Full wwPDB EM Validation Report ⓘ

Jul 9, 2025 – 01:57 am BST

PDB ID	:	9QB8 / pdb_00009qb8
EMDB ID	:	EMD-52990
Title	:	Lymphostatin - Conformation II - pH 8 Hepes
Authors	:	Bottcher, B.; Schneider, R.; Griessmann, M.; Ramussen, T.
Deposited on	:	2025-02-28
Resolution	:	3.40 Å(reported)
Based on initial model	:	9euw

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:

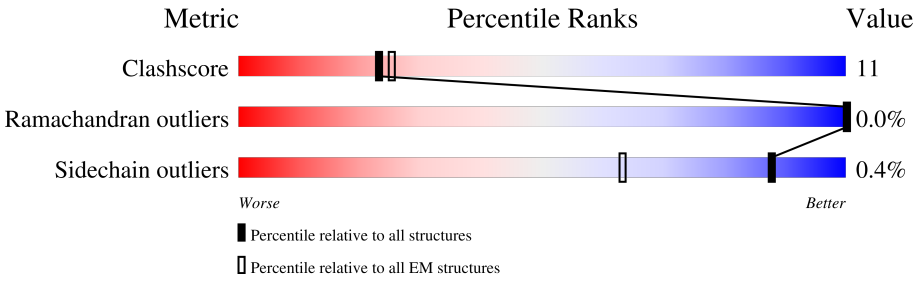
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (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 3.40 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	3223	65% 21% 13%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 22339 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 Lymphostatin.

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

- Molecule 2 is MANGANESE (II) ION (CCD ID: MN) (formula: Mn) (labeled as "Ligand of Interest" by depositor).

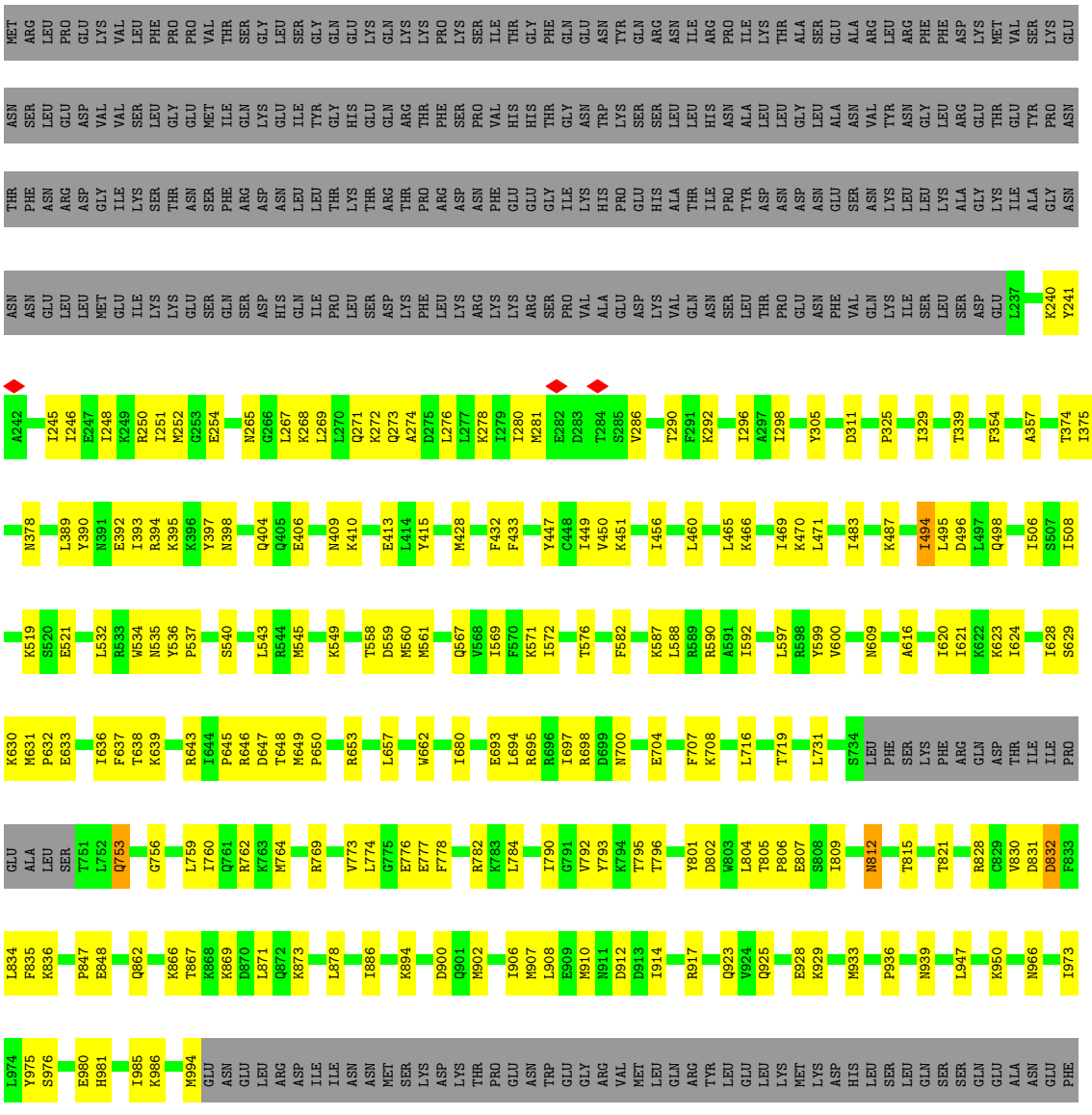
Mol	Chain	Residues	Atoms		AltConf
			Total	Mn	
2	A	1	1	1	0

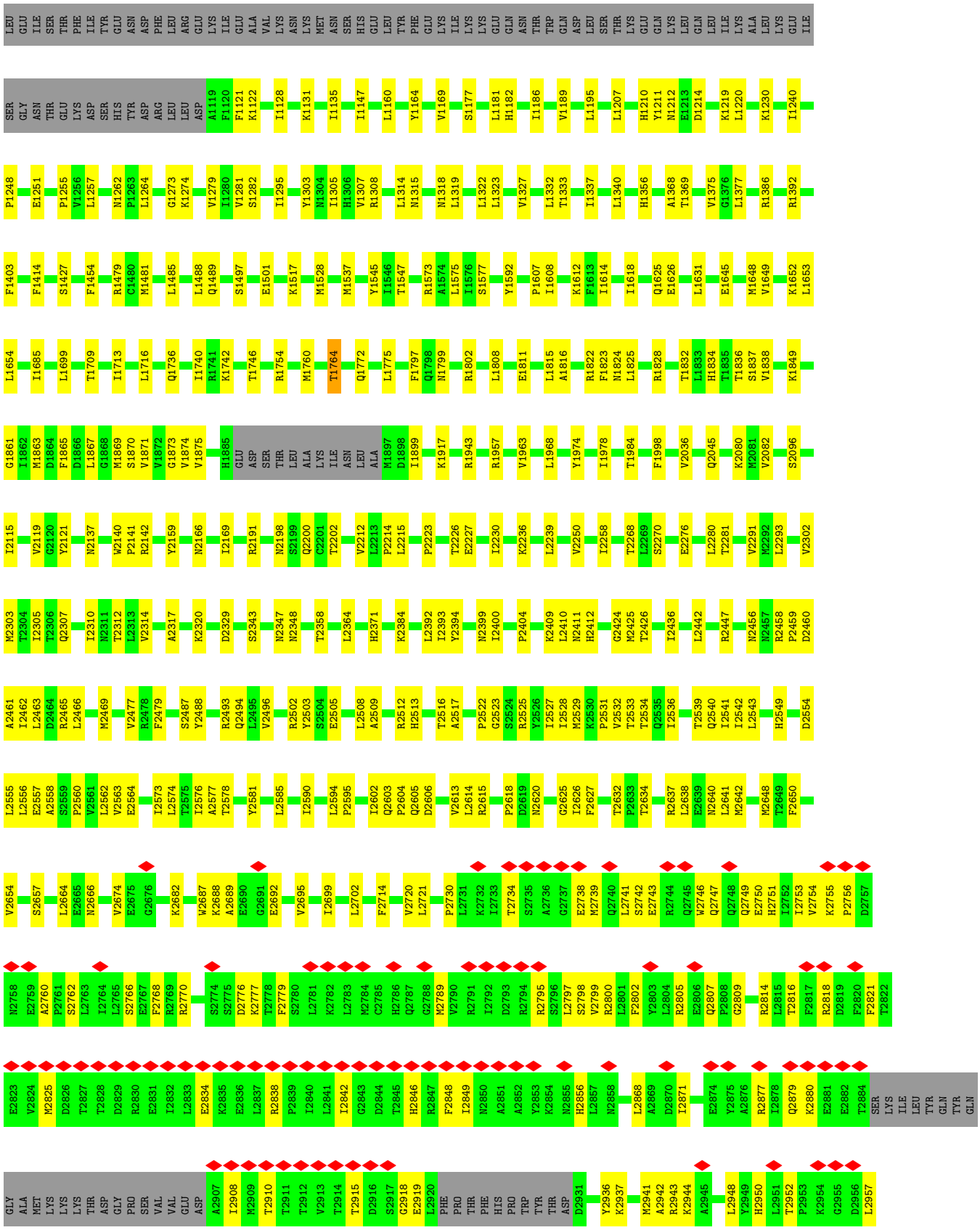
3 Residue-property plots (i)

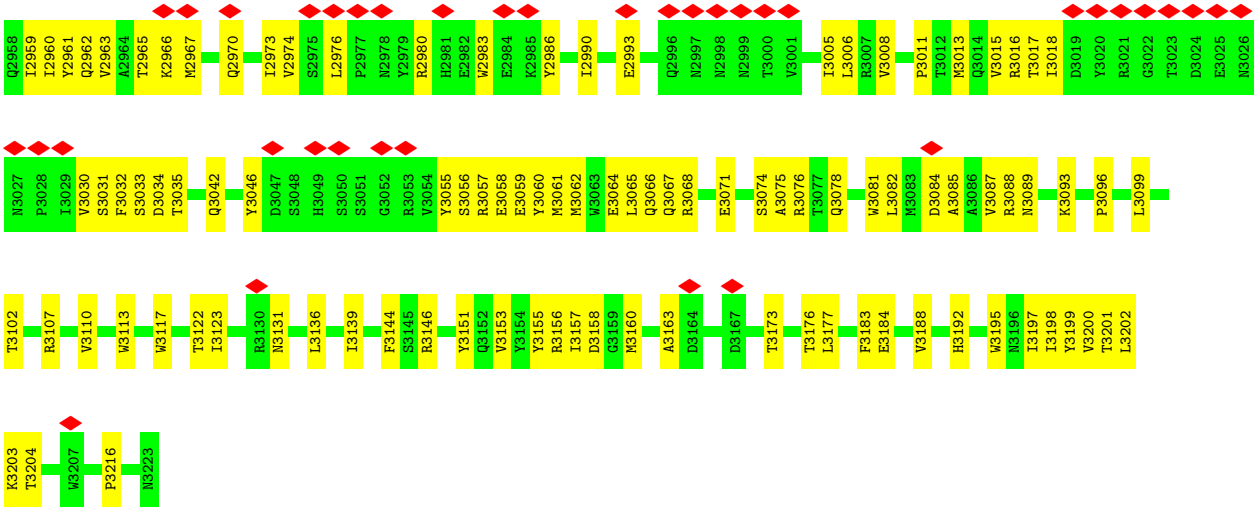
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

