



Full wwPDB EM Validation Report ⓘ

May 13, 2025 – 10:40 AM EDT

PDB ID : 8DGF / pdb_00008dgf
EMDB ID : EMD-27422
Title : Avs4 bound to phage PhiV-1 portal
Authors : Wilkinson, M.E.; Gao, L.; Strecker, J.; Makarova, K.S.; Macrae, R.K.; Koonin, E.V.; Zhang, F.
Deposited on : 2022-06-23
Resolution : 2.90 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.dev118
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
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) : 2.43.1

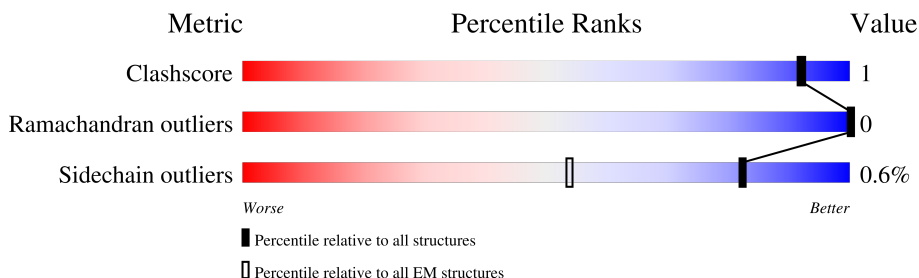
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.90 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	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 $\leq 5\%$. 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	1587	66% 94% • •
1	B	1587	69% 93% • •
1	C	1587	66% 94% • •
1	D	1587	69% 94% • •
2	E	535	82% 76% 5% 18%
2	F	535	82% 75% 7% 18%
2	G	535	82% 79% • 18%
2	H	535	82% 75% 7% • 18%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 64958 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 ATP-binding protein Avs4.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1541	Total	C	N	O	S	0	0
			12805	8291	2104	2370	40		
1	B	1534	Total	C	N	O	S	0	0
			12756	8265	2094	2358	39		
1	C	1541	Total	C	N	O	S	0	0
			12805	8291	2104	2370	40		
1	D	1534	Total	C	N	O	S	0	0
			12756	8265	2094	2358	39		

- Molecule 2 is a protein called Portal protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	438	Total	C	N	O	S	0	0
			3427	2165	565	678	19		
2	F	438	Total	C	N	O	S	0	0
			3427	2165	565	678	19		
2	G	438	Total	C	N	O	S	0	0
			3427	2165	565	678	19		
2	H	438	Total	C	N	O	S	0	0
			3427	2165	565	678	19		

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total 31	C 10	N 5	O 13	P 3	0
3	B	1	Total 31	C 10	N 5	O 13	P 3	0
3	C	1	Total 31	C 10	N 5	O 13	P 3	0
3	D	1	Total 31	C 10	N 5	O 13	P 3	0

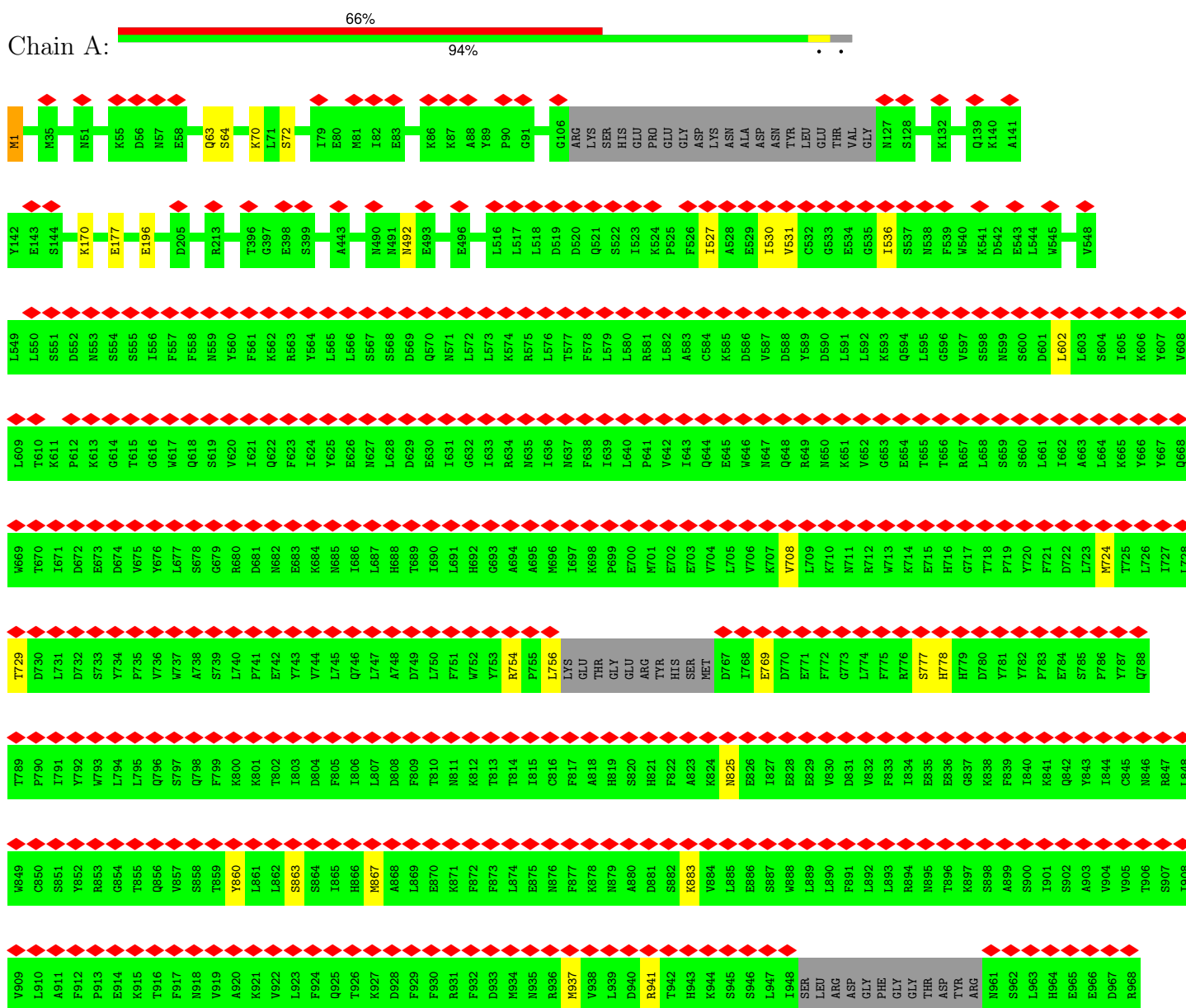
- Molecule 4 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total Mg 1 1	0
4	B	1	Total Mg 1 1	0
4	C	1	Total Mg 1 1	0
4	D	1	Total Mg 1 1	0

