



Full wwPDB EM Validation Report ⓘ

Jul 7, 2024 – 03:19 pm BST

PDB ID : 7PD4
EMDB ID : EMD-13330
Title : structure of Adenylyl cyclase 9 in complex with MANT-GTP
Authors : Qi, C.; Korkhov, V.M.
Deposited on : 2021-08-04
Resolution : 4.90 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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

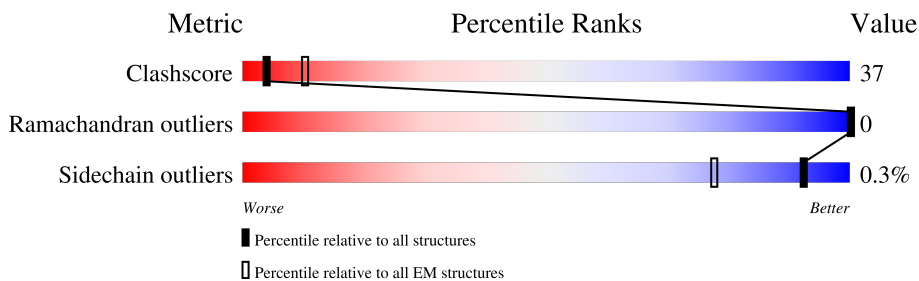
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.90 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1354	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 6676 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 Adenylate cyclase 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	842	6676	4329	1098	1194	55	0	0

GLU	ARG	PRO	V842	F912	E982	S1057	C1126	R1197	SER	GLU
GLU	PHE	VAL	F843	C913	V983	S1057	R1127	R1196	PRO	GLU
LYS	ASN	THR	F844	Q914	V984	V1060	D1128	D1199	ASP	ARG
ASN	ILE	THR	L845	L915	L985	A1063	G1129	T1200	ILE	CYS
SER	ARG	F780	E846	S916	V986	I1065	S1130	T1201	ARG	ARG
ALA	GLU	A781	W848	W918	F987	V1066	H1131	G1202	VAL	PHE
LYS	ALA	S782	M849	W921	F988	V1067	L1132	V1203	GLN	GLY
LYS	THR	A783	T850	S921	L989	M1067	Q1133	E1204	VAL	LYS
ALA	THR	T784	C851	P931	L992	F1068	Q1137	E1205	ASP	ALA
GLY	ASP	F785	T852	L993	L993	S1069	L1138	R1206	GLY	ILE
GLY	ALA	S786	K853	V994	V994	E1070	L1139	I1207	GLU	GLU
PRO	HIS	S787	R854	H995	H995	F1071	L1139	Q1208	ILE	LYS
PRO	PHE	L788	L855	L934	F996	E1071	F1140	V1209	GLY	GLY
SER	VAL	L789	L856	L935	L997	Y1076	E1141	S1210	ARG	ASP
SER	ASP	D790	E857	L936	N998	E1077	K1144	E1211	SER	CYS
SER	VAL	V791	E857	L936	N998	G1078	E1145	E1212	GLU	GLU
THR	ILE	L792	L863	V938	R999	G1079	R1148	S1213	THR	GLU
THR	LYS	L795	L864	V938	F1001	K1080	V1149	Y1214	ASP	VAL
ASN	GLU	T796	R865	F1001	E1002	E1081	R1154	R1215	THR	GLU
GLY	ASP	F796	R866	Y1003	V1003	C1082	M1155	V1216	ILE	ILE
LEU	SER	F798	R867	S1004	S1004	Y1083	M1156	L1217	ALA	ALA
LEU	LEU	L799	I868	Y1005	Y1005	R1084	M1157	F1224	ALA	GLU
LEU	SER	I800	I871	SER	Y1009	V1085	F1153	D1225	SER	SER
LEU	LYS	I801	I871	SER	Y1009	L1086	D1152	D1226	VAL	ALA
LEU	PRO	S802	L872	THR	Y1009	M1087	M1154	M1220	VAL	VAL
LEU	PRO	T803	L873	THR	Y1009	L1088	M1155	G1221	PRO	GLU
LEU	PHE	F804	W873	VAL	D1012	E1088	M1156	Y1222	SER	LEU
LEU	PHE	C805	A877	ILE	V1013	L1089	M1157	F1224	VAL	THR
LEU	LYS	C805	A878	ILE	V1013	I1090	L1158	D1225	GLN	LYS
LEU	PRO	F806	A879	HIS	L1017	G1091	W1159	Y1226	ASN	PRO
LEU	PRO	L807	W880	HIS	H1018	D1092	F1160	R1227	ASN	ASP
LEU	ASN	R808	Y881	ASP	R1019	F1093	M1161	G1228	GLN	GLN
LEU	ASN	Y809	S882	VAL	T1020	D1094	L1162	T1229	VAL	VAL
LEU	GLN	T814	H883	VAL	K1021	E1095	K1163	V1230	PRO	PRO
LEU	PHE	P815	W884	GLN	D1030	L1096	L1164	M1231	PRO	PRO
LEU	SER	P816	F888	ASN	W1031	E1096	R1165	V1232	GLY	GLY
LEU	LEU	P816	E889	PHE	L1032	K1099	V1166	V1232	SER	SER
CYS	ASN	A819	E889	SER	L1033	P1100	F1167	G1236	GLU	GLU
GLY	PHE	A820	T892	THR	R1034	D1101	M1168	Q1237	GLU	ASN
GLY	LEU	L821	H893	THR	M1035	Y1102	M1169	M1238	ASN	ASN
GLY	ASP	A822	I1037	ARG	I1036	S1103	H1170	K1239	ALA	ALA
GLY	PRO	W823	S894	LYS	I1037	S1104	G1171	T1240	GLN	GLN
GLY	GLU	A826	T895	LEU	P1038	S1104	P1172	Y1241	THR	THR
GLY	LEU	A827	M896	CYS	Y1039	I1105	L1173	L1242	ARG	ARG
GLY	GLU	L828	F897	ASN	H1040	E1106	V1177	Y1243	ASP	ASP
GLY	ARG	L829	T898	ALA	V1041	K1107	L1178	P1244	ALA	ALA
GLY	TRP	L830	G899	SER	E1042	K1109	G1179	K1245	HIS	HIS
GLY	ALA	E831	S900	LEU	A1043	T1110	T1180	C1246	PRO	PRO
VAL	ARG	L832	A901	PRO	E1043	T1110	T1181	S1249	SER	SER
VAL	THR	I832	V902	HIS	K1046	I1111	T1181	G1250	ALA	ALA
SER	SER	T832	L903	ASP	V1047	G1112	L1182	LEU	LYS	LYS
SER	TYR	S834	T904	GLY	V1047	A1113	L1183	VAL	ARG	ARG
SER	TYR	L835	A905	ARG	T1050	T1114	L1184	TRP	TRP	TRP
SER	GLN	W836	V906	SER	Y1051	Y1115	Y1185	VAL	VAL	VAL
SER	GLU	V837	V907	PRO	K1051	A1118	D1186	PRO	PRO	PRO
SER	VAL	W837	Q908	PRO	S1052	S1119	L1187	GLN	GLN	GLN
SER	VAL	S838	Q908	PRO	K1053	G1120	W1188	GLN	GLN	GLN
SER	VAL	W839	Y909	PRO	M1054	L1121	W1188	LEU	LEU	LEU
SER	LYS	R840	C910	PRO	H1055	L1122	T1191	SER	ARG	ARG
SER	SER	M841	Q981	LEU	D1056	M1122	S1196	ILE	ALA	ALA

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	141446	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.044	Depositor
Minimum map value	-0.029	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.01	Depositor
Map size (\AA)	243.0, 243.0, 243.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.81, 0.81, 0.81	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.34	0/6822	0.49	0/9226

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6676	0	6696	497	0
All	All	6676	0	6696	497	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 37.