Chain A:






Q2958 I2959 I2960 Y2961 Q2962 V2963 A2964 T2965 K2966 M2967 Q2970 I2973 V2974 S2975 L2976 P2977 N2978 Y2979 R2980 H2981 E2982 W2983 E2984 K2985 Y2986 I2990 E2993 Q2996 M2997 N2998 M2999 T3000 V3001 I3005 L3006 R3007 V3008 P3011 T3012 M3013 Q3014 V3015 R3016 T3017 I3018 D3019 Y3020 R3021 G3022 T3023 D3024 E3025 N3026
N3027 P3028 I3029 V3030 S3031 F3032 S3033 D3034 T3035 Q3042 Y3046 D3047 S3048 H3049 S3050 S3051 G3052 R3053 V3054 Y3055 S3056 R3057 E3058 E3059 Y3060 M3061 M3062 W3063 E3064 L3065 Q3066 Q3067 R3068 E3071 S3074 A3075 R3076 T3077 Q3078 W3081 L3082 M3083 D3084 A3085 A3086 V3087 R3088 N3089 K3093 P3096 L3099
T3102 R3107 V3110 W3113 W3117 T3122 I3123 R3130 N3131 L3136 I3139 F3144 S3145 R3146 Y3151 Q3152 V3153 Y3154 Y3155 R3156 I3157 D3158 G3159 M3160 A3163 D3164 D3167 T3173 T3176 L3177 F3183 E3184 V3188 H3192 W3195 N3196 I3197 I3198 Y3199 V3200 T3201 L3202
K3203 T3204 W3207 P3216 N3223

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	298552	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	70	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1100	Depositor
Magnification	130000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	43.996	Depositor
Minimum map value	-17.599	Depositor
Average map value	-0.005	Depositor
Map value standard deviation	0.916	Depositor
Recommended contour level	3	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

Bond lengths and bond angles in the following residue types are not validated in this section: MN