3 Residue-property plots

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: ATP-binding protein Avs4

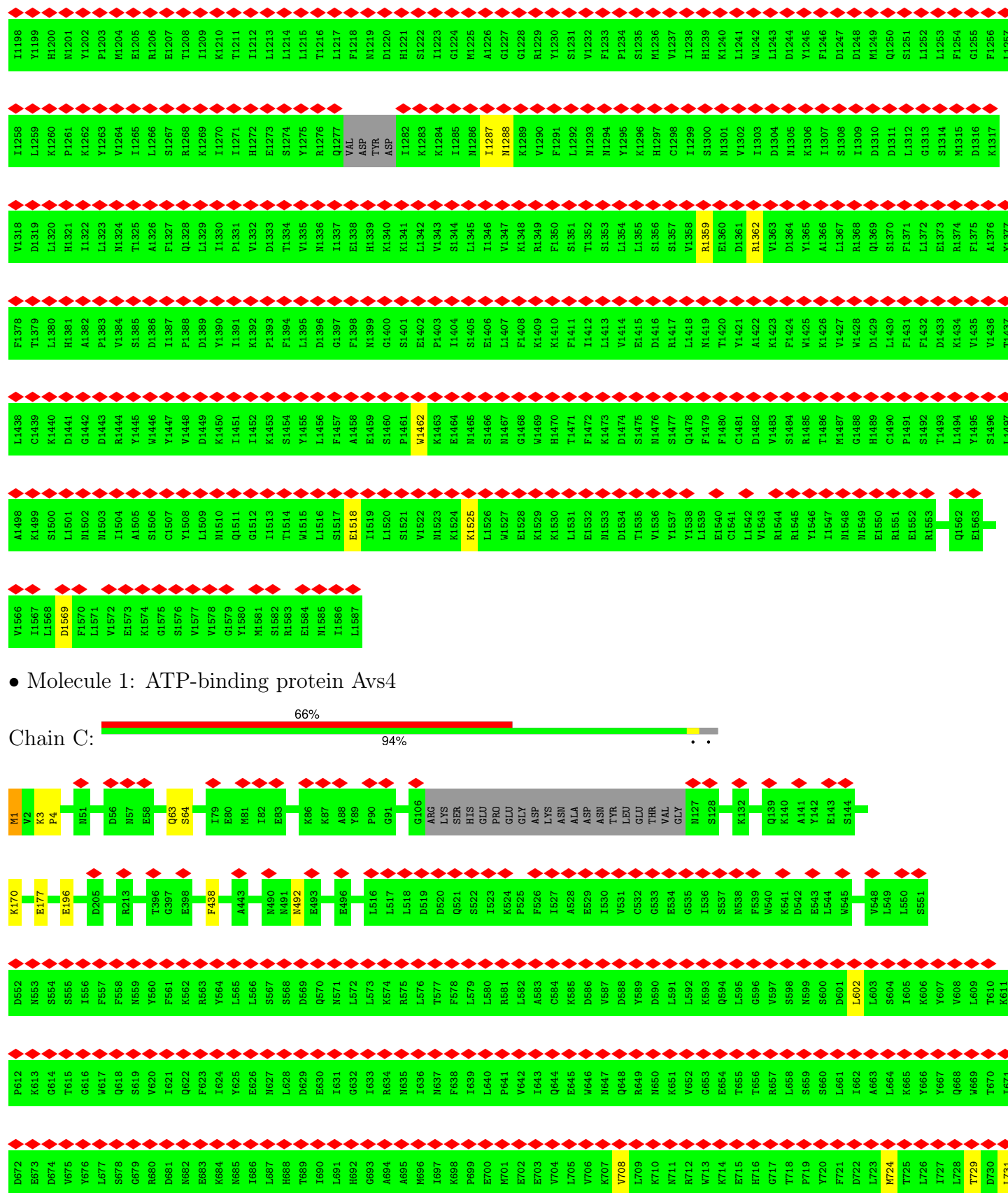


- Molecule 1: ATP-binding protein *Avs4*

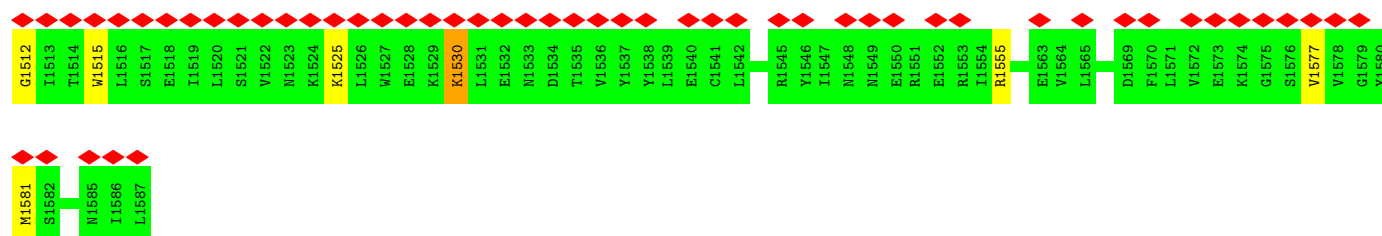
Category	Percentage
Current government is responsible	69%
Other factors are responsible	93%



GLY	ASN	SER	ASN	D130	D131	K132	I133	K134	I135	E136	V137	D138	Q139	K140	A141	Y142	E143	S144	G145	I146	H171	N176	D205	R213	H214	L219	H220	E221	N222	L223	V224	Q225	K226	K227	I228	K244	E248	Q252	Y253	D287	E288	L289	R290	K291	L302	E303	D308												
K311	K321	W322	N331	Y332	L333	A334	D335	L336	N337	Y338	A339	F340	I341	D342	I343	Y344	K345	I346	T347	E357	E363	D366	T396	G397	E398	M492	E500	R515	L516	L517	L518	D519	D520	Q521	S522	I523	K524	P525	F526	I527	A528	E529	I530	V531	C532	G533	E534	G535	I536	S537									
N538	F539	W540	K541	D542	E543	L544	W545	V546	A547	V548	L549	L550	S551	D552	N553	S554	S555	I556	F557	F558	N559	Y560	F561	K562	R563	Y564	L565	L566	S567	S568	D569	Q570	N571	L572	L573	K574	R575	L576	T577	F578	L579	L580	R581	L582	A583	C584	K585	D586	V587	D588	Y589	D590	L591	L592	K593	Q594	L595	G596	V597
S598	N599	S600	D601	L602	L603	S604	I605	K606	Y607	V608	L609	T610	K611	P612	K613	S614	T615	G616	W617	Q618	S619	V620	I621	Q622	F623	I624	Y625	E626	N627	L628	D629	E630	I631	G632	I633	R634	N635	I636	N637	F638	I639	L640	P641	V642	I643	Q644	E645	W646	N647	Q648	R649	N650	K651	V652	G653	E654	T655	T656	R657
L658	S659	S660	L661	I662	A663	L664	K665	V666	Y667	Q668	W669	I670	E671	D672	E673	D674	V675	Y676	L677	S678	G679	R680	I681	N682	E683	K684	N685	I686	L687	H688	T689	I690	L691	H692	G693	A694	A695	M696	I697	K698	P699	E700	M701	E702	E703	V704	L705	V706	K707	V708	L709	K710	N711	R712	W713	K714	E715	H716	G717
T718	P719	Y720	F721	D722	L723	M724	T725	L726	L727	L728	T729	D730	L731	D732	S733	Y734	F735	V736	W737	A738	S739	L740	P741	E742	Y743	V744	L745	Q746	L747	A748	D749	L750	F751	W752	Y753	R754	F755	L756	LYS	GLU	THR	GLY	GLU	ARG	TYR	HIS	SER	MET	D767	I768	E769	D770	E771	F772	G773	L774	F775	R776	S777