All (497) 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:1111:ILE:H	1:A:1114:THR:HB	1.34	0.89
1:A:1106:GLU:HB2	1:A:1118:ALA:O	1.70	0.89
1:A:528:LYS:HA	1:A:571:ILE:O	1.73	0.88
1:A:800:ILE:HA	1:A:803:ILE:HD12	1.56	0.87
1:A:240:LEU:HB2	1:A:245:SER:HB3	1.59	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:387:MET:HG2	1:A:498:GLY:HA3	1.56	0.84
1:A:108:CYS:O	1:A:111:GLN:NE2	2.12	0.82
1:A:1165:ARG:HH21	1:A:1200:THR:HA	1.45	0.82
1:A:120:LEU:HA	1:A:123:ILE:HD12	1.62	0.81
1:A:1227:ARG:HB2	1:A:1242:LEU:HG	1.65	0.78
1:A:1110:THR:OG1	1:A:1114:THR:O	2.03	0.76
1:A:1206:ARG:NH1	1:A:1244:PRO:O	2.21	0.73
1:A:808:ARG:O	1:A:808:ARG:NH1	2.22	0.73
1:A:284:ARG:O	1:A:288:HIS:ND1	2.19	0.73
1:A:335:HIS:O	1:A:340:ARG:NH1	2.22	0.72
1:A:111:GLN:OE1	1:A:115:ARG:NH1	2.24	0.71
1:A:234:LEU:HD12	1:A:238:MET:HG3	1.73	0.71
1:A:1178:ILE:HB	1:A:1184:LEU:HB2	1.72	0.70
1:A:455:ARG:HB3	1:A:458:HIS:HB3	1.73	0.70
1:A:857:GLU:OE2	1:A:865:ARG:NH2	2.19	0.70
1:A:1042:ALA:O	1:A:1046:LYS:HB2	1.91	0.70
1:A:416:VAL:HA	1:A:419:LEU:HD12	1.74	0.70
1:A:138:MET:SD	1:A:139:LYS:NZ	2.64	0.70
1:A:220:GLN:O	1:A:223:SER:OG	2.10	0.69
1:A:394:SER:HA	1:A:492:THR:HG22	1.75	0.68
1:A:1170:HIS:CE1	1:A:1212:GLU:HG2	2.29	0.68
1:A:312:LYS:HD3	1:A:1012:ASP:HA	1.76	0.67
1:A:827:ALA:HA	1:A:830:LEU:HD12	1.75	0.67
1:A:783:ALA:O	1:A:786:SER:OG	2.12	0.67
1:A:908:GLN:OE1	1:A:911:ASN:ND2	2.28	0.66
1:A:976:ALA:HA	1:A:979:ILE:HD11	1.77	0.66
1:A:1036:ILE:HG23	1:A:1037:ILE:HG23	1.77	0.66
1:A:792:LEU:O	1:A:795:THR:OG1	2.11	0.66
1:A:993:LEU:O	1:A:997:LEU:HG	1.95	0.66
1:A:495:VAL:HG11	1:A:509:VAL:HB	1.77	0.66
1:A:139:LYS:NZ	1:A:217:CYS:O	2.27	0.65
1:A:241:PRO:HB2	1:A:244:LEU:HB2	1.78	0.65
1:A:931:PRO:O	1:A:935:LEU:HG	1.96	0.65
1:A:127:CYS:HA	1:A:130:TRP:HD1	1.61	0.65
1:A:279:TRP:HA	1:A:282:LEU:HD13	1.78	0.65
1:A:429:LEU:HB3	1:A:465:MET:HG3	1.76	0.65
1:A:114:ARG:HA	1:A:117:ARG:HE	1.61	0.65
1:A:1226:TYR:HE1	1:A:1239:LYS:HG3	1.61	0.65
1:A:1232:VAL:O	1:A:1236:GLY:N	2.29	0.65
1:A:401:VAL:HG22	1:A:487:ARG:HH11	1.62	0.65
1:A:234:LEU:HD11	1:A:240:LEU:HD11	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:394:SER:OG	1:A:458:HIS:ND1	2.24	0.65
1:A:115:ARG:NH2	1:A:1000:GLU:OE2	2.29	0.65
1:A:227:CYS:HG	1:A:252:TYR:HE2	1.45	0.65
1:A:986:VAL:O	1:A:989:LEU:HG	1.96	0.65
1:A:799:LEU:O	1:A:802:SER:OG	2.15	0.64
1:A:836:VAL:HA	1:A:839:VAL:HG12	1.78	0.64
1:A:1053:LYS:NZ	1:A:1054:ASN:O	2.25	0.64
1:A:244:LEU:HD23	1:A:247:ILE:HD11	1.78	0.64
1:A:333:MET:HG3	1:A:1033:LEU:HD21	1.79	0.64
1:A:850:THR:OG1	1:A:854:ARG:NH1	2.31	0.64
1:A:391:GLU:HA	1:A:494:THR:HA	1.80	0.64
1:A:788:LEU:HD11	1:A:842:VAL:HG21	1.80	0.64
1:A:820:ALA:HA	1:A:882:SER:HB2	1.80	0.64
1:A:1137:GLN:O	1:A:1222:TYR:OH	2.14	0.64
1:A:897:PHE:O	1:A:900:SER:OG	2.15	0.63
1:A:844:PHE:HE1	1:A:854:ARG:HH22	1.47	0.63
1:A:1083:TYR:HA	1:A:1086:LEU:HD12	1.81	0.63
1:A:425:ARG:NH1	1:A:472:ALA:O	2.31	0.62
1:A:528:LYS:HG2	1:A:572:ALA:HB2	1.81	0.62
1:A:460:TYR:OH	1:A:540:ASP:OD1	2.18	0.62
1:A:868:ILE:HA	1:A:871:ILE:HD12	1.81	0.62
1:A:1165:ARG:NE	1:A:1199:ASP:O	2.33	0.62
1:A:912:PHE:HB3	1:A:915:LEU:HG	1.81	0.62
1:A:426:PHE:HA	1:A:429:LEU:HD12	1.80	0.62
1:A:1111:ILE:N	1:A:1114:THR:HB	2.12	0.61
1:A:458:HIS:O	1:A:462:CYS:HB2	2.00	0.61
1:A:512:ASN:O	1:A:516:LEU:N	2.33	0.61
1:A:429:LEU:HD13	1:A:469:MET:HG2	1.83	0.61
1:A:433:THR:HG21	1:A:465:MET:HB2	1.82	0.61
1:A:497:CYS:HB3	1:A:509:VAL:HG12	1.83	0.61
1:A:1232:VAL:N	1:A:1236:GLY:O	2.28	0.60
1:A:412:ALA:O	1:A:1052:SER:OG	2.15	0.60
1:A:290:CYS:O	1:A:294:ILE:HG22	2.02	0.60
1:A:335:HIS:CE1	1:A:340:ARG:HA	2.36	0.60
1:A:288:HIS:O	1:A:292:HIS:ND1	2.35	0.60
1:A:790:ASP:OD1	1:A:791:VAL:N	2.34	0.60
1:A:236:THR:HG23	1:A:237:VAL:HG23	1.82	0.60
1:A:1040:HIS:CE1	1:A:1122:ASN:HD21	2.19	0.60
1:A:396:LEU:HD21	1:A:447:CYS:HB2	1.84	0.60
1:A:1178:ILE:N	1:A:1184:LEU:O	2.24	0.60
1:A:548:GLY:HA3	1:A:570:LEU:HG	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:LEU:HA	1:A:132:ILE:HG12	1.84	0.59
1:A:819:ALA:O	1:A:823:VAL:HG22	2.03	0.59
1:A:297:HIS:O	1:A:300:ILE:HG12	2.03	0.59
1:A:790:ASP:OD2	1:A:914:GLN:NE2	2.35	0.59
1:A:184:PHE:HZ	1:A:234:LEU:HD22	1.67	0.59
1:A:504:ARG:N	1:A:1035:ASN:OD1	2.34	0.59
1:A:863:LEU:O	1:A:866:HIS:HB2	2.03	0.59
1:A:935:LEU:HA	1:A:938:VAL:HB	1.85	0.59
1:A:127:CYS:HA	1:A:130:TRP:CD1	2.38	0.58
1:A:415:LEU:HD12	1:A:418:LEU:HD11	1.85	0.58
1:A:1186:ASP:OD1	1:A:1187:ILE:N	2.33	0.58
1:A:410:LYS:HG3	1:A:415:LEU:HD13	1.86	0.58
1:A:287:LEU:HG	1:A:904:THR:HG21	1.84	0.58
1:A:98:VAL:HG13	1:A:99:ASN:H	1.68	0.58
1:A:401:VAL:HG23	1:A:487:ARG:H	1.67	0.58
1:A:1033:LEU:HA	1:A:1036:ILE:HG22	1.85	0.58
1:A:1206:ARG:HH12	1:A:1246:CYS:H	1.50	0.58
1:A:229:GLU:O	1:A:233:LEU:HG	2.03	0.58
1:A:1068:PHE:HA	1:A:1162:PHE:CE1	2.39	0.57
1:A:97:SER:HB2	1:A:100:LEU:HD12	1.85	0.57
1:A:126:ALA:O	1:A:129:LEU:HG	2.04	0.57
1:A:471:ARG:O	1:A:474:GLU:HG2	2.04	0.57
1:A:387:MET:HB2	1:A:1080:LYS:HE2	1.87	0.57
1:A:910:CYS:HA	1:A:998:ASN:HD22	1.70	0.57
1:A:438:ILE:HB	1:A:446:TYR:CD2	2.40	0.57
1:A:1099:LYS:HB2	1:A:1102:TYR:HB2	1.87	0.57
1:A:220:GLN:OE1	1:A:220:GLN:N	2.38	0.57
1:A:1018:HIS:HA	1:A:1021:LYS:HD2	1.85	0.57
1:A:305:ARG:NH1	1:A:1004:SER:OG	2.37	0.57
1:A:910:CYS:HB2	1:A:994:VAL:HG23	1.85	0.57
1:A:224:PHE:O	1:A:228:ILE:HG12	2.05	0.56
1:A:833:LEU:O	1:A:837:VAL:HG23	2.05	0.56
1:A:1082:CYS:O	1:A:1086:LEU:HG	2.04	0.56
1:A:179:LEU:O	1:A:183:VAL:HG23	2.05	0.56
1:A:795:THR:HG22	1:A:831:GLU:HB3	1.87	0.56
1:A:491:HIS:HD2	1:A:513:ASP:HA	1.71	0.56
1:A:849:MET:O	1:A:852:THR:OG1	2.23	0.56
1:A:893:HIS:O	1:A:897:PHE:HB2	2.06	0.56
1:A:1106:GLU:HG3	1:A:1121:LEU:HD12	1.87	0.56
1:A:1065:ILE:H	1:A:1113:ALA:HB1	1.71	0.56
1:A:536:ALA:HA	1:A:539:LEU:HB3	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:979:ILE:HA	1:A:982:GLU:HG3	1.88	0.55
1:A:1068:PHE:HA	1:A:1162:PHE:HE1	1.71	0.55
1:A:1066:VAL:H	1:A:1164:LEU:HA	1.72	0.55
1:A:288:HIS:O	1:A:291:ILE:HG22	2.07	0.55
1:A:336:SER:OG	1:A:1183:LEU:N	2.40	0.55
1:A:785:PHE:HA	1:A:788:LEU:HD12	1.88	0.55
1:A:801:LEU:O	1:A:804:THR:OG1	2.21	0.55
1:A:403:PHE:CD1	1:A:443:ASP:HB3	2.41	0.55
1:A:826:ALA:O	1:A:829:LEU:HG	2.06	0.55
1:A:868:ILE:O	1:A:872:LEU:HG	2.07	0.55
1:A:895:THR:O	1:A:898:THR:OG1	2.24	0.55
1:A:1101:ASP:OD1	1:A:1101:ASP:N	2.40	0.55
1:A:981:GLN:O	1:A:985:LEU:HG	2.06	0.55
1:A:1063:ALA:HB1	1:A:1164:LEU:HD12	1.89	0.55
1:A:1145:GLU:O	1:A:1149:VAL:HG23	2.06	0.54
1:A:228:ILE:HG23	1:A:291:ILE:HG12	1.89	0.54
1:A:305:ARG:NH2	1:A:1005:TYR:HD1	2.06	0.54
1:A:791:VAL:O	1:A:795:THR:HG23	2.07	0.54
1:A:981:GLN:O	1:A:984:ILE:HG12	2.07	0.54
1:A:319:HIS:CE1	1:A:1019:ARG:HG2	2.42	0.54
1:A:280:GLU:O	1:A:283:SER:OG	2.14	0.54
1:A:532:SER:O	1:A:535:THR:OG1	2.25	0.54
1:A:235:TYR:CE1	1:A:295:GLY:HA3	2.43	0.54
1:A:241:PRO:HG2	1:A:244:LEU:HD12	1.90	0.54
1:A:247:ILE:HG13	1:A:248:LEU:HD22	1.90	0.54
1:A:337:VAL:O	1:A:338:MET:HE2	2.08	0.54
1:A:878:LEU:HD12	1:A:881:TYR:HB2	1.90	0.54
1:A:881:TYR:CZ	1:A:931:PRO:HG2	2.43	0.54
1:A:986:VAL:HG23	1:A:989:LEU:HD21	1.90	0.54
1:A:496:LEU:HD11	1:A:1083:TYR:CZ	2.44	0.53
1:A:1226:TYR:CE1	1:A:1239:LYS:HG3	2.43	0.53
1:A:826:ALA:O	1:A:830:LEU:HG	2.09	0.53
1:A:438:ILE:HB	1:A:446:TYR:HD2	1.71	0.53
1:A:1009:TYR:O	1:A:1013:VAL:HG23	2.09	0.53
1:A:546:GLU:O	1:A:570:LEU:N	2.25	0.53
1:A:788:LEU:HD23	1:A:838:SER:HB2	1.90	0.53
1:A:863:LEU:HA	1:A:866:HIS:ND1	2.24	0.53
1:A:1086:LEU:O	1:A:1090:ILE:HG12	2.08	0.53