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	0.24	0/22775	0.42	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	22339	488	0
2	A	1	0	0	0	0
All	All	22339	0	22339	488	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 (488) 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:2080:LYS:HG2	1:A:2198:ASN:HD22	1.28	0.95
1:A:3096:PRO:HA	1:A:3099:LEU:HD12	1.57	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3068:ARG:HE	1:A:3075:ALA:HB1	1.40	0.85
1:A:2614:LEU:HD23	1:A:2615:ARG:HH21	1.40	0.84
1:A:545:MET:HE1	1:A:649:MET:HE1	1.59	0.84
1:A:2980:ARG:HH12	1:A:3088:ARG:HH22	1.27	0.81
1:A:2641:LEU:HD21	1:A:2664:LEU:HB3	1.61	0.81
1:A:3099:LEU:HB3	1:A:3160:MET:HE1	1.69	0.74
1:A:2795:ARG:HA	1:A:2821:PHE:HB2	1.70	0.73
1:A:397:TYR:HE2	1:A:835:PHE:CG	2.09	0.71
1:A:2648:MET:HG2	1:A:3084:ASP:HB2	1.72	0.71
1:A:1314:LEU:HD21	1:A:1319:LEU:HD12	1.74	0.69
1:A:378:ASN:HD21	1:A:1648:MET:HB3	1.57	0.69
1:A:769:ARG:HH12	1:A:782:ARG:HA	1.57	0.69
1:A:1189:VAL:HG22	1:A:1281:VAL:HG13	1.74	0.68
1:A:2527:ILE:HD13	1:A:2554:ASP:HB3	1.75	0.68
1:A:1870:SER:O	1:A:1874:VAL:HG23	1.93	0.68
1:A:2080:LYS:HG2	1:A:2198:ASN:ND2	2.05	0.68
1:A:1811:GLU:HB2	1:A:1828:ARG:HB2	1.75	0.67
1:A:2910:THR:HG23	1:A:2973:ILE:HD11	1.76	0.67
1:A:2642:MET:HE3	1:A:2642:MET:H	1.59	0.67
1:A:3005:ILE:HG23	1:A:3016:ARG:HB2	1.76	0.67
1:A:871:LEU:HD22	1:A:906:ILE:HG23	1.76	0.66
1:A:2776:ASP:HB3	1:A:2779:PHE:HB3	1.77	0.66
1:A:2096:SER:HB3	1:A:2141:PRO:HD2	1.77	0.66
1:A:2540:GLN:HE22	1:A:2542:ILE:HG23	1.60	0.66
1:A:2250:VAL:HB	1:A:2303:MET:HE1	1.77	0.65
1:A:3074:SER:O	1:A:3078:GLN:HG3	1.96	0.65
1:A:2754:VAL:HG12	1:A:2756:PRO:HD3	1.79	0.65
1:A:2990:ILE:HG22	1:A:3006:LEU:HB3	1.78	0.65
1:A:1797:PHE:HB3	1:A:1899:ILE:HD12	1.79	0.65
1:A:494:ILE:HG12	1:A:508:ILE:HG13	1.79	0.64
1:A:867:THR:HG21	1:A:912:ASP:HB2	1.79	0.64
1:A:2487:SER:HB3	1:A:2496:VAL:HG13	1.78	0.64
1:A:2562:LEU:HB3	1:A:2577:ALA:HB3	1.80	0.64
1:A:1626:GLU:HB2	1:A:1631:LEU:HD22	1.80	0.64
1:A:3155:TYR:HA	1:A:3200:VAL:O	1.98	0.64
1:A:2364:LEU:HD22	1:A:2371:HIS:CE1	2.33	0.64
1:A:494:ILE:HG13	1:A:498:GLN:HE21	1.64	0.63
1:A:2919:GLU:HG2	1:A:2936:TYR:HB2	1.80	0.63
1:A:2614:LEU:HD23	1:A:2615:ARG:NH2	2.12	0.63
1:A:2980:ARG:NH1	1:A:3088:ARG:HH22	1.96	0.63
1:A:1305:ILE:HD11	1:A:1323:LEU:HD21	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3184:GLU:HB3	1:A:3203:LYS:HB3	1.80	0.62
1:A:1315:ASN:H	1:A:1318:ASN:HD22	1.47	0.62
1:A:695:ARG:HH22	1:A:1392:ARG:HD2	1.64	0.62
1:A:900:ASP:OD2	1:A:1377:LEU:HD12	2.00	0.62
1:A:939:ASN:HB2	1:A:1257:LEU:HD13	1.81	0.62
1:A:2528:ILE:HG23	1:A:2558:ALA:HB2	1.82	0.62
1:A:1863:MET:HE2	1:A:1863:MET:HA	1.82	0.61
1:A:398:ASN:ND2	1:A:835:PHE:HE1	1.99	0.61
1:A:536:TYR:HB3	1:A:537:PRO:HD3	1.83	0.61
1:A:1815:LEU:HD13	1:A:1917:LYS:HD2	1.80	0.61
1:A:278:LYS:HA	1:A:281:MET:HE3	1.82	0.61
1:A:456:ILE:HG23	1:A:460:LEU:HD23	1.82	0.61
1:A:1489:GLN:HG2	1:A:1654:LEU:HD13	1.83	0.61
1:A:2941:MET:HE3	1:A:2942:ALA:N	2.15	0.61
1:A:549:LYS:HB2	1:A:680:ILE:HG21	1.83	0.61
1:A:3011:PRO:HG3	1:A:3078:GLN:HA	1.83	0.60
1:A:2503:TYR:HD1	1:A:2523:GLY:HA3	1.65	0.60
1:A:2739:MET:HE1	1:A:2741:LEU:HB2	1.82	0.60
1:A:760:ILE:O	1:A:764:MET:HG3	2.01	0.60
1:A:1481:MET:HE1	1:A:1575:LEU:HD13	1.83	0.60
1:A:2603:GLN:HB3	1:A:2606:ASP:HB3	1.83	0.60
1:A:2603:GLN:HE22	1:A:2634:THR:HB	1.66	0.60
1:A:276:LEU:O	1:A:280:ILE:HG13	2.02	0.60
1:A:2461:ALA:O	1:A:2465:ARG:HG2	2.01	0.60
1:A:862:GLN:HB2	1:A:914:ILE:HG21	1.83	0.59
1:A:1356:HIS:HE1	1:A:1368:ALA:HB2	1.67	0.59
1:A:246:ILE:HG23	1:A:250:ARG:HH21	1.68	0.59
1:A:245:ILE:O	1:A:248:ILE:HG22	2.02	0.59
1:A:2212:VAL:HG12	1:A:2214:PRO:HD3	1.83	0.59
1:A:3156:ARG:HH12	1:A:3158:ASP:HA	1.68	0.59
1:A:981:HIS:O	1:A:985:ILE:HG13	2.02	0.59
1:A:2563:VAL:HG21	1:A:2602:ILE:HD11	1.84	0.59
1:A:621:ILE:HA	1:A:624:ILE:HD12	1.85	0.58
1:A:2302:VAL:HG13	1:A:2303:MET:HG2	1.85	0.58
1:A:2525:ARG:HH22	1:A:2527:ILE:HB	1.68	0.58
1:A:630:LYS:HD2	1:A:630:LYS:C	2.27	0.58
1:A:2424:GLY:HA2	1:A:2447:ARG:HD3	1.84	0.58
1:A:3018:ILE:HG22	1:A:3030:VAL:HG22	1.84	0.58
1:A:2564:GLU:HG3	1:A:2625:GLY:HA2	1.85	0.58
1:A:1736:GLN:O	1:A:1740:ILE:HG12	2.04	0.58
1:A:2714:PHE:HD2	1:A:2720:VAL:HG11	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:561:MET:HB3	1:A:812:ASN:HB3	1.84	0.58
1:A:3131:ASN:HB3	1:A:3176:THR:HB	1.85	0.58
1:A:2529:MET:HA	1:A:2557:GLU:HB2	1.85	0.57
1:A:2918:GLY:HA2	1:A:2937:LYS:HE2	1.85	0.57
1:A:1497:SER:O	1:A:1501:GLU:HG2	2.04	0.57
1:A:2532:VAL:HG13	1:A:2533:THR:HG23	1.87	0.57
1:A:2957:LEU:HB3	1:A:2976:LEU:HB2	1.86	0.57
1:A:1760:MET:HE3	1:A:1760:MET:HA	1.87	0.57
1:A:2082:VAL:HG22	1:A:2202:THR:HB	1.86	0.57
1:A:273:GLN:HA	1:A:276:LEU:HD12	1.87	0.56
1:A:792:VAL:HG23	1:A:807:GLU:HB2	1.86	0.56
1:A:2838:ARG:HH21	1:A:2879:GLN:HB3	1.71	0.56
1:A:3057:ARG:O	1:A:3061:MET:HG2	2.06	0.56
1:A:2688:LYS:HZ1	1:A:2695:VAL:H	1.54	0.56
1:A:1517:LYS:HE3	1:A:1984:THR:HG22	1.86	0.55
1:A:1824:ASN:HB3	1:A:1836:THR:HB	1.88	0.55
1:A:698:ARG:HH12	1:A:1392:ARG:CZ	2.19	0.55
1:A:1327:VAL:HG12	1:A:1375:VAL:HG11	1.88	0.55
1:A:2760:ALA:HB3	1:A:2856:HIS:CD2	2.42	0.55
1:A:2404:PRO:HG3	1:A:2410:LEU:HD13	1.88	0.55
1:A:2749:GLN:HE21	1:A:2750:GLU:H	1.54	0.55
1:A:397:TYR:CE2	1:A:835:PHE:CG	2.94	0.55
1:A:2512:ARG:HA	1:A:2536:ILE:HA	1.88	0.55
1:A:415:TYR:HB2	1:A:731:LEU:HB3	1.89	0.55
1:A:2384:LYS:HD2	1:A:2393:ILE:HG21	1.87	0.55
1:A:3032:PHE:H	1:A:3055:TYR:HB3	1.70	0.55
1:A:357:ALA:HB1	1:A:832:ASP:HB3	1.89	0.55
1:A:1121:PHE:HD2	1:A:1122:LYS:HE3	1.72	0.55
1:A:2531:PRO:HD2	1:A:2578:THR:HG21	1.89	0.55
1:A:240:LYS:HE2	1:A:241:TYR:HE1	1.72	0.55
1:A:2462:ILE:O	1:A:2466:LEU:HG	2.07	0.54
1:A:588:LEU:HD22	1:A:621:ILE:HD11	1.89	0.54
1:A:3065:LEU:HD11	1:A:3156:ARG:HB2	1.90	0.54
1:A:2800:ARG:HD3	1:A:2814:ARG:HH11	1.71	0.54
1:A:278:LYS:HD2	1:A:281:MET:HE3	1.88	0.54
1:A:1614:ILE:O	1:A:1618:ILE:HG13	2.07	0.54
1:A:311:ASP:HB2	1:A:643:ARG:HE	1.72	0.54
1:A:2941:MET:HE3	1:A:2942:ALA:H	1.71	0.54
1:A:1181:LEU:HD12	1:A:1186:ILE:HD12	1.88	0.54
1:A:545:MET:HE3	1:A:545:MET:HA	1.88	0.54
1:A:3076:ARG:HG3	1:A:3139:ILE:HG21	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:910:MET:HG2	1:A:912:ASP:H	1.73	0.54
1:A:2640:ASN:HB3	1:A:2642:MET:SD	2.48	0.54
1:A:269:LEU:O	1:A:273:GLN:HG2	2.08	0.53
1:A:653:ARG:HD2	1:A:792:VAL:HG12	1.89	0.53
1:A:1802:ARG:HD3	1:A:1808:LEU:HD22	1.89	0.53
1:A:2730:PRO:HA	1:A:2751:HIS:O	2.08	0.53
1:A:3068:ARG:NE	1:A:3075:ALA:HB1	2.17	0.53
1:A:2312:THR:O	1:A:2312:THR:HG22	2.06	0.53
1:A:3017:THR:HG23	1:A:3031:SER:HB2	1.90	0.53
1:A:2594:LEU:HD12	1:A:2614:LEU:HD22	1.91	0.53
1:A:2699:ILE:HD12	1:A:2702:LEU:HD11	1.90	0.53
1:A:254:GLU:HB3	1:A:269:LEU:HD13	1.91	0.53
1:A:339:THR:HG21	1:A:637:PHE:HB2	1.90	0.53
1:A:828:ARG:HD2	1:A:831:ASP:HB2	1.91	0.53
1:A:1333:THR:O	1:A:1337:ILE:HG13	2.09	0.53
1:A:3058:GLU:HG2	1:A:3059:GLU:N	2.24	0.53
1:A:286:VAL:HG13	1:A:290:THR:HB	1.90	0.53
1:A:397:TYR:HE2	1:A:835:PHE:CD2	2.26	0.53
1:A:973:ILE:HB	1:A:1147:ILE:HD13	1.90	0.52
1:A:392:GLU:HA	1:A:395:LYS:HZ1	1.74	0.52
1:A:3087:VAL:HG12	1:A:3087:VAL:O	2.08	0.52
1:A:3061:MET:SD	1:A:3201:THR:HG21	2.50	0.52
1:A:3197:ILE:C	1:A:3198:ILE:HD12	2.35	0.52
1:A:1303:TYR:O	1:A:1307:VAL:HG12	2.09	0.52
1:A:2560:PRO:HA	1:A:2576:ILE:HD11	1.90	0.52
1:A:1754:ARG:HG2	1:A:1978:ILE:HD13	1.91	0.52
1:A:2409:LYS:HG3	1:A:2412:HIS:HB2	1.92	0.52
1:A:2714:PHE:CD2	1:A:2720:VAL:HG11	2.45	0.52
1:A:2980:ARG:HH21	1:A:3081:TRP:CG	2.27	0.52
1:A:3035:THR:HG22	1:A:3046:TYR:HD2	1.73	0.52
1:A:3085:ALA:HA	1:A:3088:ARG:NE	2.24	0.52
1:A:1319:LEU:HD11	1:A:1340:LEU:HD23	1.91	0.52
1:A:3006:LEU:HB2	1:A:3015:VAL:HG23	1.92	0.52