H778	H779	D780	Y781	Y782	P783	E784	S785	P786	Y787	Q788	T789	P790	L791	Y792	Y793	L794	L795	Q796	S797	Q798	F799	K800	K801	T802	L803	D804	F805	L806	L807	D808	F809	T810	N811	K812	T813	T814	L815	C816	F817	A818	H819	S820	H821	F822	A823	K824	N825	E826	I827	E828	E829	V830	D831	V832	F833	L834	E835	E836	G837
K838	F839	I840	K841	Q842	Y843	L844	C845	N846	R847	L848	W849	C850	S851	Y852	R853	G854	T855	Q856	V857	S858	T859	Y860	L861	S863	S864	T865	H866	N867	A868	L869	E870	K871	F872	F873	L874	E875	N876	F877	K878	N879	A880	D881	S882	K883	V884	L885	E886	S887	N888	L889	L890	F891	L892	L893	R894	N895	T896	K897	
S898	A899	S900	I901	S902	A903	V904	V905	T906	S907	I908	V909	L910	C911	F912	P913	E914	K915	T916	F917	N918	V919	A920	K921	V922	L923	F924	Q925	T926	K927	D928	F929	F930	N931	F932	D933	N934	N935	R936	N937	V938	L939	D940	R941	S942	H943	K944	S945	S946	I947	I948	SER	LEU	ARG	ASP	GLY	PHE	GLY	THR	
ASP	TYR	ARG	N961	S962	L963	H964	E965	E966	D967	R968	I969	K970	A971	C972	D973	D974	V975	H976	R977	N978	T979	Y980	L981	E982	N983	L984	A985	L986	H987	Y988	Q989	I990	F991	R992	S993	E994	N995	V996	T997	E998	K999	D1000	A1001	I1002	E1003	R1004	Q1005	Q1006	V1007	L1008	W1009	D1010	I1011	F1012	D1013	K1014	Y1015	Y1016	N1017
Q1018	L1019	P1020	D1021	E1022	A1023	Q1024	E1025	T1026	E1027	A1028	D1029	K1030	T1031	W1032	R1033	L1034	C1035	L1036	A1037	D1038	M1039	D1040	R1041	K1042	K1043	M1044	K1045	I1046	T1047	T1048	K1049	E1050	K1051	D1052	E1053	G1054	I1055	E1056	I1057	S1058	F1059	M1060	P1061	E1062	I1063	D1064	P1065	K1066	L1067	K1068	Q1069	I1070	S1071	E1072	E1073	A1074	L1075	I1076	K1077
N1078	S1079	E1080	H1081	K1083	M1084	Y1085	V1086	L1087	K1088	L1089	W1090	A1091	S1092	Y1093	K1094	R1095	E1096	K1097	D1098	E1099	R1100	Y1101	K1102	N1103	Y1104	G1105	M1106	Y1107	E1108	D1109	N1110	P1111	Q1112	I1113	A1114	L1115	Q1116	E1117	T1118	K1119	E1120	I1121	I1122	K1123	K1124	L1125	N1126	E1127	E1128	G1129	E1130	E1131	D1132	F1133	L1134	L1135	L1136	N1137	
G1138	N1139	I1140	P1141	A1142	D1143	V1144	C1145	S1146	T1147	L1148	L1149	D1150	D1151	Y1152	F1153	N1154	Q1155	L1156	N1157	N1158	E1159	E1160	R1161	E1162	Y1163	C1164	K1165	D1166	Y1167	V1168	L1169	A1170	Y1171	S1172	K1173	L1174	P1175	L1176	K1177	E1178	G1179	Y1180	N1181	Y1182	Q1183	V1184	Q1185	D1186	T1187	T1188	T1189	S1190	A1191	I1192	S1193	A1194	L1195	P1196	V1197

