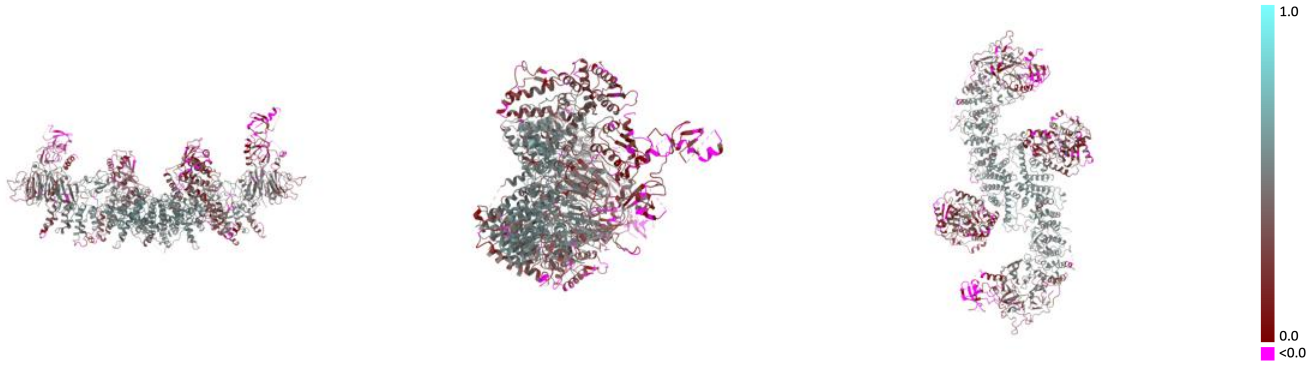
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0632 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.

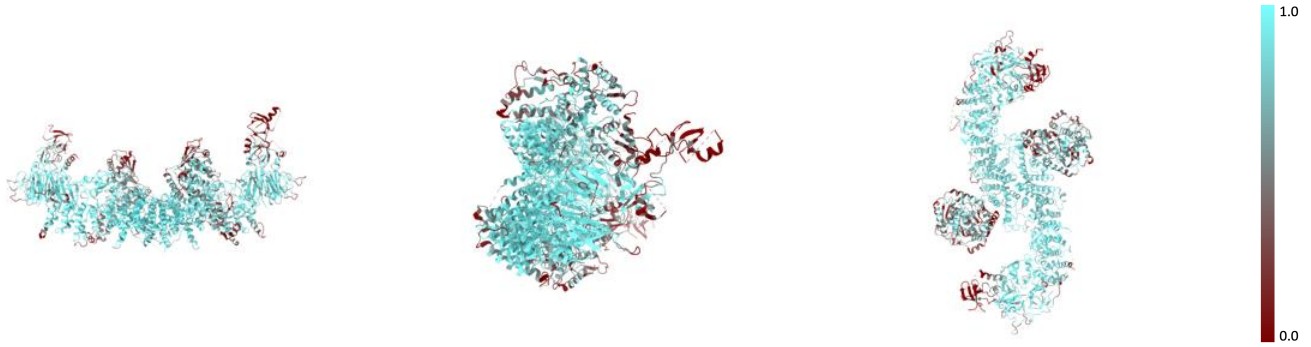
9.2 Q-score mapped to coordinate model (i)



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.

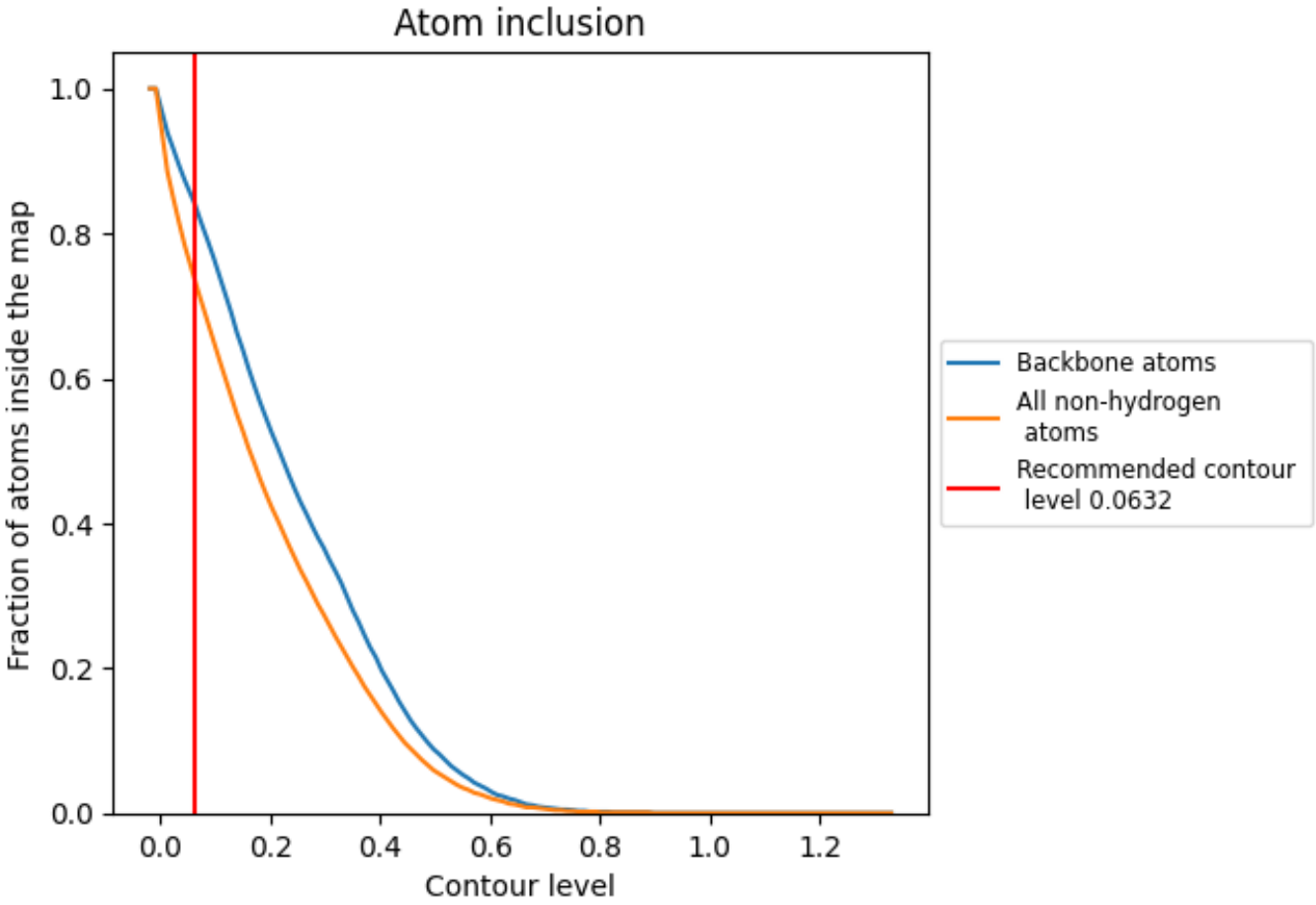
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0632).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 74% 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 (0.0632) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7350	0.3630
A	0.7500	0.3700
B	0.7200	0.3570