1:A:3082:LEU:HD11	1:A:3102:THR:HG22	1.91	0.52
1:A:2080:LYS:HD3	1:A:2200:GLN:HB3	1.90	0.51
1:A:2425:MET:HE3	1:A:2466:LEU:HD21	1.91	0.51
1:A:404:GLN:HE22	1:A:830:VAL:HA	1.75	0.51
1:A:929:LYS:O	1:A:933:MET:HG2	2.10	0.51
1:A:2276:GLU:HA	1:A:2317:ALA:HB3	1.93	0.51
1:A:2543:LEU:HD13	1:A:2595:PRO:HG2	1.93	0.51
1:A:3085:ALA:HA	1:A:3088:ARG:HE	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:600:VAL:HG21	1:A:637:PHE:CE2	2.45	0.51
1:A:3065:LEU:HD21	1:A:3156:ARG:HG2	1.93	0.51
1:A:269:LEU:HA	1:A:272:LYS:HE3	1.91	0.51
1:A:1427:SER:HB2	1:A:1547:THR:HG21	1.93	0.51
1:A:1182:HIS:CE1	1:A:1282:SER:HB2	2.46	0.51
1:A:2605:GLN:HE22	1:A:2638:LEU:H	1.59	0.51
1:A:3056:SER:H	1:A:3059:GLU:HG3	1.75	0.51
1:A:1742:LYS:O	1:A:1746:THR:HG23	2.10	0.51
1:A:2846:HIS:HA	1:A:2849:ILE:HB	1.93	0.51
1:A:406:GLU:O	1:A:410:LYS:HE2	2.11	0.51
1:A:248:ILE:O	1:A:251:ILE:HG22	2.11	0.50
1:A:878:LEU:HD21	1:A:902:MET:SD	2.51	0.50
1:A:907:MET:HE1	1:A:923:GLN:HE22	1.76	0.50
1:A:1131:LYS:O	1:A:1135:ILE:HG22	2.11	0.50
1:A:3076:ARG:HA	1:A:3139:ILE:HG13	1.93	0.50
1:A:576:THR:HG22	1:A:620:ILE:HD11	1.92	0.50
1:A:1825:LEU:H	1:A:1836:THR:HA	1.77	0.50
1:A:2226:THR:O	1:A:2230:ILE:HG12	2.11	0.50
1:A:2838:ARG:O	1:A:2842:ILE:HG13	2.11	0.50
1:A:2563:VAL:HB	1:A:2627:PHE:HB3	1.93	0.50
1:A:2959:ILE:HB	1:A:2974:VAL:HB	1.93	0.50
1:A:632:PRO:O	1:A:633:GLU:C	2.55	0.50
1:A:2465:ARG:HG3	1:A:2465:ARG:HH11	1.77	0.50
1:A:2477:VAL:HB	1:A:2488:TYR:HB3	1.92	0.50
1:A:2948:LEU:HD23	1:A:2960:ILE:HG21	1.93	0.50
1:A:451:LYS:HD3	1:A:917:ARG:HH21	1.77	0.50
1:A:1849:LYS:HB3	1:A:1867:LEU:HD11	1.92	0.50
1:A:2963:VAL:HG13	1:A:2965:THR:H	1.76	0.50
1:A:3113:TRP:CZ3	1:A:3198:ILE:HG12	2.47	0.50
1:A:871:LEU:HD13	1:A:910:MET:HE2	1.94	0.49
1:A:947:LEU:HD11	1:A:975:TYR:HB2	1.94	0.49
1:A:2573:ILE:O	1:A:2573:ILE:HG13	2.12	0.49
1:A:3136:LEU:HD22	1:A:3173:THR:HG21	1.93	0.49
1:A:2641:LEU:HD12	1:A:2666:ASN:HB2	1.92	0.49
1:A:2805:ARG:HH12	1:A:2809:GLY:C	2.20	0.49
1:A:1871:VAL:O	1:A:1875:VAL:HG12	2.12	0.49
1:A:1608:ILE:O	1:A:1612:LYS:HG3	2.13	0.49
1:A:2505:GLU:HG2	1:A:2525:ARG:HE	1.77	0.49
1:A:2983:TRP:H	1:A:2983:TRP:CD1	2.30	0.49
1:A:3117:TRP:CH2	1:A:3216:PRO:HD3	2.47	0.49
1:A:3117:TRP:CZ3	1:A:3216:PRO:HD3	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3188:VAL:HG23	1:A:3200:VAL:HG22	1.93	0.49
1:A:2650:PHE:CE1	1:A:2721:LEU:HB2	2.48	0.49
1:A:2682:LYS:HD2	1:A:2682:LYS:C	2.38	0.49
1:A:2394:TYR:H	1:A:2399:ASN:HB3	1.78	0.49
1:A:848:GLU:HG3	1:A:928:GLU:OE2	2.13	0.49
1:A:2456:ASN:HB3	1:A:2458:ARG:NE	2.27	0.49
1:A:793:TYR:CD1	1:A:806:PRO:HB3	2.48	0.48
1:A:1764:THR:HG21	1:A:1772:GLN:HG3	1.94	0.48
1:A:2036:VAL:HG13	1:A:2045:GLN:HB3	1.94	0.48
1:A:3197:ILE:O	1:A:3197:ILE:HG13	2.12	0.48
1:A:753:GLN:HE21	1:A:753:GLN:HA	1.78	0.48
1:A:2642:MET:H	1:A:2642:MET:CE	2.25	0.48
1:A:1822:ARG:HH22	1:A:1837:SER:HA	1.77	0.48
1:A:1823:PHE:HB2	1:A:1838:VAL:HG12	1.95	0.48
1:A:2115:ILE:O	1:A:2119:VAL:HG12	2.13	0.48
1:A:1488:LEU:HD11	1:A:1573:ARG:HB3	1.94	0.48
1:A:2618:PRO:HB2	1:A:2620:ASN:OD1	2.13	0.48
1:A:390:TYR:CZ	1:A:394:ARG:HD2	2.48	0.48
1:A:1332:LEU:HD23	1:A:1332:LEU:HA	1.69	0.48
1:A:2280:LEU:HD12	1:A:2281:THR:N	2.29	0.48
1:A:2392:LEU:O	1:A:2399:ASN:HB2	2.13	0.48
1:A:2465:ARG:O	1:A:2469:MET:HG3	2.14	0.48
1:A:2516:THR:OG1	1:A:2539:THR:HG23	2.13	0.48
1:A:1626:GLU:HA	1:A:1631:LEU:HB2	1.95	0.48
1:A:3192:HIS:CD2	1:A:3195:TRP:HD1	2.31	0.48
1:A:451:LYS:HD3	1:A:917:ARG:NH2	2.29	0.48
1:A:588:LEU:O	1:A:592:ILE:HG13	2.13	0.48
1:A:1775:LEU:HD12	1:A:1869:MET:HE3	1.96	0.48
1:A:265:ASN:O	1:A:269:LEU:HG	2.14	0.48
1:A:1128:ILE:HA	1:A:1131:LYS:HZ3	1.78	0.48
1:A:2802:PHE:HZ	1:A:3042:GLN:HG2	1.78	0.48
1:A:646:ARG:HG2	1:A:647:ASP:OD1	2.14	0.47
1:A:769:ARG:HH22	1:A:782:ARG:HB2	1.79	0.47
1:A:2329:ASP:HA	1:A:2347:ASN:O	2.14	0.47
1:A:2556:LEU:HD22	1:A:2604:PRO:HD3	1.96	0.47
1:A:2834:GLU:O	1:A:2838:ARG:HG3	2.13	0.47
1:A:2508:LEU:HD12	1:A:2509:ALA:H	1.79	0.47
1:A:466:LYS:HG2	1:A:471:LEU:HB2	1.95	0.47
1:A:796:THR:HB	1:A:802:ASP:HB3	1.96	0.47
1:A:2307:GLN:HB2	1:A:2310:ILE:HG13	1.95	0.47
1:A:2605:GLN:HE22	1:A:2637:ARG:HA	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:LYS:HA	1:A:271:GLN:OE1	2.14	0.47
1:A:292:LYS:HA	1:A:292:LYS:HD3	1.79	0.47
1:A:567:GLN:HE21	1:A:571:LYS:HD2	1.79	0.47
1:A:2942:ALA:HB2	1:A:2993:GLU:HB3	1.96	0.47
1:A:2944:LYS:HE2	1:A:2962:GLN:HB3	1.95	0.47
1:A:281:MET:HE1	1:A:298:ILE:HD11	1.96	0.47
1:A:409:ASN:O	1:A:413:GLU:HG2	2.14	0.47
1:A:638:THR:OG1	1:A:639:LYS:N	2.46	0.47
1:A:2603:GLN:CD	1:A:2604:PRO:HD2	2.39	0.47
1:A:246:ILE:HG23	1:A:250:ARG:NH2	2.30	0.47
1:A:252:MET:HE2	1:A:252:MET:HB2	1.84	0.47
1:A:981:HIS:HD1	1:A:981:HIS:C	2.22	0.47
1:A:2868:LEU:O	1:A:2868:LEU:HD12	2.15	0.47
1:A:3058:GLU:O	1:A:3062:MET:HG2	2.15	0.47
1:A:624:ILE:O	1:A:628:ILE:HG22	2.15	0.47
1:A:936:PRO:HB3	1:A:1537:MET:SD	2.55	0.47
1:A:3060:TYR:O	1:A:3064:GLU:HG3	2.14	0.47
1:A:3089:ASN:HD21	1:A:3093:LYS:HB3	1.80	0.47
1:A:1974:TYR:HA	1:A:1978:ILE:HB	1.96	0.47
1:A:2503:TYR:CD1	1:A:2523:GLY:HA3	2.48	0.47
1:A:2689:ALA:HB3	1:A:2692:GLU:HB3	1.97	0.47
1:A:569:ILE:HA	1:A:572:ILE:HG22	1.97	0.46
1:A:2270:SER:HA	1:A:2314:VAL:HB	1.95	0.46
1:A:836:LYS:HA	1:A:836:LYS:HE2	1.96	0.46
1:A:1177:SER:O	1:A:1181:LEU:HD23	2.15	0.46
1:A:1963:VAL:HB	1:A:1968:LEU:HD11	1.97	0.46
1:A:2291:VAL:HB	1:A:2303:MET:HB2	1.97	0.46
1:A:3071:GLU:OE1	1:A:3071:GLU:HA	2.15	0.46
1:A:2741:LEU:HD12	1:A:2741:LEU:HA	1.79	0.46
1:A:2967:MET:HE2	1:A:2967:MET:C	2.40	0.46
1:A:267:LEU:HB3	1:A:305:TYR:CZ	2.50	0.46
1:A:1454:PHE:CE2	1:A:2142:ARG:HD3	2.50	0.46
1:A:1699:LEU:HG	1:A:1716:LEU:HD23	1.97	0.46
1:A:1248:PRO:HD2	1:A:1251:GLU:HG3	1.97	0.46
1:A:1865:PHE:CZ	1:A:1869:MET:HE2	2.51	0.46
1:A:777:GLU:HG3	1:A:778:PHE:HD1	1.81	0.46
1:A:3065:LEU:HD12	1:A:3199:TYR:HB3	1.98	0.46
1:A:986:LYS:HD3	1:A:1169:VAL:HG11	1.98	0.46
1:A:1274:LYS:HB2	1:A:1274:LYS:HE2	1.76	0.46
1:A:1386:ARG:HD2	1:A:1386:ARG:HA	1.70	0.46
1:A:1649:VAL:HG12	1:A:1653:LEU:HD11	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2343:SER:HB2	1:A:2348:ASN:OD1	2.16	0.46
1:A:697:ILE:HD12	1:A:719:THR:HG21	1.99	0.46
1:A:2563:VAL:HG12	1:A:2626:ILE:HD11	1.98	0.46
1:A:2512:ARG:HG2	1:A:2533:THR:OG1	2.16	0.45
1:A:2789:MET:HE1	1:A:2799:VAL:HG13	1.98	0.45
1:A:545:MET:CE	1:A:680:ILE:HG23	2.47	0.45
1:A:2239:LEU:HD12	1:A:2258:ILE:HG12	1.98	0.45
1:A:2539:THR:HB	1:A:2585:LEU:HD12	1.98	0.45
1:A:2943:ARG:HD3	1:A:2961:TYR:CD1	2.50	0.45
1:A:248:ILE:HA	1:A:251:ILE:HG22	1.99	0.45
1:A:559:ASP:OD1	1:A:560:MET:HE2	2.15	0.45
1:A:2750:GLU:OE1	1:A:2751:HIS:HB2	2.15	0.45
1:A:2777:LYS:HE2	1:A:2777:LYS:HB2	1.90	0.45
1:A:251:ILE:HD11	1:A:269:LEU:HB3	1.99	0.45
1:A:759:LEU:HD12	1:A:762:ARG:HH21	1.81	0.45
1:A:449:ILE:HD13	1:A:1386:ARG:HB3	1.98	0.45
1:A:795:THR:HA	1:A:801:TYR:HA	1.99	0.45
1:A:1828:ARG:HH22	1:A:1832:THR:HG22	1.81	0.45
1:A:1873:GLY:HA3	1:A:1998:PHE:CZ	2.52	0.45
1:A:582:PHE:CD1	1:A:588:LEU:HD13	2.52	0.45
1:A:873:LYS:HA	1:A:873:LYS:HE2	1.99	0.45
1:A:2159:TYR:HE1	1:A:2215:LEU:HB3	1.82	0.45
1:A:2734:THR:HG22	1:A:2755:LYS:HB3	1.99	0.45
1:A:540:SER:HB3	1:A:543:LEU:HD12	1.99	0.45
1:A:1592:TYR:CE2	1:A:1607:PRO:HG3	2.52	0.45
1:A:1685:ILE:O	1:A:1685:ILE:HD12	2.17	0.45
1:A:2503:TYR:HB3	1:A:3146:ARG:HH22	1.81	0.45
1:A:3064:GLU:O	1:A:3067:GLN:HG2	2.16	0.45
1:A:3122:THR:HG22	1:A:3123:ILE:H	1.81	0.45
1:A:616:ALA:O	1:A:620:ILE:HG22	2.16	0.45
1:A:693:GLU:OE1	1:A:716:LEU:HD12	2.16	0.45
1:A:1122:LYS:H	1:A:1122:LYS:HD2	1.82	0.45
1:A:1273:GLY:HA2	1:A:1414:PHE:CE1	2.52	0.45
1:A:976:SER:O	1:A:980:GLU:HG2	2.16	0.45
1:A:1652:LYS:HB3	1:A:1652:LYS:HE2	1.74	0.45
1:A:1832:THR:HA	1:A:1834:HIS:CE1	2.52	0.45