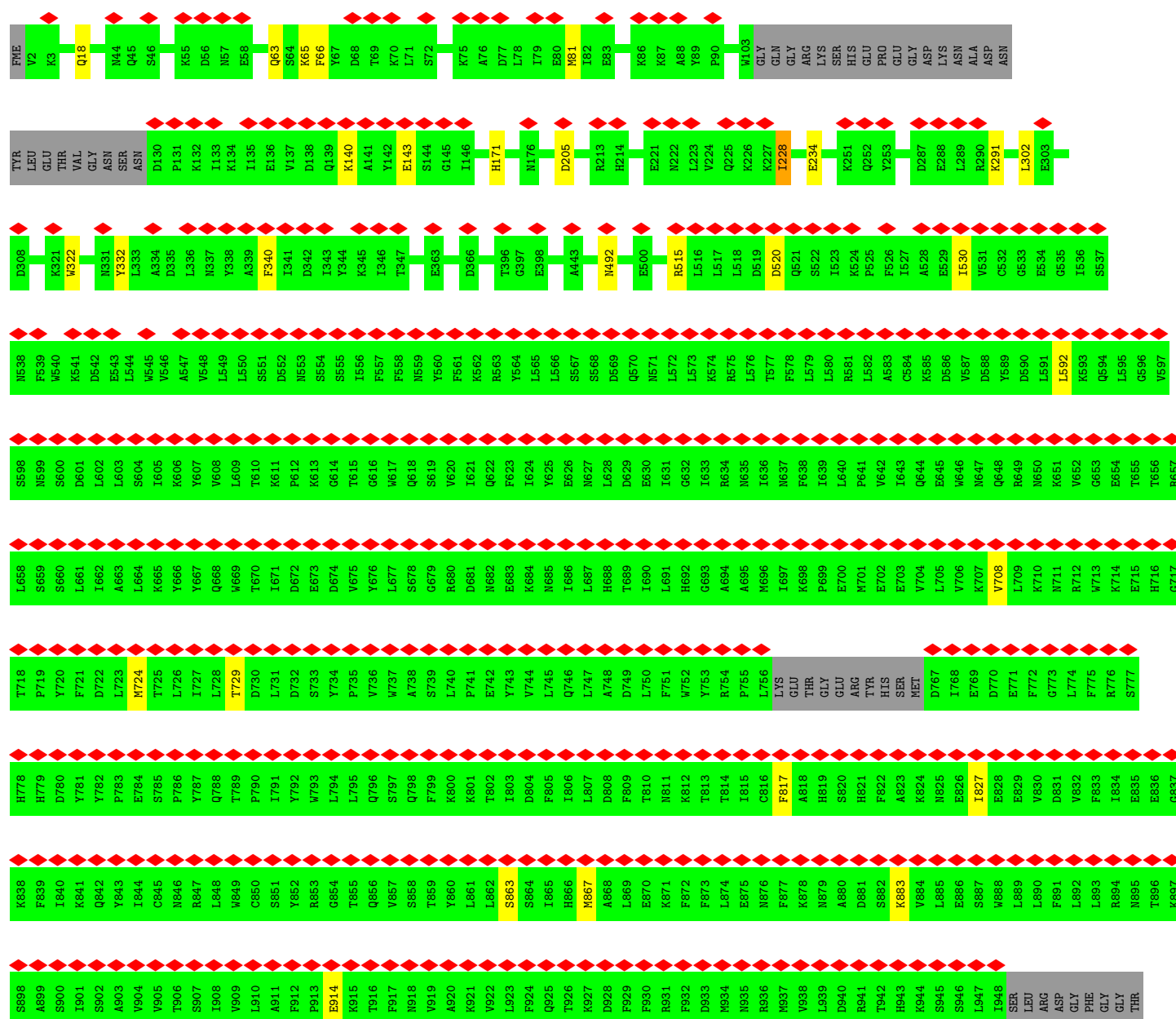


I1452	K1392	V1352	H1272	I1212	Y1152	S1092	V1032	C972	F912	Y852	Y792	D732
K1453	P1393	D1333	E1273	I1213	F1153	Y1093	R1033	D973	P913	R853	W93	S733
S1454	F1394	T1334	S1274	L1214	M1154	K1094	L1034	D974	E914	G854	L794	Y734
Y1455	L1395	V1335	Y1275	L1215	Q1155	R1095	C1035	V975	K915	T855	L795	P735
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F1457	G1397	I1337	Q1277	L1217	M1157	K1097	A1037	R977	F917	Q857	W797	W737
A1458	F1398	E1338	VAL	F1218	M1158	D1098	A1038	N978	N918	S858	Q798	A738
E1459	M1399	H1339	ASP	D1219	E1159	E1099	M1039	T979	V919	T859	F799	S739
S1460	G1400	K1340	TYR	D1220	R1160	R1100	D1040	Y980	A920	Y860	K800	L740
S1461	S1401	K1341	ASP	H1221	E1161	Y1101	R1041	L981	K921	L861	K801	P741
E1462	E1402	L1342	I1282	S1222	E1162	K1102	R1042	E982	V922	L862	T802	E742
K1463	P1403	V1343	K1283	I1223	Y1163	M1103	K1043	N983	L923	S863	I803	Y743
E1464	I1404	S1344	K1284	G1224	C1164	Y1104	F924	L984	F924	S864	D804	V744
S1465	S1405	L1345	I1285	G1225	K1165	K1105	Q925	A985	Q925	I865	F805	L745
S1466	E1406	I1346	T1286	A1226	D1166	M1106	I1046	L986	T926	H866	I806	Q746
N1467	L1407	V1347	T1287	G1227	I1167	Y1107	T1047	H987	K927	M867	L807	L747
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	K1409	R1349	K1289	R1229	L1169	D1109	K1049	Q989	F929	L869	F809	D749
H1470	K1410	F1350	V1290	Y1230	A1170	M1110	E1050	I990	F930	E870	T810	L750
T1471	F1411	S1351	F1291	S1231	Y1171	P1111	K1051	F991	R931	K871	N811	W751
F1472	L1412	T1352	M1293	V1232	K1172	I1112	D1052	A992	F932	F872	K812	W752
L1473	L1413	S1353	M1294	F1233	S1173	I1113	E1053	S993	D933	F873	T813	Y753
D1474	V1414	L1354	Y1295	P1234	L1174	A1114	G1054	E994	M934	L874	T814	R754
S1475	E1415	L1355	K1296	S1235	P1175	L1115	I1055	N995	N935	E875	I815	P755
N1476	D1416	S1356	H1297	M1236	L1176	K1116	E1056	V996	R936	N876	C816	L756
S1477	R1417	K1357	C1298	V1237	K1177	E1117	I1057	T997	M937	F877	F817	LYS
Q1478	L1418	V1358	I1299	I1238	E1178	T1118	S1058	E998	V938	K878	A818	GLU
F1479	M1419	R1359	S1300	H1239	G1179	K1119	F1059	K999	L939	N879	H819	THR
F1480	L1420	E1360	M1301	K1240	Y1180	E1120	M1060	D1000	D940	A880	S820	GLY
C1481	Y1421	D1361	V1302	L1241	M1181	I1121	P1061	A1001	R941	D881	H821	GLU