1:A:873:VAL:HG22	1:A:908:GLN:HE22	1.74	0.53
1:A:998:ASN:HA	1:A:1001:PHE:CD2	2.44	0.53
1:A:903:LEU:O	1:A:907:VAL:HG13	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1229:THR:O	1:A:1237:GLN:NE2	2.41	0.53
1:A:821:LEU:HD12	1:A:821:LEU:H	1.74	0.53
1:A:1180:THR:C	1:A:1182:LYS:H	2.10	0.53
1:A:442:GLY:HA2	1:A:1188:TRP:HD1	1.73	0.52
1:A:1196:SER:O	1:A:1200:THR:OG1	2.20	0.52
1:A:403:PHE:CG	1:A:443:ASP:HB3	2.44	0.52
1:A:1040:HIS:CE1	1:A:1041:VAL:HG13	2.45	0.52
1:A:804:THR:O	1:A:807:LEU:HG	2.09	0.52
1:A:1057:SER:HA	1:A:1171:GLY:O	2.10	0.52
1:A:1131:HIS:CE1	1:A:1133:GLN:HB2	2.44	0.52
1:A:533:GLU:HA	1:A:569:TYR:HE2	1.74	0.52
1:A:1067:ASN:HB2	1:A:1070:GLU:OE2	2.10	0.52
1:A:1216:VAL:HG23	1:A:1217:LEU:HD22	1.91	0.52
1:A:429:LEU:O	1:A:433:THR:OG1	2.23	0.52
1:A:448:VAL:HG22	1:A:449:ALA:H	1.74	0.52
1:A:159:PHE:O	1:A:163:THR:OG1	2.27	0.52
1:A:881:TYR:OH	1:A:931:PRO:HG2	2.09	0.52
1:A:254:VAL:O	1:A:258:THR:HG23	2.10	0.52
1:A:477:CYS:HB2	1:A:482:GLU:O	2.10	0.52
1:A:222:GLY:O	1:A:225:SER:OG	2.23	0.52
1:A:1060:VAL:HG11	1:A:1191:THR:HG22	1.92	0.52
1:A:221:VAL:HA	1:A:224:PHE:HB3	1.91	0.51
1:A:888:PHE:HE2	1:A:895:THR:HG23	1.75	0.51
1:A:250:VAL:HG12	1:A:292:HIS:CD2	2.46	0.51
1:A:314:GLY:O	1:A:318:MET:HG2	2.10	0.51
1:A:983:VAL:HB	1:A:987:PHE:CZ	2.46	0.51
1:A:401:VAL:H	1:A:486:MET:HA	1.74	0.51
1:A:933:LEU:O	1:A:936:LEU:HB3	2.10	0.51
1:A:798:PHE:O	1:A:801:LEU:HB3	2.11	0.51
1:A:986:VAL:HA	1:A:989:LEU:HD23	1.93	0.51
1:A:881:TYR:HA	1:A:884:VAL:HG23	1.93	0.51
1:A:129:LEU:HD21	1:A:989:LEU:HD22	1.93	0.51
1:A:261:TYR:HB3	1:A:262:HIS:CE1	2.46	0.51
1:A:476:PHE:HA	1:A:479:GLU:HB3	1.92	0.51
1:A:303:GLN:O	1:A:306:SER:OG	2.25	0.51
1:A:303:GLN:O	1:A:307:ARG:HG2	2.11	0.51
1:A:419:LEU:HB3	1:A:423:PHE:CE2	2.46	0.51
1:A:165:THR:HG22	1:A:168:TYR:HB2	1.92	0.51
1:A:257:GLU:HB3	1:A:288:HIS:NE2	2.26	0.51
1:A:833:LEU:HA	1:A:836:VAL:HG22	1.93	0.51
1:A:1085:VAL:O	1:A:1088:GLU:HB2	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:389:GLN:NE2	1:A:496:LEU:HB3	2.26	0.50
1:A:491:HIS:CG	1:A:516:LEU:HD22	2.44	0.50
1:A:1131:HIS:CD2	1:A:1132:PRO:HD2	2.46	0.50
1:A:1213:SER:HA	1:A:1216:VAL:HG22	1.93	0.50
1:A:829:LEU:HA	1:A:832:ILE:HG22	1.93	0.50
1:A:910:CYS:SG	1:A:998:ASN:HB3	2.52	0.50
1:A:1001:PHE:O	1:A:1004:SER:OG	2.21	0.50
1:A:290:CYS:HB3	1:A:800:ILE:HD11	1.94	0.50
1:A:150:LEU:O	1:A:154:VAL:HG13	2.12	0.50
1:A:354:SER:O	1:A:358:VAL:HG23	2.12	0.50
1:A:296:ILE:O	1:A:300:ILE:HG23	2.13	0.49
1:A:504:ARG:HB2	1:A:1107:LYS:NZ	2.27	0.49
1:A:188:LEU:HD11	1:A:256:PHE:HA	1.95	0.49
1:A:227:CYS:SG	1:A:252:TYR:HE2	2.35	0.49
1:A:285:ALA:O	1:A:289:LEU:HG	2.13	0.49
1:A:224:PHE:CZ	1:A:287:LEU:HD23	2.47	0.49
1:A:343:ALA:O	1:A:347:MET:HG2	2.12	0.49
1:A:904:THR:O	1:A:907:VAL:HG22	2.13	0.49
1:A:97:SER:OG	1:A:101:GLU:HG3	2.12	0.49
1:A:1017:LEU:HB3	1:A:1021:LYS:HE3	1.93	0.49
1:A:518:ASN:OD1	1:A:522:GLN:NE2	2.46	0.49
1:A:1119:SER:HB3	1:A:1139:LEU:HD11	1.93	0.49
1:A:301:MET:SD	1:A:302:SER:N	2.85	0.49
1:A:399:ASP:O	1:A:487:ARG:HG2	2.13	0.49
1:A:332:ARG:HE	1:A:333:MET:HE2	1.76	0.49
1:A:335:HIS:CE1	1:A:343:ALA:HB3	2.48	0.49
1:A:335:HIS:HE1	1:A:340:ARG:HA	1.78	0.49
1:A:548:GLY:H	1:A:569:TYR:HA	1.75	0.49
1:A:1038:PRO:HD2	1:A:1041:VAL:HG21	1.93	0.49
1:A:830:LEU:O	1:A:833:LEU:HG	2.12	0.49
1:A:395:ILE:HG21	1:A:514:VAL:HA	1.93	0.49
1:A:1186:ASP:HB3	1:A:1188:TRP:CZ2	2.48	0.49
1:A:1043:GLU:OE2	1:A:1046:LYS:NZ	2.45	0.48
1:A:120:LEU:HD22	1:A:156:CYS:HB3	1.94	0.48
1:A:128:LEU:O	1:A:132:ILE:HG23	2.13	0.48
1:A:797:VAL:HA	1:A:800:ILE:HG12	1.95	0.48
1:A:881:TYR:HA	1:A:884:VAL:CG2	2.42	0.48
1:A:243:TYR:O	1:A:247:ILE:HG12	2.14	0.48
1:A:241:PRO:O	1:A:245:SER:N	2.34	0.48
1:A:475:GLN:O	1:A:479:GLU:HB2	2.13	0.48
1:A:809:TYR:CZ	1:A:816:PRO:HD2	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:339:PRO:HD3	1:A:506:LYS:HZ1	1.79	0.48
1:A:898:THR:O	1:A:902:VAL:HG13	2.13	0.48
1:A:97:SER:HB2	1:A:100:LEU:HB2	1.95	0.48
1:A:888:PHE:CZ	1:A:935:LEU:HD22	2.49	0.48
1:A:288:HIS:H	1:A:288:HIS:HD1	1.61	0.48
1:A:530:HIS:NE2	1:A:568:THR:HB	2.28	0.48
1:A:130:TRP:O	1:A:134:PHE:HD2	1.95	0.48
1:A:103:ALA:HA	1:A:106:GLU:CD	2.34	0.48
1:A:253:SER:HB2	1:A:288:HIS:HD2	1.79	0.48
1:A:280:GLU:O	1:A:284:ARG:HG2	2.13	0.48
1:A:503:ARG:HH11	1:A:1094:ASP:HB3	1.79	0.48
1:A:533:GLU:O	1:A:537:LYS:N	2.46	0.48
1:A:814:THR:O	1:A:816:PRO:HD3	2.14	0.48
1:A:1126:CYS:SG	1:A:1130:SER:OG	2.66	0.48
1:A:423:PHE:HA	1:A:426:PHE:CD2	2.49	0.48
1:A:921:SER:HB2	1:A:995:TRP:CE3	2.48	0.48
1:A:159:PHE:CE2	1:A:179:LEU:HD13	2.50	0.47
1:A:223:SER:HA	1:A:226:MET:SD	2.53	0.47
1:A:400:ILE:O	1:A:487:ARG:NH1	2.47	0.47
1:A:495:VAL:CG1	1:A:509:VAL:HB	2.42	0.47
1:A:284:ARG:O	1:A:287:LEU:HB2	2.13	0.47
1:A:1060:VAL:CG1	1:A:1191:THR:HG22	2.44	0.47
1:A:496:LEU:HD23	1:A:510:TRP:O	2.14	0.47
1:A:784:THR:HA	1:A:787:SER:OG	2.14	0.47
1:A:983:VAL:HA	1:A:986:VAL:HG12	1.97	0.47
1:A:192:PHE:O	1:A:194:VAL:N	2.46	0.47
1:A:227:CYS:O	1:A:231:LEU:HD23	2.14	0.47
1:A:250:VAL:HA	1:A:292:HIS:HE2	1.78	0.47
1:A:465:MET:O	1:A:469:MET:HG3	2.14	0.47
1:A:782:SER:OG	1:A:785:PHE:HB2	2.13	0.47
1:A:1033:LEU:O	1:A:1037:ILE:N	2.42	0.47
1:A:1137:GLN:HB2	1:A:1220:MET:SD	2.53	0.47
1:A:1141:GLU:OE2	1:A:1222:TYR:OH	2.33	0.47
1:A:1197:ARG:HD3	1:A:1232:VAL:HA	1.97	0.47
1:A:133:TYR:HD2	1:A:134:PHE:CD2	2.33	0.47
1:A:179:LEU:O	1:A:182:LEU:HB3	2.14	0.47
1:A:913:CYS:SG	1:A:1001:PHE:HB2	2.55	0.47
1:A:992:LEU:O	1:A:995:TRP:HB3	2.15	0.47
1:A:1119:SER:OG	1:A:1120:GLY:N	2.45	0.47
1:A:221:VAL:HG11	1:A:900:SER:HB3	1.97	0.47
1:A:226:MET:O	1:A:229:GLU:HG2	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:903:LEU:HA	1:A:906:VAL:HG12	1.96	0.47
1:A:1177:VAL:HA	1:A:1185:TYR:HA	1.97	0.47
1:A:224:PHE:HZ	1:A:287:LEU:HB3	1.80	0.46
1:A:802:SER:HA	1:A:805:CYS:SG	2.54	0.46
1:A:1140:PHE:HB3	1:A:1222:TYR:CZ	2.50	0.46
1:A:1076:TYR:HB2	1:A:1079:GLY:HA2	1.97	0.46
1:A:101:GLU:HA	1:A:104:CYS:SG	2.56	0.46
1:A:492:THR:HG23	1:A:535:THR:HG22	1.98	0.46
1:A:125:PHE:O	1:A:128:LEU:HB3	2.16	0.46
1:A:148:PRO:HA	1:A:151:CYS:SG	2.56	0.46
1:A:226:MET:O	1:A:230:VAL:HG23	2.15	0.46
1:A:430:CYS:SG	1:A:437:LYS:HB3	2.56	0.46
1:A:520:MET:O	1:A:530:HIS:ND1	2.45	0.46
1:A:931:PRO:O	1:A:934:LEU:HB3	2.15	0.46
1:A:152:PHE:HZ	1:A:183:VAL:HG22	1.80	0.46
1:A:152:PHE:CD1	1:A:186:LEU:HD22	2.51	0.46
1:A:171:HIS:O	1:A:175:THR:OG1	2.32	0.46
1:A:221:VAL:O	1:A:225:SER:N	2.28	0.46
1:A:283:SER:O	1:A:287:LEU:HD13	2.16	0.46
1:A:853:LYS:H	1:A:853:LYS:HD2	1.81	0.46
1:A:1207:ILE:HB	1:A:1243:TYR:HB3	1.98	0.46
1:A:1227:ARG:H	1:A:1241:TYR:HA	1.80	0.46
1:A:888:PHE:CE2	1:A:895:THR:HG23	2.51	0.46
1:A:1081:GLU:HA	1:A:1084:ARG:NH1	2.31	0.46
1:A:402:GLY:O	1:A:406:MET:HG3	2.15	0.46
1:A:422:LEU:HB3	1:A:426:PHE:CZ	2.51	0.46
1:A:1034:ARG:HH22	1:A:1039:TYR:N	2.13	0.46
1:A:853:LYS:HA	1:A:856:LEU:HB2	1.98	0.46
1:A:1152:ASP:HA	1:A:1155:ASN:ND2	2.31	0.45
1:A:1239:LYS:HG2	1:A:1241:TYR:CE2	2.51	0.45
1:A:120:LEU:HD11	1:A:159:PHE:HB3	1.98	0.45
1:A:418:LEU:HB2	1:A:476:PHE:CZ	2.50	0.45
1:A:539:LEU:HG	1:A:541:ASP:H	1.81	0.45
1:A:1071:PHE:HB3	1:A:1162:PHE:CZ	2.51	0.45
1:A:1090:ILE:HA	1:A:1093:PHE:CD2	2.51	0.45
1:A:506:LYS:HG3	1:A:507:PHE:N	2.30	0.45
1:A:993:LEU:HD23	1:A:994:VAL:N	2.32	0.45
1:A:1211:GLU:O	1:A:1215:ARG:HG3	2.16	0.45
1:A:286:LEU:HD11	1:A:800:ILE:HB	1.98	0.45
1:A:1066:VAL:HG21	1:A:1204:GLU:HB3	1.98	0.45
1:A:903:LEU:HD12	1:A:904:THR:N	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:ILE:HG13	1:A:443:ASP:O	2.17	0.45