1:A:2957:LEU:HD23	1:A:2976:LEU:HD13	1.98	0.45
1:A:3008:VAL:HG12	1:A:3013:MET:SD	2.57	0.45
1:A:3015:VAL:HG12	1:A:3033:SER:HB2	1.98	0.45
1:A:397:TYR:CE2	1:A:835:PHE:CD1	3.05	0.45
1:A:947:LEU:HD13	1:A:1128:ILE:HD11	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2753:ILE:HD11	1:A:2818:ARG:HD3	1.98	0.45
1:A:2966:LYS:HB2	1:A:2966:LYS:HE2	1.75	0.45
1:A:866:LYS:HA	1:A:869:LYS:HG2	1.99	0.44
1:A:1160:LEU:HD12	1:A:1164:TYR:CZ	2.52	0.44
1:A:2426:THR:HB	1:A:2442:LEU:HB2	1.99	0.44
1:A:773:VAL:O	1:A:776:GLU:HG3	2.17	0.44
1:A:981:HIS:CE1	1:A:985:ILE:HD11	2.53	0.44
1:A:1210:HIS:ND1	1:A:1240:ILE:HD11	2.33	0.44
1:A:3034:ASP:HB3	1:A:3060:TYR:OH	2.17	0.44
1:A:325:PRO:O	1:A:329:ILE:HG12	2.17	0.44
1:A:2502:ARG:HG3	1:A:2503:TYR:CD2	2.53	0.44
1:A:494:ILE:HD11	1:A:506:ILE:HG12	2.00	0.44
1:A:631:MET:HG2	1:A:632:PRO:HD2	1.98	0.44
1:A:774:LEU:HD22	1:A:774:LEU:H	1.82	0.44
1:A:966:ASN:HB2	1:A:1255:PRO:HB3	2.00	0.44
1:A:1212:ASN:HB2	1:A:1214:ASP:OD1	2.18	0.44
1:A:2960:ILE:HD13	1:A:2960:ILE:HA	1.86	0.44
1:A:2807:GLN:H	1:A:2807:GLN:HG3	1.60	0.44
1:A:2915:THR:HG22	1:A:2986:TYR:HE1	1.83	0.44
1:A:869:LYS:HB2	1:A:869:LYS:HE2	1.64	0.44
1:A:3057:ARG:CZ	1:A:3057:ARG:HA	2.47	0.44
1:A:657:LEU:HD13	1:A:662:TRP:CE2	2.52	0.43
1:A:2166:ASN:ND2	1:A:2191:ARG:HG3	2.33	0.43
1:A:3203:LYS:HD2	1:A:3203:LYS:HA	1.69	0.43
1:A:1645:GLU:H	1:A:1645:GLU:CD	2.25	0.43
1:A:2258:ILE:HG21	1:A:2310:ILE:HD11	2.01	0.43
1:A:2534:THR:HG22	1:A:2581:TYR:HE1	1.83	0.43
1:A:2654:VAL:HG12	1:A:2657:SER:H	1.82	0.43
1:A:3160:MET:C	1:A:3160:MET:HE2	2.42	0.43
1:A:1195:LEU:HD11	1:A:1279:VAL:CG2	2.48	0.43
1:A:2400:ILE:HD12	1:A:2400:ILE:H	1.84	0.43
1:A:2563:VAL:HG22	1:A:2576:ILE:HD13	1.99	0.43
1:A:3183:PHE:HB3	1:A:3202:LEU:HB3	2.01	0.43
1:A:620:ILE:O	1:A:623:LYS:HG2	2.18	0.43
1:A:753:GLN:HG2	1:A:756:GLY:HA3	2.01	0.43
1:A:1545:TYR:CE2	1:A:1653:LEU:HB3	2.53	0.43
1:A:1618:ILE:O	1:A:1625:GLN:HG3	2.19	0.43
1:A:2509:ALA:HB2	1:A:2529:MET:HE1	2.00	0.43
1:A:447:TYR:HA	1:A:450:VAL:HG12	2.01	0.43
1:A:2320:LYS:NZ	1:A:2358:THR:HG21	2.34	0.43
1:A:2493:ARG:HH21	1:A:2513:HIS:HB3	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3177:LEU:HD23	1:A:3177:LEU:HA	1.89	0.43
1:A:292:LYS:O	1:A:296:ILE:HG12	2.19	0.43
1:A:483:ILE:HG22	1:A:487:LYS:HZ2	1.83	0.43
1:A:494:ILE:HD12	1:A:494:ILE:HA	1.71	0.43
1:A:2280:LEU:HD12	1:A:2281:THR:H	1.82	0.43
1:A:1799:ASN:OD1	1:A:1799:ASN:C	2.62	0.42
1:A:3107:ARG:HE	1:A:3107:ARG:HB3	1.54	0.42
1:A:590:ARG:HD3	1:A:821:THR:HG21	2.01	0.42
1:A:2460:ASP:OD2	1:A:2509:ALA:HB3	2.19	0.42
1:A:3088:ARG:HA	1:A:3088:ARG:HD3	1.66	0.42
1:A:3110:VAL:HG21	1:A:3113:TRP:HE1	1.83	0.42
1:A:2742:SER:HA	1:A:2766:SER:HB2	2.01	0.42
1:A:3157:ILE:CD1	1:A:3202:LEU:HB2	2.49	0.42
1:A:1211:TYR:CZ	1:A:1219:LYS:HG2	2.54	0.42
1:A:1220:LEU:HD23	1:A:1220:LEU:HA	1.93	0.42
1:A:1485:LEU:HD23	1:A:1485:LEU:HA	1.87	0.42
1:A:1861:GLY:HA2	1:A:1943:ARG:HH12	1.84	0.42
1:A:3177:LEU:HD13	1:A:3183:PHE:HZ	1.85	0.42
1:A:536:TYR:CE2	1:A:828:ARG:HG2	2.54	0.42
1:A:708:LYS:H	1:A:708:LYS:HG2	1.59	0.42
1:A:2320:LYS:HE2	1:A:2320:LYS:HB2	1.89	0.42
1:A:630:LYS:HZ1	1:A:631:MET:HG3	1.84	0.42
1:A:784:LEU:HD23	1:A:784:LEU:HA	1.83	0.42
1:A:1230:LYS:HE3	1:A:1230:LYS:HA	2.01	0.42
1:A:2169:ILE:HD13	1:A:2169:ILE:HA	1.92	0.42
1:A:2226:THR:HG23	1:A:2293:LEU:HD21	2.02	0.42
1:A:2236:LYS:HE2	1:A:2236:LYS:HB2	1.83	0.42
1:A:2268:THR:HG23	1:A:2312:THR:HG22	2.01	0.42
1:A:2459:PRO:HB3	1:A:2479:PHE:CD2	2.54	0.42
1:A:2517:ALA:HA	1:A:2540:GLN:O	2.19	0.42
1:A:3013:MET:O	1:A:3034:ASP:HA	2.19	0.42
1:A:3085:ALA:O	1:A:3088:ARG:HG2	2.20	0.42
1:A:354:PHE:HD1	1:A:354:PHE:HA	1.76	0.42
1:A:374:THR:O	1:A:378:ASN:HB2	2.19	0.42
1:A:587:LYS:HE3	1:A:587:LYS:HB2	1.91	0.42
1:A:704:GLU:HG3	1:A:707:PHE:CZ	2.55	0.42
1:A:2555:LEU:HD12	1:A:2602:ILE:HG13	2.01	0.42
1:A:3107:ARG:HB2	1:A:3144:PHE:CD1	2.54	0.42
1:A:393:ILE:HD11	1:A:410:LYS:HE3	2.01	0.42
1:A:950:LYS:N	1:A:950:LYS:HD2	2.34	0.42
1:A:2542:ILE:HB	1:A:2590:ILE:HG23	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:809:ILE:HD12	1:A:809:ILE:H	1.84	0.42
1:A:1295:ILE:HD11	1:A:1369:THR:HG22	2.02	0.42
1:A:633:GLU:HA	1:A:636:ILE:HD12	2.02	0.41
1:A:470:LYS:HA	1:A:470:LYS:HD2	1.85	0.41
1:A:894:LYS:HB3	1:A:894:LYS:HE3	1.71	0.41
1:A:902:MET:HE3	1:A:902:MET:HB2	1.81	0.41
1:A:1308:ARG:HD2	1:A:1322:LEU:HD11	2.01	0.41
1:A:3153:VAL:HB	1:A:3155:TYR:HE1	1.85	0.41
1:A:886:ILE:HD13	1:A:886:ILE:HA	1.91	0.41
1:A:3151:TYR:N	1:A:3151:TYR:CD1	2.89	0.41
1:A:469:ILE:HD12	1:A:469:ILE:HA	1.84	0.41
1:A:561:MET:SD	1:A:597:LEU:HD13	2.61	0.41
1:A:694:LEU:O	1:A:697:ILE:HG22	2.21	0.41
1:A:2632:THR:HA	1:A:2687:TRP:CH2	2.55	0.41
1:A:3110:VAL:HG21	1:A:3113:TRP:NE1	2.36	0.41
1:A:465:LEU:HD23	1:A:465:LEU:HA	1.91	0.41
1:A:2825:MET:HG3	1:A:2848:PHE:HB3	2.02	0.41
1:A:3203:LYS:HG3	1:A:3204:THR:H	1.86	0.41
1:A:389:LEU:O	1:A:393:ILE:HG22	2.21	0.41
1:A:994:MET:HE2	1:A:994:MET:HB2	1.86	0.41
1:A:2768:PHE:HE1	1:A:2770:ARG:HD2	1.85	0.41
1:A:2868:LEU:HA	1:A:2871:ILE:HG12	2.03	0.41
1:A:3089:ASN:ND2	1:A:3093:LYS:HB3	2.35	0.41
1:A:496:ASP:OD1	1:A:496:ASP:C	2.64	0.41
1:A:609:ASN:OD1	1:A:609:ASN:C	2.63	0.41
1:A:2522:PRO:HB3	1:A:2549:HIS:HB2	2.03	0.41
1:A:2743:GLU:OE1	1:A:2747:GLN:HB3	2.20	0.41
1:A:2797:LEU:O	1:A:2816:THR:HA	2.20	0.41
1:A:2990:ILE:HD12	1:A:2990:ILE:HA	1.87	0.41
1:A:495:LEU:O	1:A:495:LEU:HD12	2.21	0.41
1:A:519:LYS:HG2	1:A:521:GLU:OE1	2.21	0.41
1:A:534:TRP:CZ2	1:A:753:GLN:NE2	2.89	0.41
1:A:1454:PHE:CD1	1:A:1454:PHE:C	2.97	0.41
1:A:2494:GLN:HE22	1:A:2517:ALA:HB2	1.86	0.41
1:A:3066:GLN:HA	1:A:3199:TYR:CE2	2.56	0.41
1:A:274:ALA:O	1:A:278:LYS:HG2	2.21	0.41
1:A:532:LEU:HD13	1:A:694:LEU:HD21	2.02	0.41
1:A:645:PRO:HB2	1:A:648:THR:HG21	2.03	0.41
1:A:908:LEU:HD23	1:A:908:LEU:HA	1.87	0.41
1:A:1195:LEU:HD13	1:A:1403:PHE:CG	2.56	0.41
1:A:1816:ALA:HB2	1:A:1824:ASN:ND2	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2140:TRP:HB2	1:A:2141:PRO:HD3	2.02	0.41
1:A:2223:PRO:O	1:A:2227:GLU:HG2	2.20	0.41
1:A:2738:GLU:HA	1:A:2762:SER:HB2	2.02	0.41
1:A:2741:LEU:HD23	1:A:2746:TRP:HD1	1.86	0.41
1:A:2908:ILE:HG13	1:A:2970:GLN:HB2	2.03	0.41
1:A:329:ILE:HD12	1:A:558:THR:HG21	2.02	0.41
1:A:599:TYR:CE2	1:A:629:SER:HA	2.56	0.41
1:A:1207:LEU:HD23	1:A:1207:LEU:HA	1.85	0.41
1:A:271:GLN:HG3	1:A:774:LEU:HD23	2.02	0.40
1:A:1709:THR:O	1:A:1713:ILE:HG12	2.21	0.40
1:A:2303:MET:HE3	1:A:2305:ILE:HD11	2.03	0.40
1:A:2664:LEU:HD13	1:A:2674:VAL:HG21	2.03	0.40
1:A:432:PHE:O	1:A:433:PHE:C	2.64	0.40
1:A:847:PRO:HB3	1:A:925:GLN:HG3	2.03	0.40
1:A:1742:LYS:HE3	1:A:1742:LYS:HB2	1.80	0.40
1:A:2121:TYR:HB2	1:A:2169:ILE:HG21	2.03	0.40
1:A:2137:ASN:OD1	1:A:2137:ASN:C	2.64	0.40
1:A:2798:SER:HB2	1:A:2814:ARG:HD2	2.03	0.40
1:A:2950:HIS:CE1	1:A:2952:THR:HG22	2.55	0.40
1:A:1262:ASN:HD22	1:A:1264:LEU:HB2	1.86	0.40
1:A:1479:ARG:HH22	1:A:1577:SER:HB3	1.87	0.40
1:A:1754:ARG:HG2	1:A:1978:ILE:CD1	2.50	0.40
1:A:2460:ASP:HA	1:A:2463:LEU:HG	2.03	0.40
1:A:2937:LYS:HA	1:A:2937:LYS:HD3	1.62	0.40
1:A:650:PRO:HB3	1:A:790:ILE:HG23	2.04	0.40
1:A:1315:ASN:OD1	1:A:1315:ASN:C	2.64	0.40
1:A:1957:ARG:O	1:A:1957:ARG:HD3	2.21	0.40
1:A:2411:ASN:HA	1:A:2436:ILE:HD11	2.02	0.40
1:A:2564:GLU:O	1:A:2574:LEU:HD23	2.22	0.40
1:A:3163:ALA:HB2	1:A:3177:LEU:HD23	2.03	0.40
1:A:375:ILE:HD13	1:A:428:MET:HE3	2.03	0.40
1:A:569:ILE:HA	1:A:569:ILE:HD12	1.97	0.40
1:A:804:LEU:HG	1:A:805:THR:HG23	2.03	0.40
1:A:1716:LEU:HD23	1:A:1716:LEU:HA	1.92	0.40
1:A:2877:ARG:HH12	1:A:2880:LYS:HD2	1.87	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	2791/3223 (87%)	2688 (96%)	102 (4%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	812	ASN