D1482	A1422	R1362	I1303	W1242	Y1182	I1122	E1062	I1002	T942	S882	F822	ARG
V1483	K1423	V1363	D1304	D1243	Q1183	K1123	I1063	E1003	H943	K883	A823	TYR
S1484	F1424	D1364	M1305	D1244	Y1184	K1124	D1064	A1004	K944	V884	K824	SER
R1485	W1425	V1365	Y1245	D1245	Q1185	L1125	P1065	Q1005	S945	L885	N825	D767
T1486	K1426	A1366	F1246	F1246	D1186	M1126	K1066	Q1006	S946	E886	E826	I768
M1487	V1427	L1367	S1308	D1247	G1187	E1127	L1067	Q1007	L947	S887	I827	E769
G1488	W1428	R1368	I1309	D1248	T1188	E1128	K1068	L1008	I948	W888	E828	D770
H1489	D1429	Q1369	D1310	M1249	T1189	G1129	Q1069	W1009	SER	L889	E829	E771
C1490	L1430	S1370	D1311	Q1250	S1190	G1130	Y1070	D1010	LEU	L890	V830	F772
P1491	F1431	F1371	L1312	S1251	A1191	E1131	S1071	I1011	ASP	F891	D831	G773
S1492	F1432	L1372	G1313	L1252	I1192	D1132	E1072	F1012	GLY	L892	V832	L774
T1493	D1433	E1373	S1314	L1253	S1193	F1133	E1073	D1013	PHE	L893	F833	F775
L1494	K1434	R1374	M1315	F1254	A1194	R1134	A1074	K1014	GLY	R894	I834	F776
Y1495	V1435	F1375	D1316	G1255	L1195	L1135	I1075	Y1015	THR	N895	E835	R776
S1496	V1436	A1376	K1317	F1256	P1196	L1136	K1076	Y1016	ASP	T896	E836	S777
L1497	T1437	V1377	V1318	F1257	V1197	M1137	K1077	M1017	THR	K897	G837	H778
A1498	L1438	F1378	D1319	I1258	I1198	G1138	M1078	Q1018	ARG	N898	K838	D780
K1499	C1439	T1379	L1320	K1259	Y1199	M1139	S1079	L1019		A899	F839	Y781
S1500	K1440	L1380	H1321	K1260	H1200	I1140	E1080	P1020	S962	S900	I840	Y782
N1502	D1441	L1381	I1322	P1261	M1201	P1141	H1081	D1021	L963	I901	K841	P783
M1503	G1442	A1382	L1323	K1262	Y1202	A1142	M1082	E1022	H964	S902	Q842	E784
I1504	D1443	P1383	M1324	Y1263	P1203	D1143	K1083	A1023	E965	A903	Y843	P786
A1505	R1444	V1384	I1325	V1264	M1204	V1144	Y1084	Q1024	E966	V904	I844	Y787
S1506	W1446	S1385	A1326	I1265	E1205	K1145	V1085	Q1025	D967	V905	C845	Q788
C1507	Y1447	D1386	F1327	L1266	R1206	S1146	T1086	T1026	R968	T906	N846	Y789
Y1508	F1448	T1387	Q1328	L1267	E1207	V1147	L1087	E1027	I969	T907	R847	P790
L1509	D1449	P1388	L1329	R1268	T1208	L1148	K1088	A1028	K970	N908	L848	I791
N1510	K1450	D1389	I1330	I1270	L1149	L1150	W1090	K1030	A971	V909	W849	
Q1511		Y1390	P1331	I1271	K1210	L1151	A1091	T1031		L910	C850	