1:A:415:LEU:O	1:A:418:LEU:HG	2.16	0.45
1:A:438:ILE:HG12	1:A:447:CYS:HA	1.99	0.45
1:A:999:ARG:O	1:A:1003:VAL:HG23	2.17	0.45
1:A:1218:SER:HA	1:A:1222:TYR:O	2.17	0.45
1:A:286:LEU:HD21	1:A:800:ILE:HB	1.99	0.45
1:A:441:LEU:N	1:A:446:TYR:HE1	2.15	0.45
1:A:1197:ARG:HE	1:A:1232:VAL:HA	1.81	0.45
1:A:233:LEU:HA	1:A:236:THR:HG22	1.98	0.45
1:A:389:GLN:HA	1:A:496:LEU:HA	1.98	0.45
1:A:1205:CYS:O	1:A:1244:PRO:HG2	2.17	0.45
1:A:111:GLN:NE2	1:A:112:THR:OG1	2.50	0.45
1:A:243:TYR:CE2	1:A:244:LEU:HG	2.51	0.45
1:A:422:LEU:O	1:A:425:ARG:HB2	2.17	0.45
1:A:1168:PHE:CE2	1:A:1213:SER:HB2	2.52	0.45
1:A:303:GLN:HB2	1:A:307:ARG:HH22	1.82	0.44
1:A:431:GLU:O	1:A:434:LYS:NZ	2.37	0.44
1:A:499:ILE:HG12	1:A:507:PHE:HA	1.97	0.44
1:A:98:VAL:HG13	1:A:99:ASN:N	2.32	0.44
1:A:342:ILE:H	1:A:342:ILE:HD12	1.83	0.44
1:A:358:VAL:HA	1:A:1031:TRP:CH2	2.52	0.44
1:A:495:VAL:HA	1:A:511:SER:HB3	1.99	0.44
1:A:784:THR:O	1:A:788:LEU:HG	2.17	0.44
1:A:1089:LEU:HA	1:A:1092:ASP:OD2	2.16	0.44
1:A:1231:ASN:HA	1:A:1237:GLN:HA	1.99	0.44
1:A:797:VAL:O	1:A:800:ILE:HG12	2.18	0.44
1:A:983:VAL:O	1:A:986:VAL:HG12	2.17	0.44
1:A:399:ASP:HA	1:A:443:ASP:O	2.18	0.44
1:A:400:ILE:HD12	1:A:443:ASP:HA	1.99	0.44
1:A:418:LEU:HB2	1:A:476:PHE:HZ	1.83	0.44
1:A:1105:ILE:HD11	1:A:1138:ILE:HG13	1.99	0.44
1:A:1207:ILE:O	1:A:1209:VAL:HG23	2.18	0.44
1:A:1212:GLU:HA	1:A:1215:ARG:HD2	1.99	0.44
1:A:103:ALA:O	1:A:106:GLU:HB2	2.18	0.44
1:A:184:PHE:O	1:A:187:THR:OG1	2.31	0.44
1:A:280:GLU:HG2	1:A:897:PHE:CE1	2.53	0.44
1:A:439:SER:OG	1:A:440:THR:N	2.50	0.44
1:A:1013:VAL:O	1:A:1017:LEU:HG	2.18	0.44
1:A:832:ILE:HD12	1:A:835:LEU:HD13	1.99	0.44
1:A:157:VAL:HA	1:A:160:PHE:HB3	1.99	0.44
1:A:297:HIS:O	1:A:301:MET:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:440:THR:OG1	1:A:445:TYR:HD1	2.00	0.44
1:A:442:GLY:HA2	1:A:1188:TRP:CD1	2.53	0.44
1:A:1160:PHE:HE2	1:A:1162:PHE:CD1	2.36	0.44
1:A:286:LEU:HA	1:A:289:LEU:HG	1.99	0.43
1:A:339:PRO:HD3	1:A:506:LYS:NZ	2.33	0.43
1:A:877:ALA:O	1:A:880:VAL:HG12	2.18	0.43
1:A:1140:PHE:O	1:A:1144:LYS:HG3	2.18	0.43
1:A:332:ARG:HH21	1:A:333:MET:HE1	1.83	0.43
1:A:437:LYS:HA	1:A:447:CYS:SG	2.58	0.43
1:A:840:ARG:NH1	1:A:847:ASP:HB2	2.33	0.43
1:A:147:ALA:HB3	1:A:148:PRO:HD3	1.99	0.43
1:A:358:VAL:HG13	1:A:1031:TRP:CZ3	2.52	0.43
1:A:236:THR:HG23	1:A:237:VAL:H	1.83	0.43
1:A:499:ILE:O	1:A:500:LEU:HD23	2.18	0.43
1:A:530:HIS:HA	1:A:570:LEU:HD23	2.00	0.43
1:A:549:LYS:HA	1:A:568:THR:OG1	2.19	0.43
1:A:1173:LEU:HA	1:A:1188:TRP:O	2.19	0.43
1:A:218:LEU:HD23	1:A:219:SER:O	2.18	0.43
1:A:233:LEU:HD21	1:A:993:LEU:HD11	2.00	0.43
1:A:399:ASP:N	1:A:521:GLU:OE2	2.48	0.43
1:A:418:LEU:HA	1:A:421:ASP:OD1	2.18	0.43
1:A:1214:TYR:CE1	1:A:1224:PHE:HB2	2.54	0.43
1:A:226:MET:O	1:A:227:CYS:C	2.56	0.43
1:A:496:LEU:HD11	1:A:1083:TYR:CE2	2.54	0.43
1:A:980:GLY:O	1:A:984:ILE:HG23	2.18	0.43
1:A:1197:ARG:NE	1:A:1232:VAL:HA	2.33	0.43
1:A:232:PHE:O	1:A:235:TYR:HB2	2.19	0.43
1:A:443:ASP:N	1:A:443:ASP:OD1	2.48	0.43
1:A:503:ARG:NH1	1:A:1094:ASP:O	2.51	0.43
1:A:1017:LEU:O	1:A:1020:THR:OG1	2.27	0.43
1:A:176:SER:O	1:A:180:THR:HG22	2.18	0.43
1:A:191:GLN:NE2	1:A:260:GLY:HA2	2.34	0.43
1:A:1228:GLY:O	1:A:1240:THR:N	2.39	0.43
1:A:401:VAL:HG23	1:A:487:ARG:N	2.33	0.43
1:A:441:LEU:N	1:A:444:CYS:O	2.50	0.43
1:A:246:LEU:O	1:A:250:VAL:HG13	2.18	0.42
1:A:512:ASN:HA	1:A:515:ASN:ND2	2.34	0.42
1:A:1169:ASN:ND2	1:A:1212:GLU:OE2	2.52	0.42
1:A:1050:THR:OG1	1:A:1051:TYR:N	2.52	0.42
1:A:1209:VAL:HG21	1:A:1224:PHE:CE1	2.54	0.42
1:A:195:LEU:HD23	1:A:195:LEU:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:440:THR:HG1	1:A:445:TYR:HD1	1.66	0.42
1:A:784:THR:OG1	1:A:841:MET:HE3	2.20	0.42
1:A:805:CYS:HB2	1:A:883:HIS:CD2	2.53	0.42
1:A:528:LYS:HB3	1:A:570:LEU:HB3	2.00	0.42
1:A:1102:TYR:HD1	1:A:1105:ILE:HG13	1.84	0.42
1:A:145:MET:O	1:A:148:PRO:HD2	2.20	0.42
1:A:161:LEU:HD23	1:A:161:LEU:HA	1.71	0.42
1:A:389:GLN:OE1	1:A:494:THR:OG1	2.37	0.42
1:A:475:GLN:O	1:A:479:GLU:CB	2.68	0.42
1:A:534:ALA:O	1:A:537:LYS:HG2	2.19	0.42
1:A:840:ARG:NH1	1:A:845:LEU:HB3	2.34	0.42
1:A:1030:ASP:O	1:A:1034:ARG:HG2	2.19	0.42
1:A:1207:ILE:O	1:A:1242:LEU:HA	2.19	0.42
1:A:491:HIS:HB3	1:A:517:ALA:HB2	2.02	0.42
1:A:1055:HIS:HB2	1:A:1173:LEU:HD12	2.02	0.42
1:A:154:VAL:HA	1:A:157:VAL:HG12	2.01	0.42
1:A:280:GLU:OE2	1:A:284:ARG:HD3	2.19	0.42
1:A:873:VAL:CG2	1:A:908:GLN:HE22	2.33	0.42
1:A:232:PHE:HD1	1:A:235:TYR:HD1	1.68	0.42
1:A:338:MET:HB3	1:A:343:ALA:HB2	2.01	0.42
1:A:168:TYR:HA	1:A:171:HIS:HB2	2.02	0.41
1:A:474:GLU:HA	1:A:477:CYS:SG	2.60	0.41
1:A:921:SER:HB2	1:A:995:TRP:CZ3	2.54	0.41
1:A:1166:VAL:HG23	1:A:1207:ILE:HG23	2.02	0.41
1:A:151:CYS:O	1:A:154:VAL:HG22	2.19	0.41
1:A:250:VAL:O	1:A:253:SER:OG	2.27	0.41
1:A:1157:MET:HB3	1:A:1160:PHE:O	2.20	0.41
1:A:151:CYS:O	1:A:155:VAL:HG22	2.20	0.41
1:A:152:PHE:CE1	1:A:182:LEU:HG	2.54	0.41
1:A:398:ALA:O	1:A:444:CYS:HA	2.20	0.41
1:A:491:HIS:CE1	1:A:534:ALA:HB3	2.56	0.41
1:A:545:MET:HA	1:A:571:ILE:HD13	2.02	0.41
1:A:1093:PHE:O	1:A:1096:LEU:HB2	2.20	0.41
1:A:1107:LYS:HG3	1:A:1107:LYS:O	2.20	0.41
1:A:111:GLN:HA	1:A:114:ARG:CZ	2.50	0.41
1:A:449:ALA:HB3	1:A:458:HIS:HB2	2.02	0.41
1:A:992:LEU:HD12	1:A:996:PHE:HE2	1.85	0.41
1:A:1109:LYS:HE3	1:A:1109:LYS:HB2	1.96	0.41
1:A:1165:ARG:HD2	1:A:1202:GLY:C	2.41	0.41
1:A:159:PHE:CZ	1:A:179:LEU:HB2	2.56	0.41
1:A:232:PHE:HA	1:A:235:TYR:HD1	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:997:LEU:HB3	1:A:1001:PHE:CZ	2.55	0.41
1:A:195:LEU:HD13	1:A:262:HIS:HA	2.03	0.41
1:A:900:SER:O	1:A:903:LEU:HG	2.20	0.41
1:A:1001:PHE:CD1	1:A:1001:PHE:N	2.85	0.41
1:A:1100:PRO:O	1:A:1103:SER:OG	2.24	0.41
1:A:1102:TYR:CD1	1:A:1105:ILE:HG13	2.56	0.41
1:A:224:PHE:CZ	1:A:228:ILE:HD11	2.55	0.41
1:A:1066:VAL:HG23	1:A:1164:LEU:HA	2.03	0.41
1:A:239:HIS:O	1:A:239:HIS:ND1	2.54	0.41
1:A:399:ASP:O	1:A:486:MET:HB2	2.21	0.41
1:A:497:CYS:HB2	1:A:507:PHE:CZ	2.55	0.41
1:A:544:GLU:N	1:A:573:GLY:O	2.37	0.41
1:A:888:PHE:CG	1:A:889:GLU:N	2.89	0.41
1:A:1067:ASN:CG	1:A:1163:LYS:H	2.21	0.41
1:A:1160:PHE:HE2	1:A:1162:PHE:CG	2.39	0.41
1:A:491:HIS:NE2	1:A:516:LEU:HD13	2.36	0.41
1:A:787:SER:O	1:A:791:VAL:HG23	2.21	0.41
1:A:1066:VAL:N	1:A:1163:LYS:O	2.54	0.41
1:A:1148:ARG:CZ	1:A:1148:ARG:HB2	2.51	0.41
1:A:336:SER:HA	1:A:1182:LYS:NZ	2.36	0.40
1:A:403:PHE:CE1	1:A:443:ASP:HB3	2.56	0.40
1:A:428:ARG:O	1:A:431:GLU:HG2	2.21	0.40
1:A:892:ILE:HA	1:A:895:THR:HB	2.03	0.40
1:A:917:SER:OG	1:A:918:TRP:N	2.54	0.40
1:A:935:LEU:HG	1:A:935:LEU:H	1.73	0.40
1:A:1067:ASN:HD21	1:A:1162:PHE:HA	1.85	0.40
1:A:1154:ASN:ND2	1:A:1162:PHE:H	2.19	0.40
1:A:133:TYR:HE2	1:A:134:PHE:CE1	2.40	0.40
1:A:152:PHE:CZ	1:A:183:VAL:HA	2.57	0.40
1:A:294:ILE:CD1	1:A:908:GLN:HA	2.51	0.40
1:A:122:TYR:CD2	1:A:233:LEU:HD11	2.56	0.40
1:A:232:PHE:HD1	1:A:232:PHE:HA	1.70	0.40
1:A:400:ILE:HB	1:A:403:PHE:HB2	2.03	0.40
1:A:232:PHE:HD1	1:A:235:TYR:CD1	2.39	0.40
1:A:286:LEU:O	1:A:286:LEU:HD23	2.21	0.40
1:A:511:SER:HG	1:A:513:ASP:HB2	1.87	0.40
1:A:1034:ARG:HH12	1:A:1038:PRO:C	2.25	0.40
1:A:470:ILE:HD13	1:A:470:ILE:HA	1.92	0.40
1:A:488:VAL:HG12	1:A:529:VAL:HG23	2.03	0.40
1:A:1137:GLN:O	1:A:1141:GLU:HG2	2.21	0.40
1:A:1217:LEU:HD12	1:A:1222:TYR:CE2	2.56	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	828/1354 (61%)	731 (88%)	97 (12%)	0	100 100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	729/1176 (62%)	727 (100%)	2 (0%)	92 95