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	2490/2880 (86%)	2479 (100%)	11 (0%)	89 93

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	494	ILE
1	A	535	ASN
1	A	700	ASN
1	A	753	GLN
1	A	815	THR
1	A	832	ASP
1	A	834	LEU
1	A	1528	MET
1	A	1764	THR
1	A	2541	ILE

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Mol	Chain	Res	Type
1	A	2613	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	273	GLN
1	A	378	ASN
1	A	388	ASN
1	A	404	GLN
1	A	405	GLN
1	A	463	ASN
1	A	498	GLN
1	A	753	GLN
1	A	966	ASN
1	A	1318	ASN
1	A	1586	GLN
1	A	1772	GLN
1	A	1796	HIS
1	A	1824	ASN
1	A	1901	GLN
1	A	1981	GLN
1	A	1995	GLN
1	A	2164	GLN
1	A	2166	ASN
1	A	2198	ASN
1	A	2228	GLN
1	A	2348	ASN
1	A	2371	HIS
1	A	2540	GLN
1	A	2603	GLN
1	A	2786	HIS
1	A	2787	GLN
1	A	3042	GLN
1	A	3168	ASN
1	A	3196	ASN
1	A	3220	ASN

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 1 ligands modelled in this entry, 1 is 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

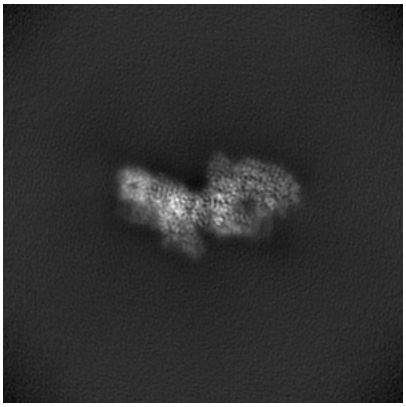
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-52990. These allow visual inspection of the internal detail of the map and identification of artifacts.

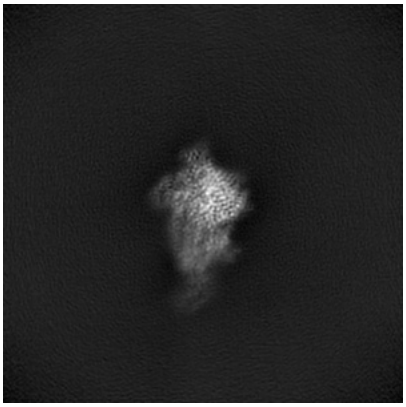
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

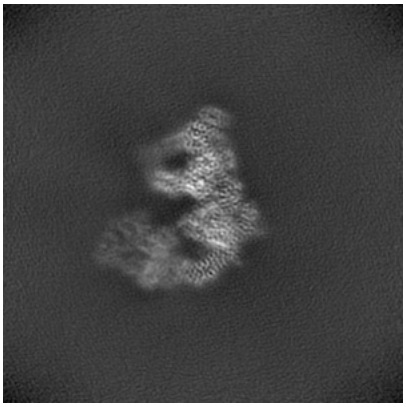
6.1.1 Primary map



X



Y

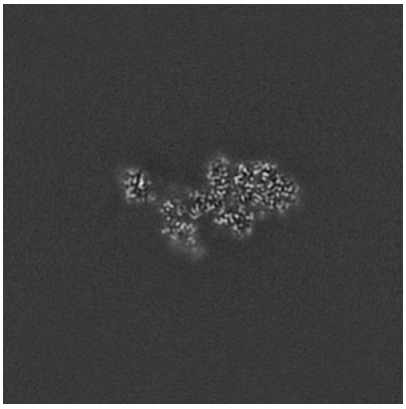


Z

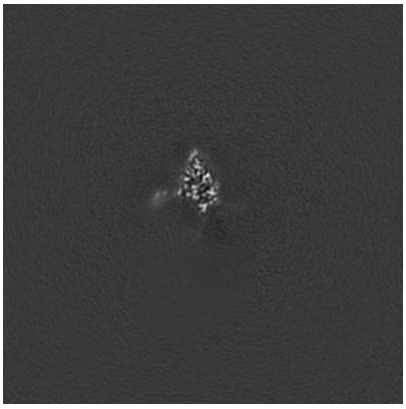
The images above show the map projected in three orthogonal directions.

6.2 Central slices

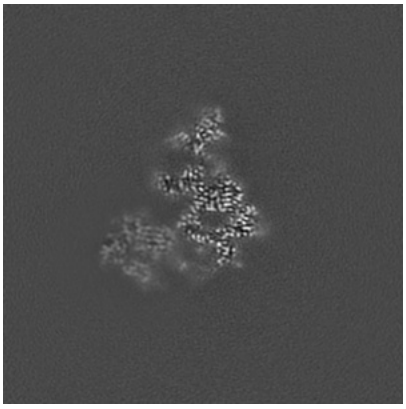
6.2.1 Primary map



X Index: 200



Y Index: 200

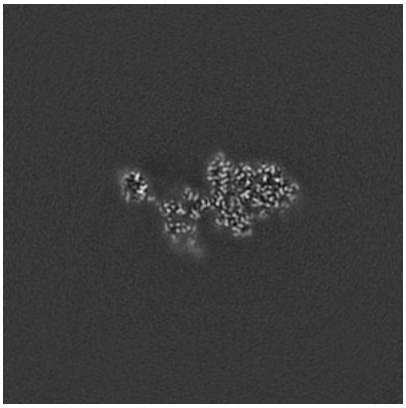


Z Index: 200

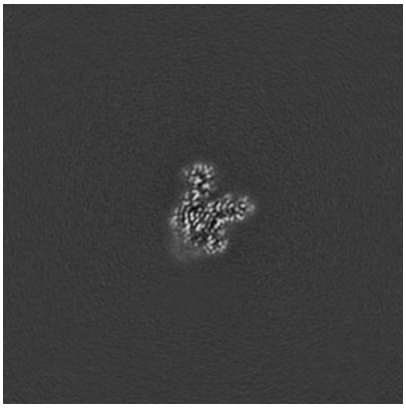
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

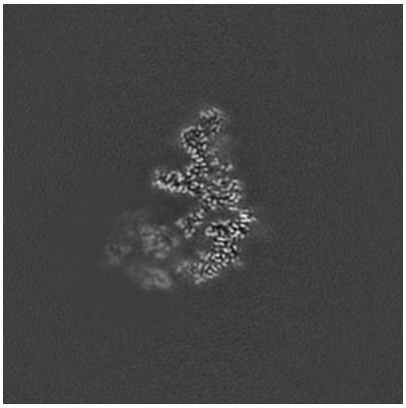
6.3.1 Primary map



X Index: 198



Y Index: 218

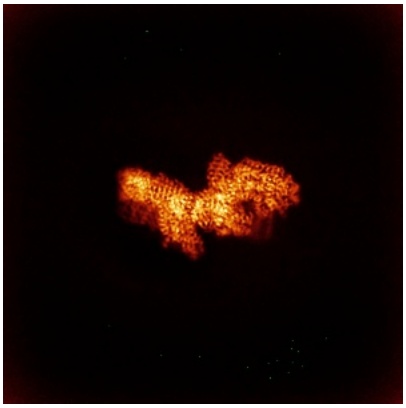


Z Index: 206

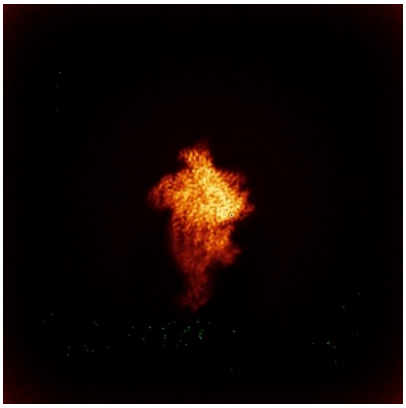
The images above show the largest variance slices of the map in three orthogonal directions.