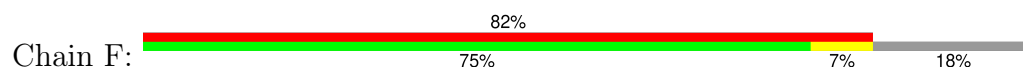
• Molecule 1: ATP-binding protein Avs4

Chain D:



ILE	A421	ALA	N301	D241	V181	N121	Q61
LEU	V422	VAL	P302	A242	T182	Y122	A62
LYS	E423	GLN	A303	A243	L183	I123	V63
THR	P424	ARG	G304	Y244	D184	E124	G64
GLU	T425	THR	I305	P245	K185	S125	A65
GLU	T426	GLU	T306	V246	T186	N126	R66
GLN	S427	VAL	Q307	D247	A187	S127	G67
GLN	T428	THR	V308	C248	Y188	Y128	L68
GLU	G429	ALA	R309	R249	A189	R129	N69
MET	M430	E372	R310	P250	A190	V130	N70
ALA	E431	E373	L311	Y251	L191	T131	L71
GLU	A432	I374	T312	I252	P192	L132	A72
ALA	L433	R375	K313	P253	E193	F133	S73
GLN	L434	Y376	A314	V254	D194	E134	K74
GLY	G434	V377	Q315	R255	V195	T135	L75
THR	R435	A378	T316	M256	R196	L136	M76
ALA	G436	S379	G317	V257	N197	K137	L77
LEU	Q437	E380	D318	R258	A198	Q138	A78
ASN	D438	L381	F319	I259	M199	L139	A79
ALA	L439	E382	V320	D260	D200	V140	F80
ALA	D440	D383	S321	G261	S201	V141	P81
SER	K441	T384	G322	E262	G202	A142	M82
GLY	L442	L385	R323	S263	Q203	G143	Q83
ALA	E443	G386	P324	Y264	E204	N144	T84
GLY	R444	G387	E325	G265	H205	A145	W85
ALA	C445	V388	D326	R266	K206	L146	M86
GLY	T446	Y389	I327	S267	G207	L147	K87
LEU	A447	S390	S328	Y268	D208	Y148	L88
ALA	A448	I391	F329	C269	E209	I149	T89
THR	W449	S393	L330	E270	M210	P150	I90
ALA	S450	SER	Q331	E271	I211	E151	S91
PRO	A451	Q394	L332	Y272	D212	P152	E92
GLU	L452	E395	E333	L273	V213	E153	F93
ASN	A453	L396	K334	G274	Y214	G154	E94
MET	P454	Q397	A335	D275	T215	A155	A95
ALA	M455	L398	A336	L276	H216	Y156	K96
ALA	GLN	P399	D337	R277	I217	N157	Q97
ALA	ASN	M400	F338	S278	Y218	P158	L98
GLN	PRO	V401	S339	L279	L219	M159	V99
ALA	ASP	R402	V340	E280	D220	K160	A100
GLY	ILE	V403	A341	N281	E221	L161	Q101
MET	ASN	L404	K342	L282	E222	Y162	P102
VAL	ILE	L405	A343	Q283	G224	R163	A103
PRO	ALA	K406	V344	E284	G224	L164	E104
ASN	THR	Q407	S345	A285	E225	S165	L105
	ILE	L408	E346	I286	Y226	S166	A106
	LEU	Q409	Q347	V287	L227	Y167	K107
	ILE	A410	I348	K288	K228	V168	V108
	ALA	T411	E349	M289	Y229	V169	E109
	ASN	M412	G350	S290	E230	Q170	E110
	ALA	Q413	R351	M291	E231	R171	G111
	GLY	I414	L352	I292	I232	D172	L112
	THR	P415	S353	T293	D233	A173	S113
	ASP	E416	Y354	A294	G234	F174	M114
	SER	L417	A355	K295	V235	G175	V115
	GLY	P418	F356	V296	E236	T176	E116
		K419	M357	I297	V237	V177	R117
		E420	L358	G298	D238	L178	I118
			N359	L299	G239	Q179	L119
			SER	V300	T240	T180	M120