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	348	LYS
1	A	1219	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	262	HIS
1	A	356	ASN
1	A	512	ASN

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Mol	Chain	Res	Type
1	A	515	ASN
1	A	1044	GLN
1	A	1122	ASN
1	A	1135	HIS
1	A	1154	ASN
1	A	1155	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

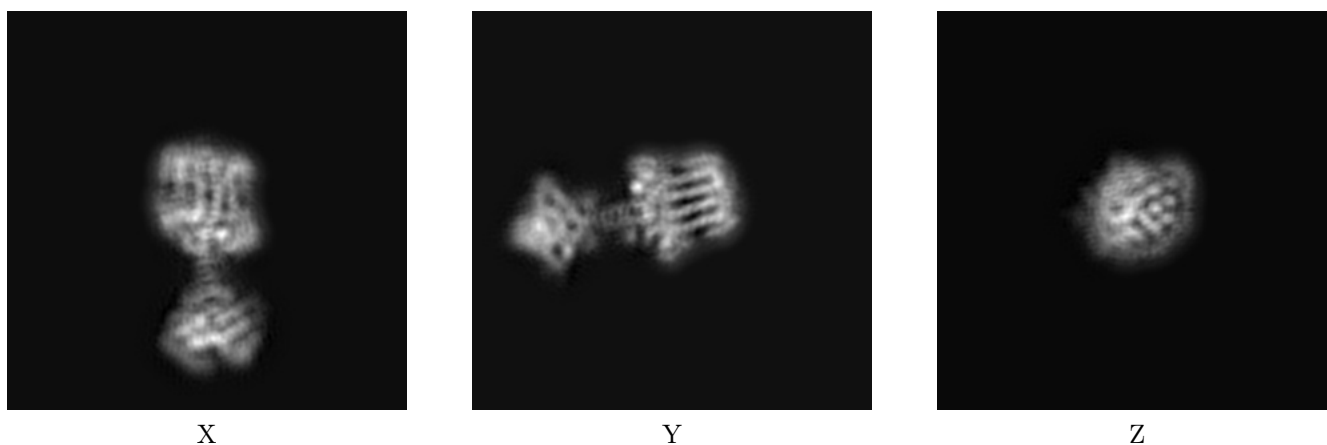
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13330. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