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

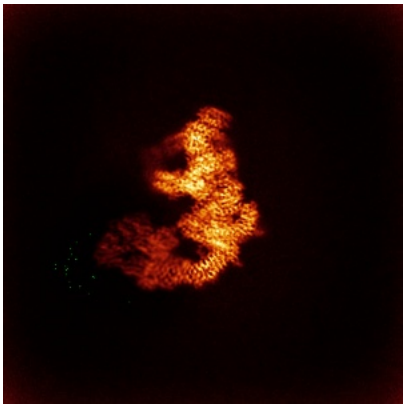
6.4.1 Primary map



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

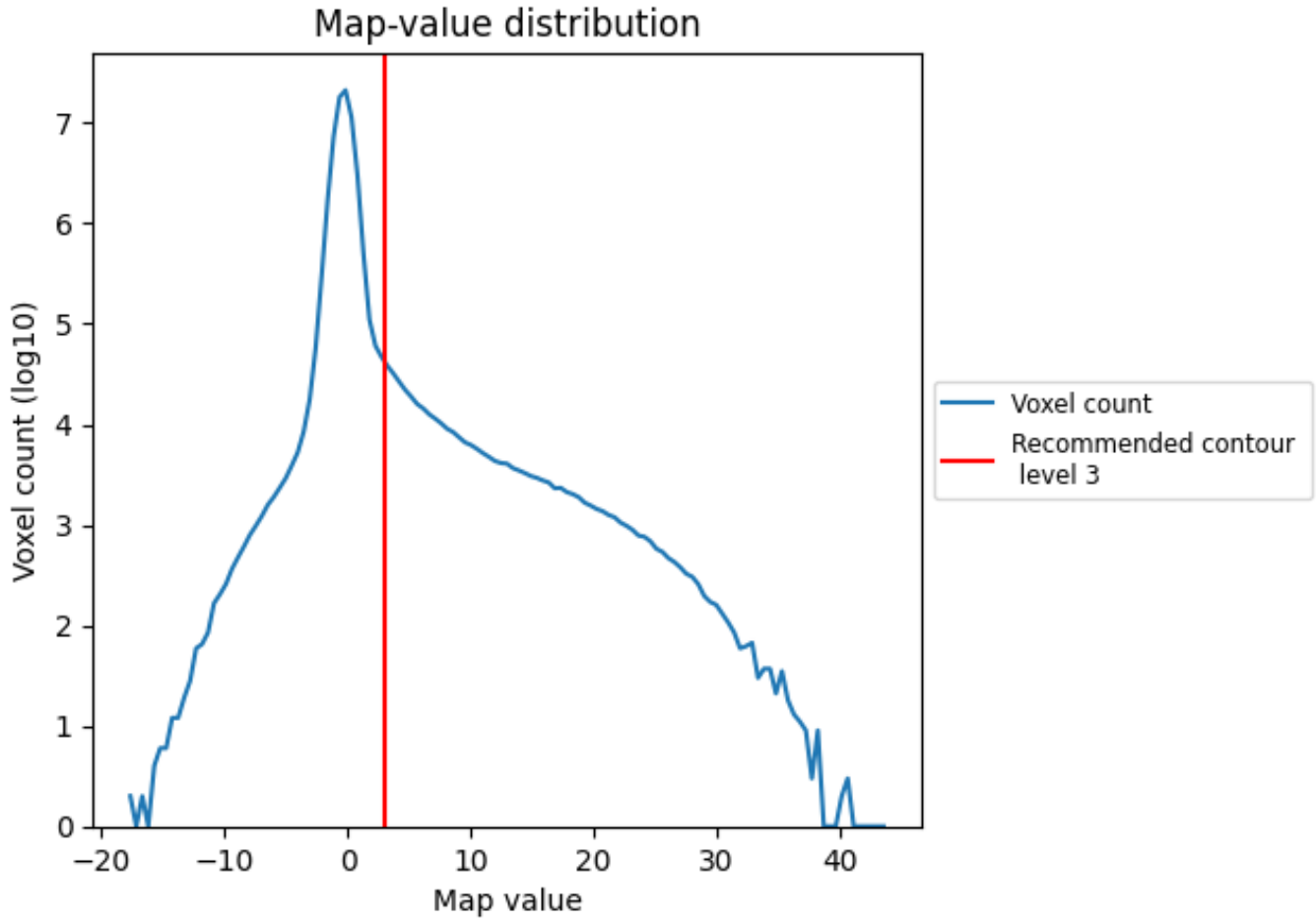
6.6 Mask visualisation (i)

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

7 Map analysis

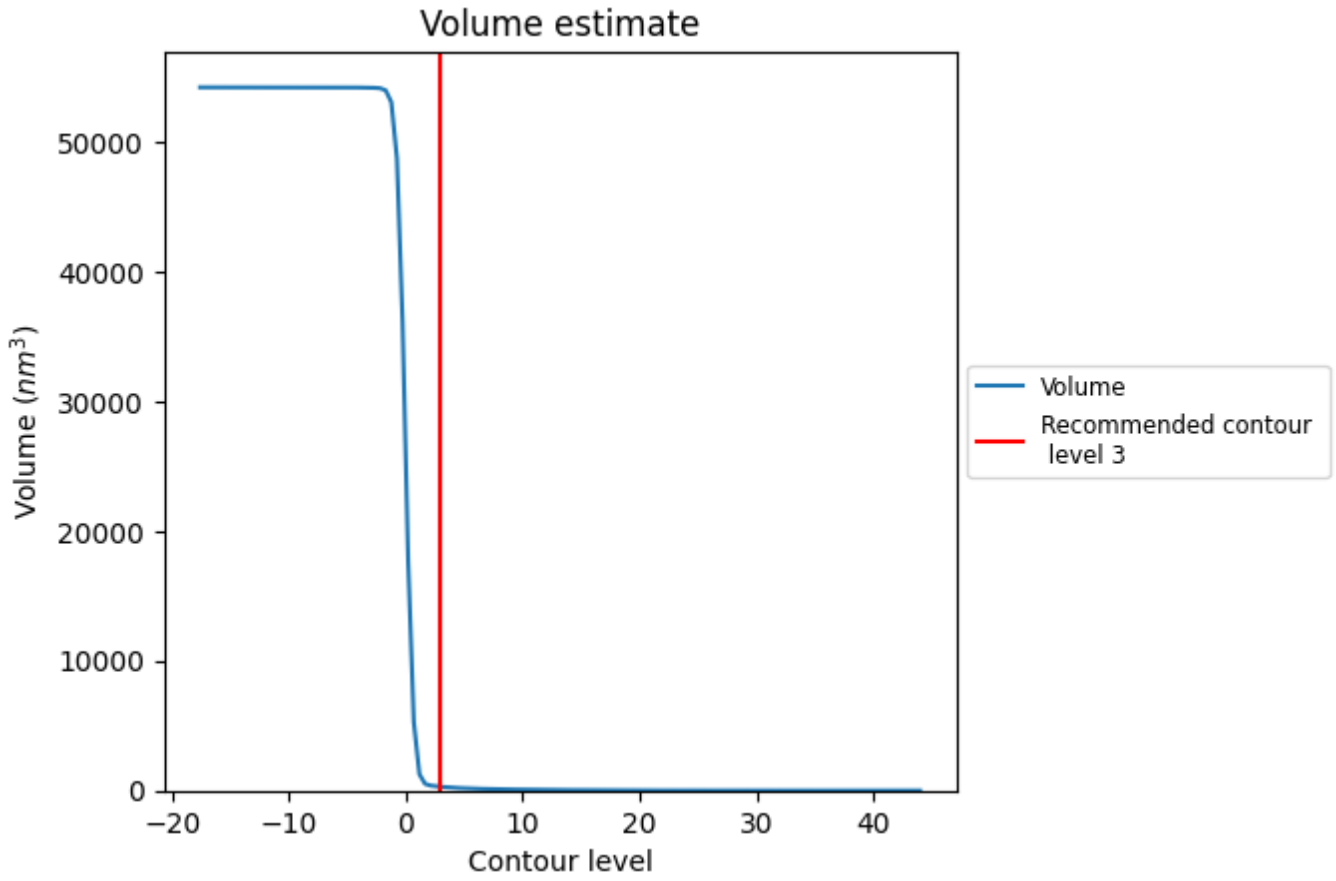
This section contains the results of statistical analysis of the map.

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.

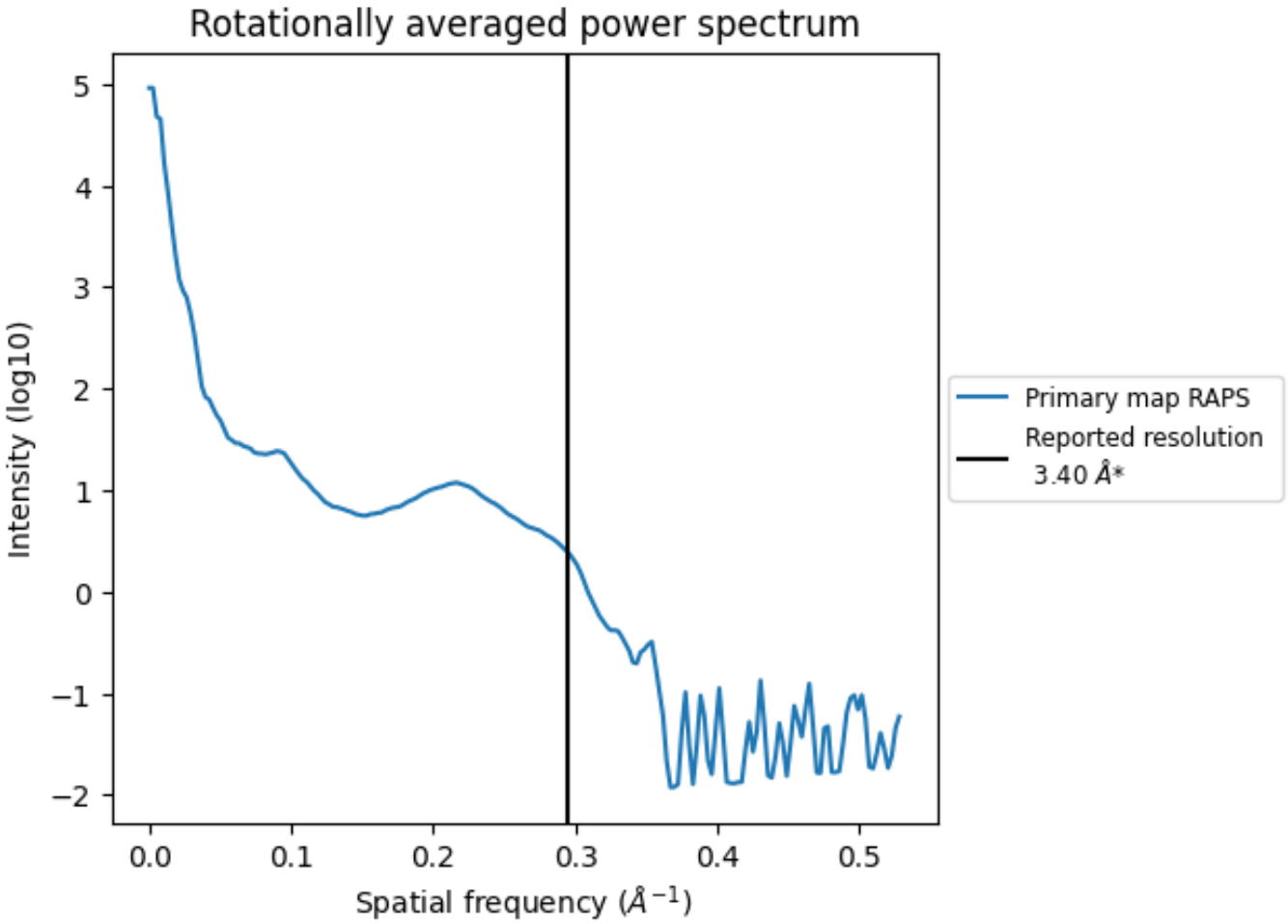
7.2 Volume estimate (i)