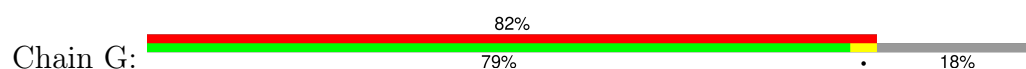
• Molecule 2: Portal protein



MET	ALA	SER	SER	GLN	K6	R7	E8	G9	F10	A11	E12	M13	G14	A15	K16	A17	V18	Y19	D20	A21	L22	K23	N24	D25	R26	N27	S28	Y29	E30	T31	R32	A33	E34	N35	C36	A37	K38	Y39	T40	I41	P42	S43	L44	F45	P46	K47	D48	S49	D50	N51	A52	S53	T54	D55	Y56	T57	T58	P59	W60	
	Q61	A62	V63	G64	A65	R66	G67	L68	N69	N70	L71	A72	S73	K74	L75	M76	L77	A78	L79	F80	P81	M82	Q83	T84	W85	M86	K87	L88	T89	I90	S91	E92	F93	E94	A95	K96	Q97	L98	V99	A100	Q101	P102	A103	E104	L105	A106	K107	V108	E109	E110	G111	L112	M113	F114	V115	E116	R117	I118	L119	M120
	N121	Y122	I123	E124	S125	N126	G127	Y128	R129	V130	T131	L132	F133	E134	T135	L136	K137	Q138	L139	V140	V141	A142	G143	N144	A145	L146	L147	Y148	I149	P150	E151	P152	E153	G154	A155	Y156	N157	P158	M159	K160	L161	Y162	R163	L164	S165	S166	Y167	V168	V169	Q170	R171	D172	A173	F174	G175	T176	V177	L178	Q179	I180
	V181	T182	L183	D184	K185	T186	A187	Y188	A189	A190	L191	P192	E193	D194	V195	R196	N197	A198	M199	D200	S201	G202	Q203	E204	H205	K206	G207	D208	E209	M210	I211	D212	V213	Y214	T215	H216	I217	Y218	L219	D220	E221	S222	G224	E225	Y226	L227	K228	Y229	E230	E231	I232	D233	G234	V235	E236	V237	G238	G239	T240	
	D241	A242	S243	Y244	P245	V246	D247	A248	C249	P250	Y251	I252	P253	V254	R255	M256	V257	R258	I259	D260	G261	E262	S263	Y264	G265	R266	S267	Y268	C269	E270	E271	Y272	L273	G274	D275	L276	R277	S278	L279	E280	N281	L282	Q283	E284	A285	I286	V287	K288	M289	S290	M291	I292	S293	A294	K295	V296	I297	G298	L299	V300

ILE	LEU	LYS	THR	PRO	GLU	GLU	GLN	GLN	GLU	MET	ALA	ALA	ALA	GLN	GLY	THR	ALA	LEU	GLU	ASN	ALA	ALA	ALA	GLY	ALA	GLY	GLY	LEU	ALA	THR	ALA	SER	PRO	GLU	ASN	MET	GLU	ALA	ALA	ALA	ALA	ALA	ASN	ASP	PRO	GLN	ALA	GLY	ILE	ASN	VAL	PRO	ASN							
A421	V422	E423	P424	T425	I426	S427	T428	G429	M430	E431	A432	L433	G434	R435	G436	Q437	D438	L439	D440	K441	L442	E443	R444	C445	I446	A447	A448	W449	S450	A451	L452	A453	P454	M455	GLN	ASN	ASP	PRO	ASP	ILE	ASN	ASN	ILE	ALA	THR	ILE	LYS	LEU	ARG	ILE	ALA	ASN	ALA	ILE	GLY	ILE	ASP	THR	SER	GLY
ALA	VAL	GLN	ARG	THR	GLY	GLU	VAL	THR	ALA	E372	E373	I374	R375	Y376	V377	A378	S379	E380	L381	E382	D383	T384	L385	G386	G387	V388	Y389	S390	I391	L392	S393	Q394	E395	L396	Q397	L398	P399	M400	V401	R402	V403	I404	L405	K406	Q407	L408	Q409	A410	T411	N412	Q413	I414	P415	E416	L417	P418	K419	E420		
N301	P302	A303	G304	I305	T306	Q307	V308	R309	R310	L311	T312	K313	A314	Q315	T316	G317	D318	F319	V320	S321	G322	R323	P324	E325	D326	I327	S328	F329	L330	Q331	L332	E333	K334	A335	A336	D337	F338	S339	V340	A341	K342	A343	V344	S345	E346	Q347	I348	E349	G350	R351	L352	S353	Y354	A355	F356	M357	L358	N359	SER	