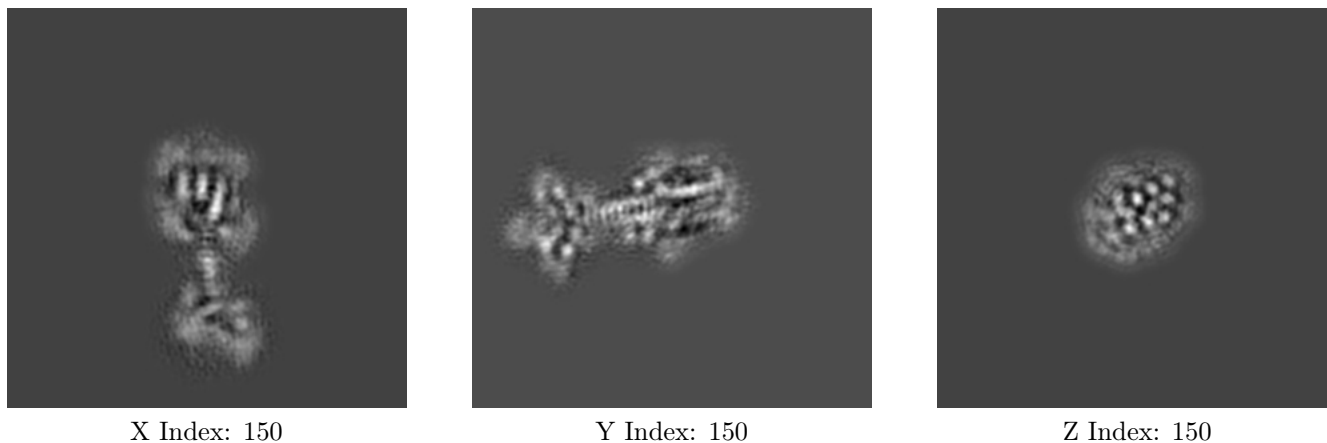
6.1.1 Primary map



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

6.2 Central slices [i](#)

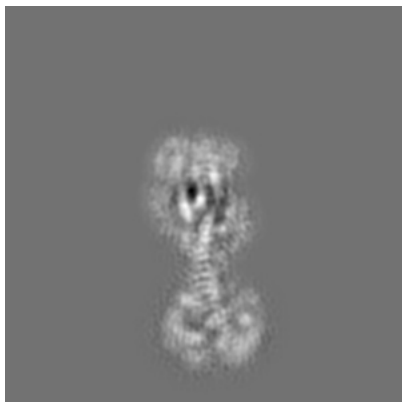
6.2.1 Primary map



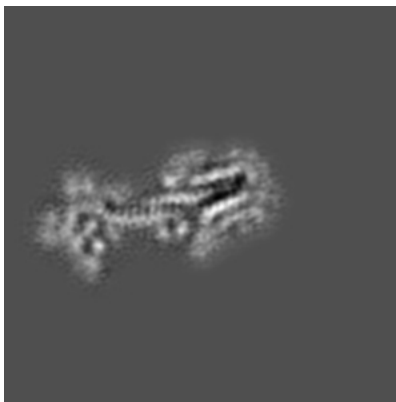
The images above show central slices of the map in three orthogonal directions.

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

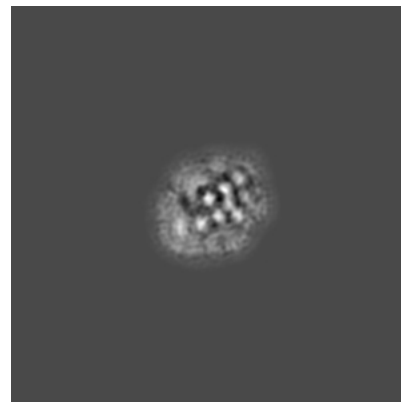
6.3.1 Primary map



X Index: 143



Y Index: 145

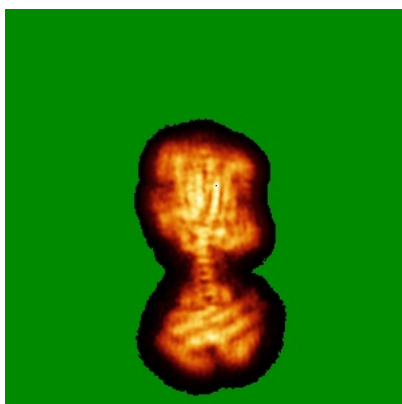


Z Index: 144

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

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

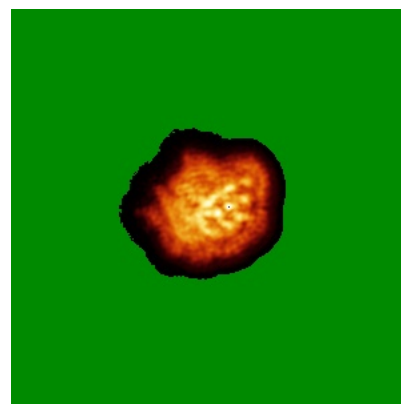
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

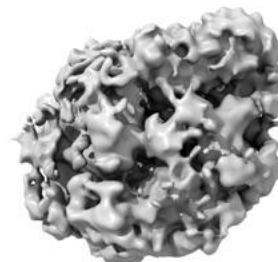
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

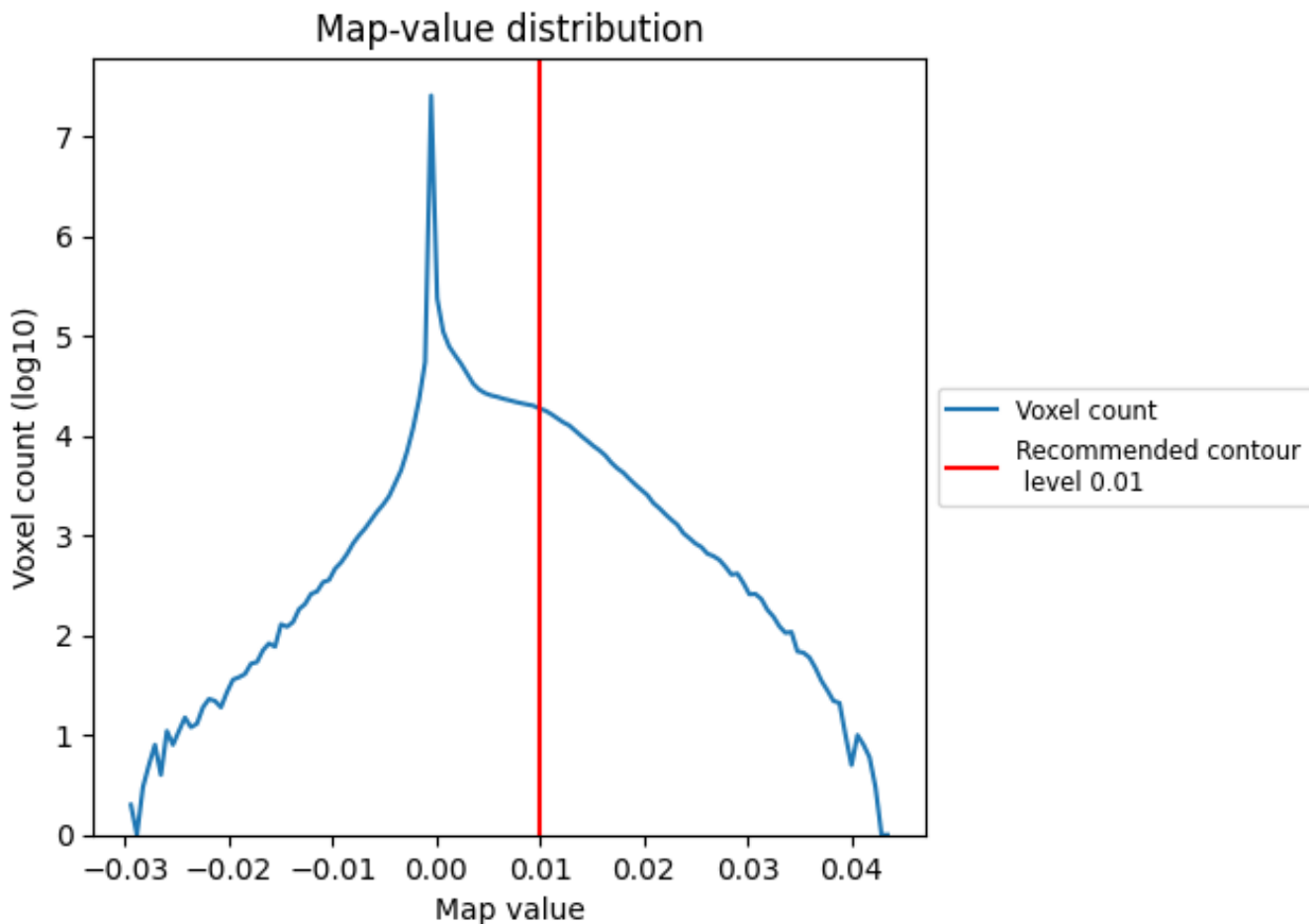
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