The volume at the recommended contour level is 290 nm^3; this corresponds to an approximate mass of 262 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 0.294 Å^{-1}

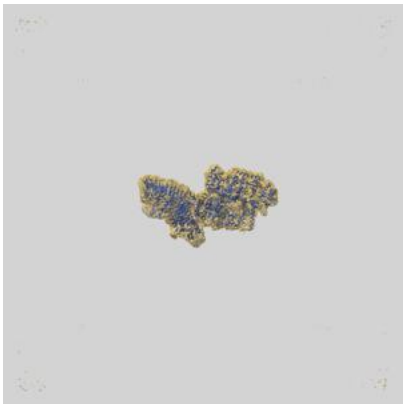
8 Fourier-Shell correlation

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

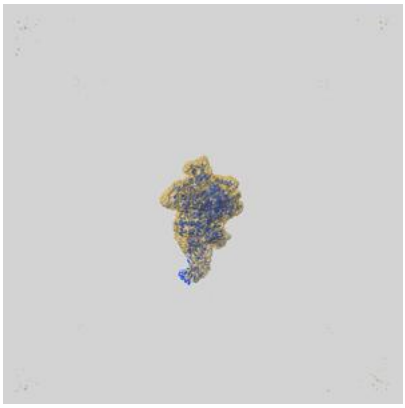
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-52990 and PDB model 9QB8. Per-residue inclusion information can be found in section 3 on page 4.

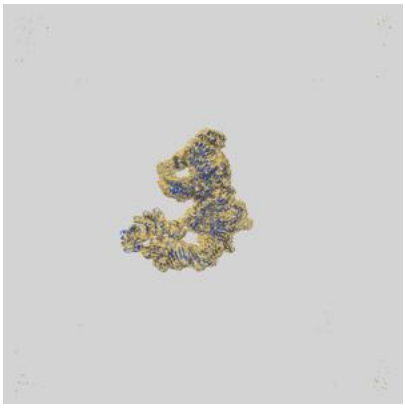
9.1 Map-model overlay



X



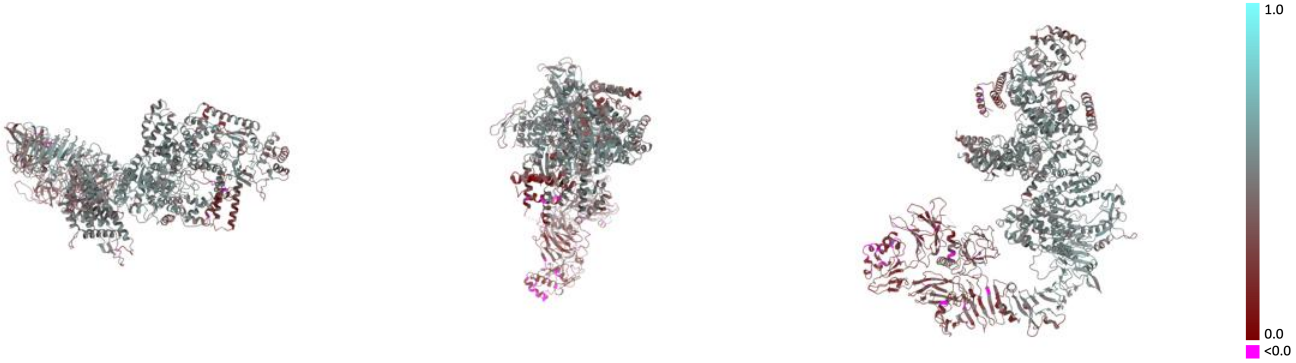
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 3.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

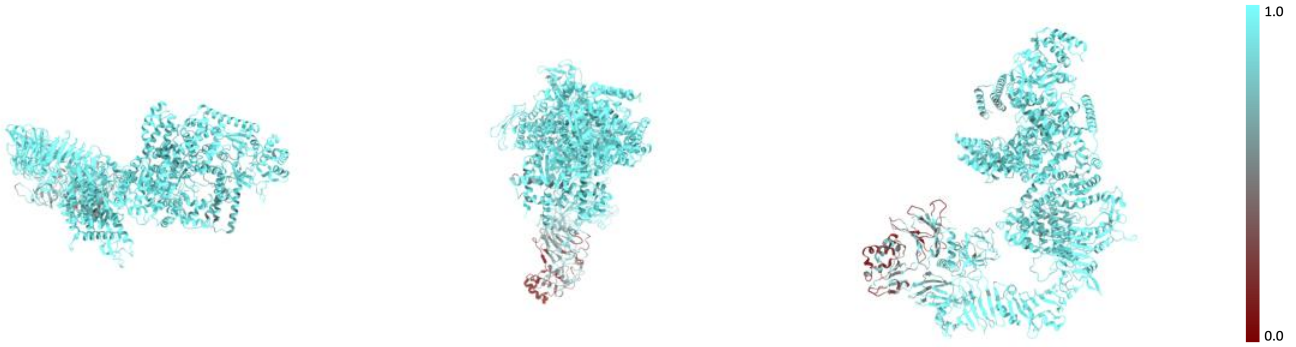
9.2 Q-score mapped to coordinate model (i)



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.

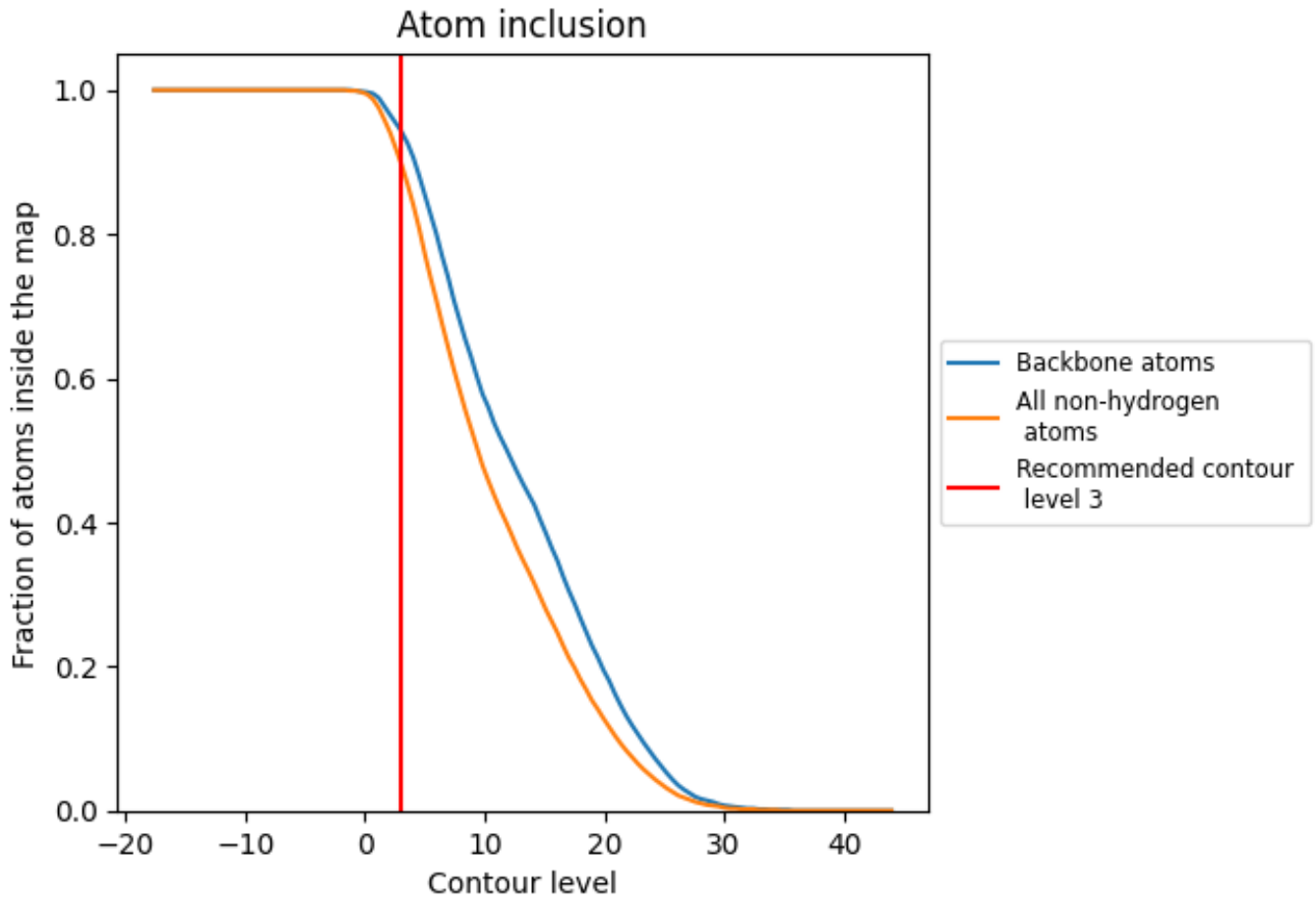
9.3 Atom inclusion mapped to coordinate model (i)



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 (3).

9.4 Atom inclusion (i)



At the recommended contour level, 94% of all backbone atoms, 90% 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 (3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9000	0.4230
A	0.9000	0.4230