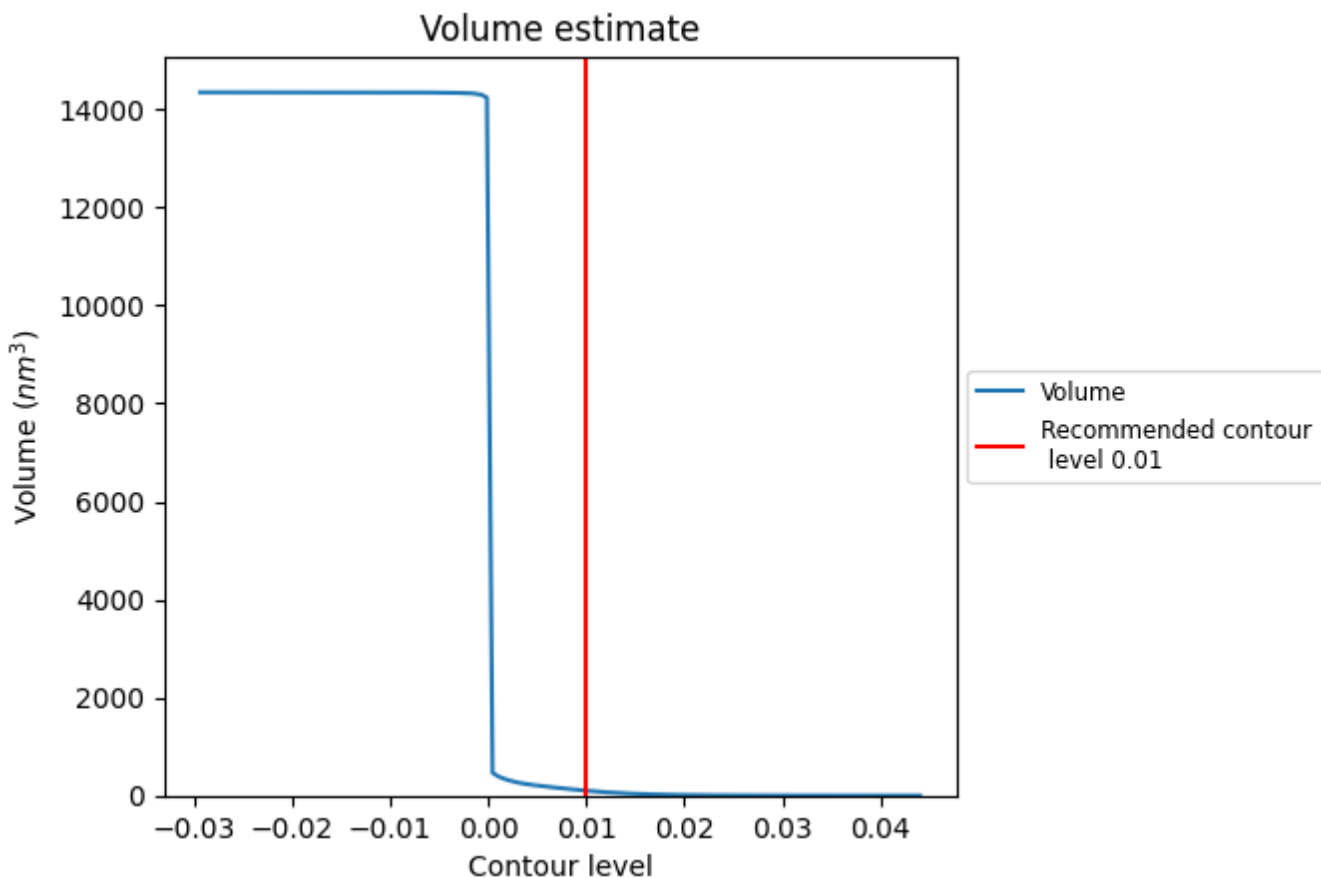
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

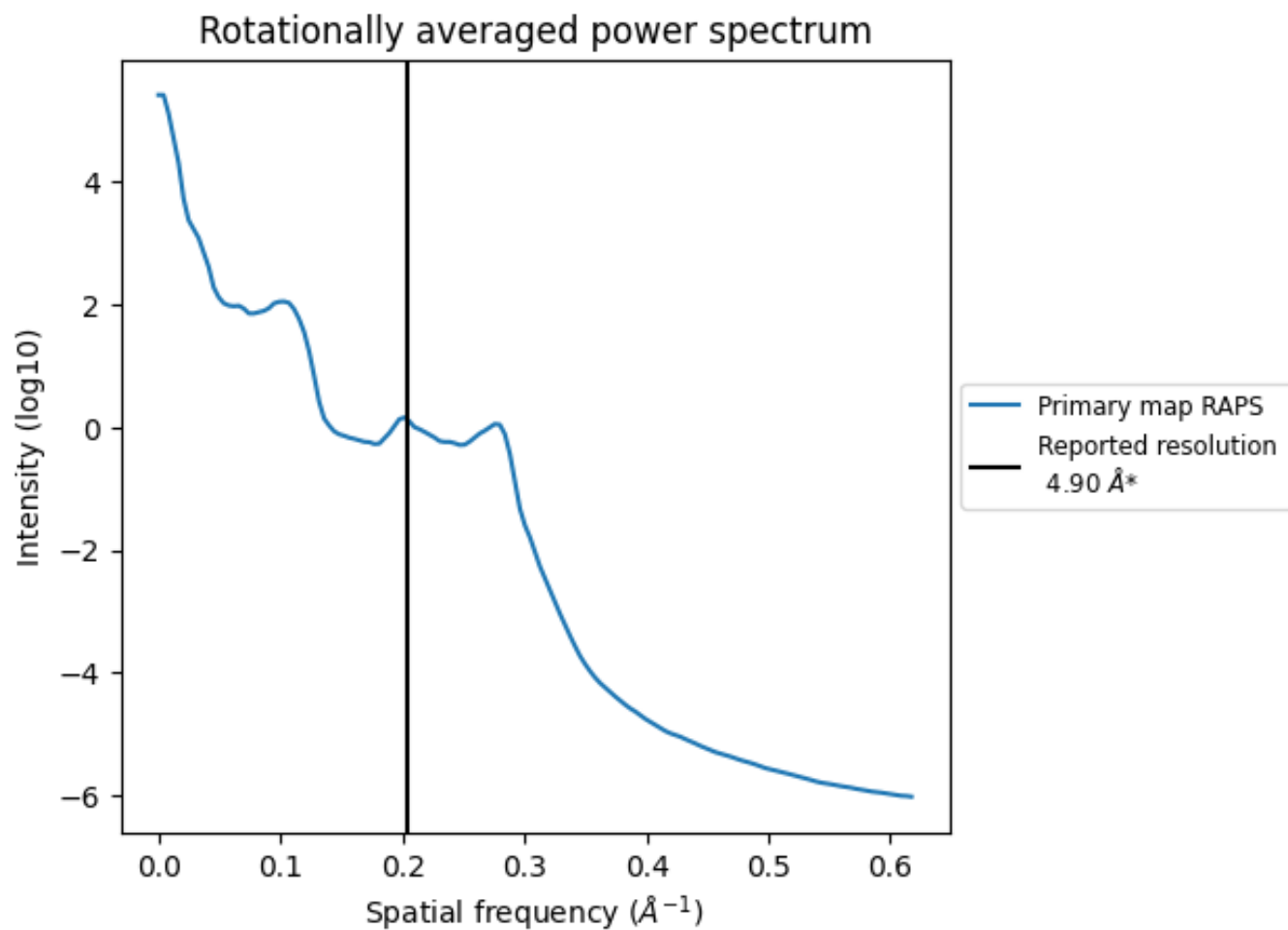
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 100 nm³; this corresponds to an approximate mass of 90 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](#)

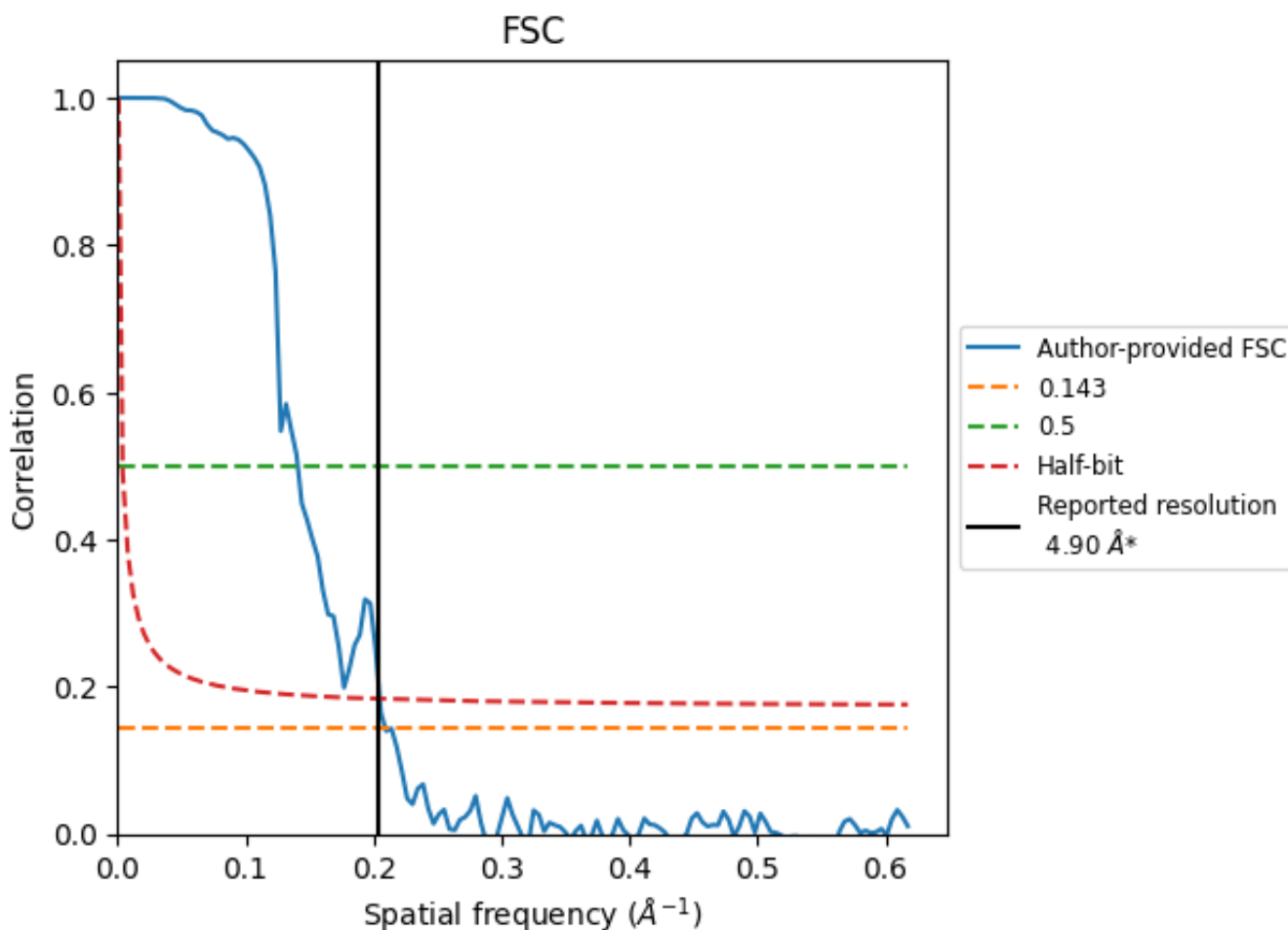


*Reported resolution corresponds to spatial frequency of 0.204\AA^{-1}

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.204 Å⁻¹

8.2 Resolution estimates [i](#)

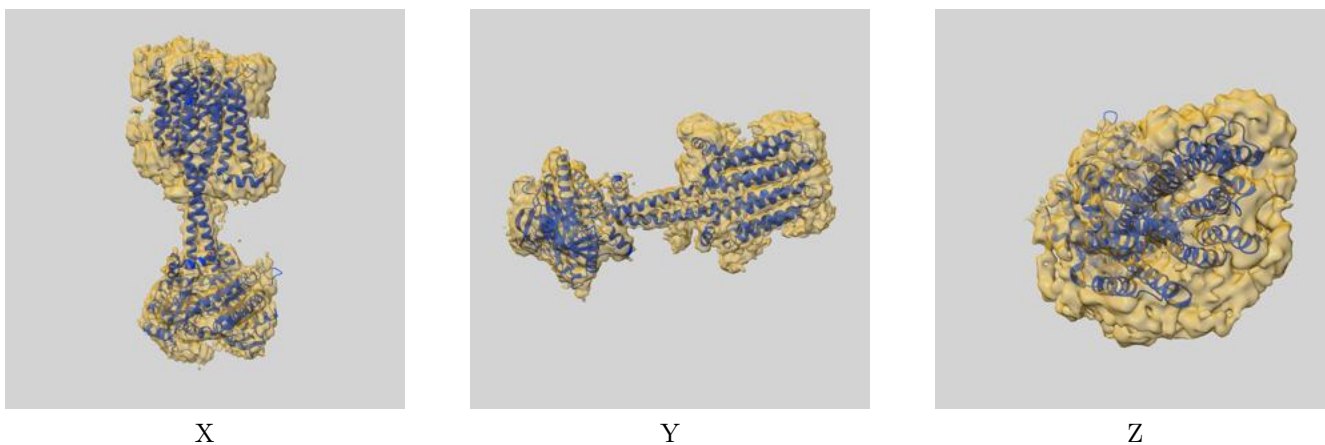
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.90	-	-
Author-provided FSC curve	4.78	7.10	4.88
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

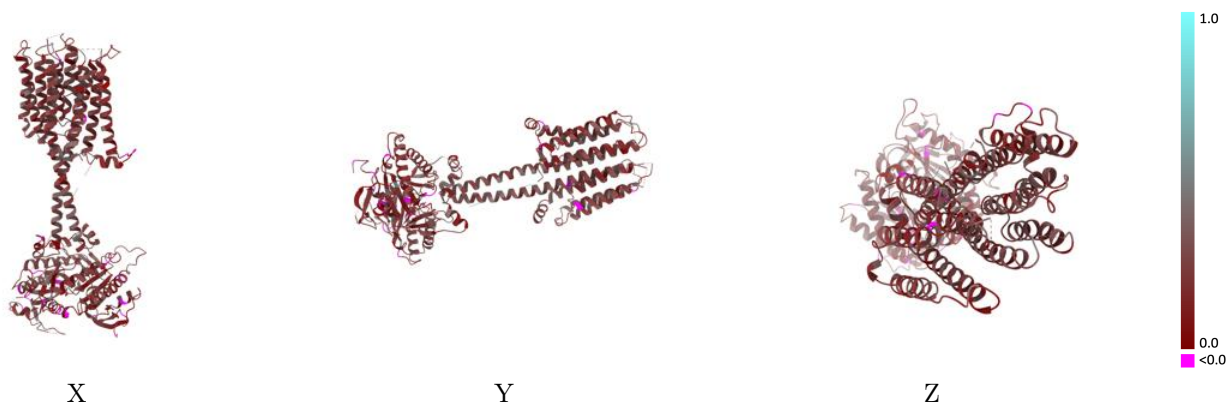
This section contains information regarding the fit between EMDB map EMD-13330 and PDB model 7PD4. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



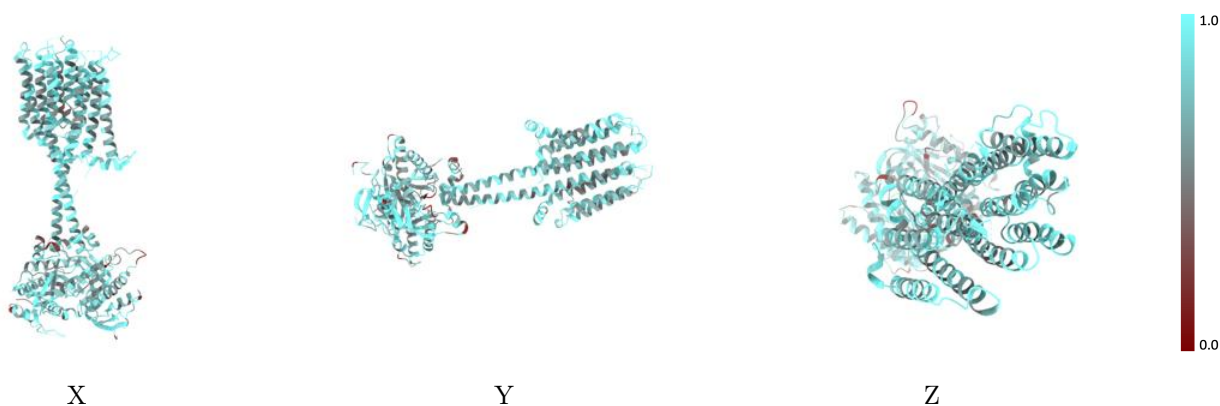
The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



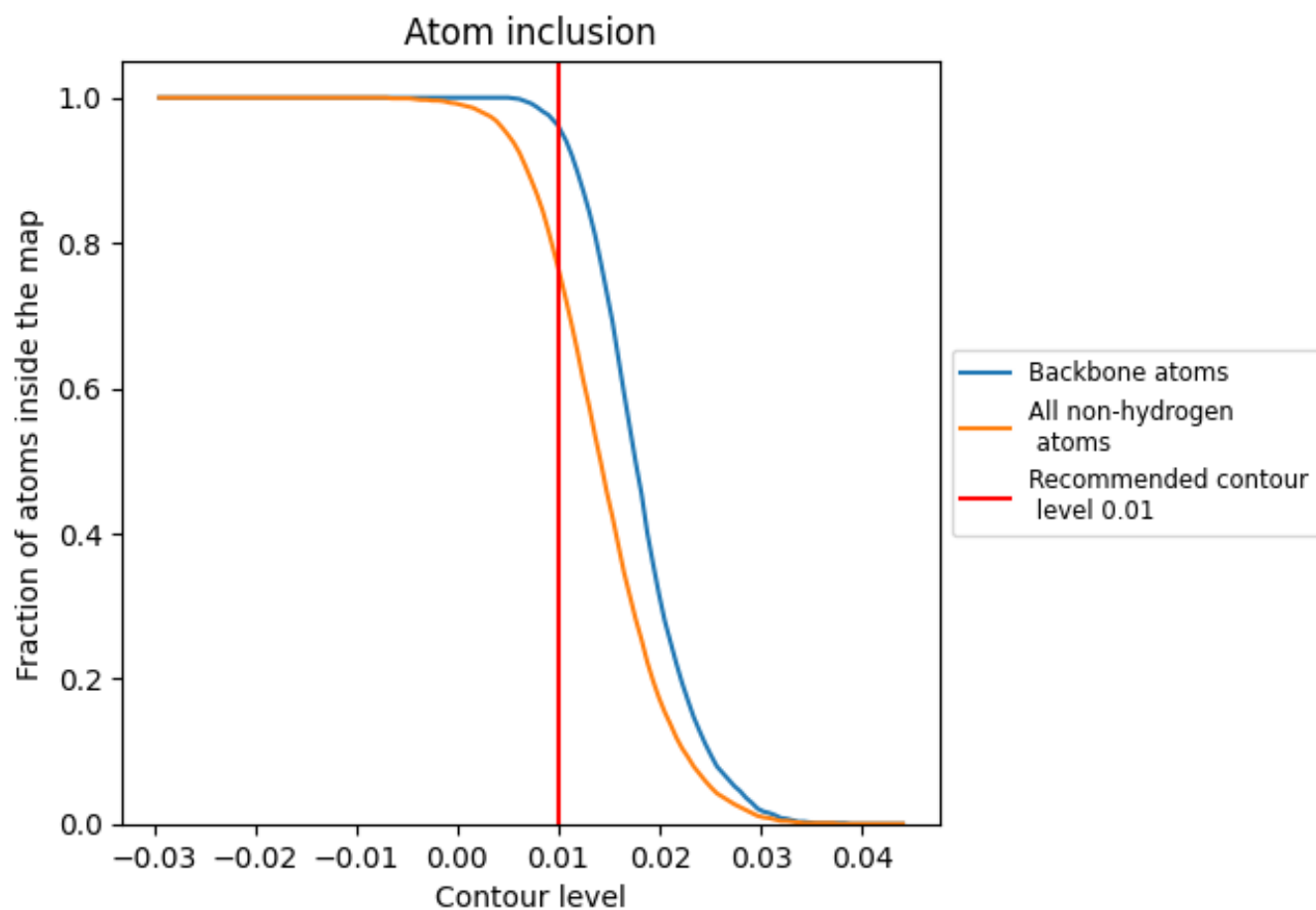
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).





9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 76% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7640	 0.2110
A	 0.7640	 0.2110