• Molecule 2: Portal protein



ILE	LEU	LYS	THR	PRO	GLU	GLU	GLN	GLN	GLU	MET	ALA	GLU	ALA	GLN	GLY	THR	ALA	GLU	GLU	ASN	ALA	ALA	SER	GLY	ALA	GLY	ALA	GLY	GLY	GLY	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU
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• Molecule 2: Portal protein

[illegible]

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	169977	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	31	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.138	Depositor
Minimum map value	-0.055	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	372.3703, 372.3703, 372.3703	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.034362, 1.034362, 1.034362	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FME, MG, ATP

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	0/13095	0.65	3/17695 (0.0%)
1	B	0.35	0/13056	0.65	0/17643
1	C	0.34	0/13095	0.65	3/17695 (0.0%)
1	D	0.34	0/13056	0.64	0/17643
2	E	0.73	4/3485 (0.1%)	0.93	6/4720 (0.1%)
2	F	0.44	1/3485 (0.0%)	0.76	4/4720 (0.1%)
2	G	0.52	1/3485 (0.0%)	0.81	5/4720 (0.1%)
2	H	0.45	1/3485 (0.0%)	0.78	4/4720 (0.1%)
All	All	0.40	7/66242 (0.0%)	0.69	25/89556 (0.0%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	324	PRO	CG-CD	-31.12	0.45	1.50
2	G	454	PRO	CG-CD	-19.16	0.85	1.50
2	E	80	PHE	C-O	11.37	1.29	1.23
2	E	324	PRO	CB-CG	11.27	2.06	1.49
2	F	324	PRO	CG-CD	-11.14	1.12	1.50
2	H	324	PRO	CG-CD	-10.60	1.14	1.50
2	E	324	PRO	CA-C	6.51	1.63	1.52

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	324	PRO	CB-CG-CD	-33.13	0.07	106.10
2	G	454	PRO	N-CD-CG	-20.29	72.77	103.20
2	E	324	PRO	CA-N-CD	-15.57	90.20	112.00
2	G	454	PRO	CA-CB-CG	-11.59	82.49	104.50
2	F	324	PRO	N-CD-CG	-11.55	85.88	103.20
2	H	324	PRO	N-CD-CG	-10.84	86.94	103.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	324	PRO	CA-CB-CG	-10.58	84.40	104.50
2	F	324	PRO	CA-N-CD	-8.73	99.78	112.00
2	H	324	PRO	CA-N-CD	-8.48	100.13	112.00
2	F	324	PRO	CA-CB-CG	-7.88	89.52	104.50
2	H	324	PRO	CA-CB-CG	-7.34	90.55	104.50
2	E	324	PRO	N-CA-CB	-7.14	96.70	103.41
2	F	398	LEU	CB-CG-CD2	-6.74	90.47	110.70
2	E	324	PRO	N-CD-CG	-6.66	93.22	103.20
2	G	454	PRO	N-CA-CB	-6.60	96.45	103.38
1	C	777	SER	CA-C-N	6.57	129.97	120.38
1	C	777	SER	C-N-CA	6.57	129.97	120.38
1	A	777	SER	CA-C-N	6.10	128.74	120.38
1	A	777	SER	C-N-CA	6.10	128.74	120.38
1	A	1530	LYS	CB-CG-CD	5.69	124.39	111.30
1	C	1530	LYS	CB-CG-CD	5.69	124.38	111.30
2	G	454	PRO	CA-N-CD	-5.62	104.13	112.00
2	G	398	LEU	CB-CG-CD2	-5.60	93.89	110.70
2	E	398	LEU	CB-CG-CD2	-5.36	94.63	110.70
2	H	151	GLU	CA-CB-CG	5.06	124.22	114.10

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	12805	0	12724	32	0
1	B	12756	0	12683	34	0
1	C	12805	0	12724	26	0
1	D	12756	0	12683	28	0
2	E	3427	0	3400	18	0
2	F	3427	0	3400	23	0
2	G	3427	0	3400	11	0
2	H	3427	0	3400	24	0
3	A	31	0	12	0	0
3	B	31	0	12	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	31	0	12	0	0
3	D	31	0	12	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
All	All	64958	0	64462	179	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 1.

All (179) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:117:ARG:HH12	2:F:121:ASN:HB2	1.39	0.87
2:H:117:ARG:HH12	2:H:121:ASN:HB2	1.46	0.79
1:C:937:MET:HG2	1:C:941:ARG:HH12	1.51	0.76
1:A:1359:ARG:O	1:A:1359:ARG:NH1	2.25	0.69
1:C:1359:ARG:O	1:C:1359:ARG:NH1	2.26	0.69
2:E:84:THR:HA	2:E:120:MET:HE1	1.73	0.69
2:E:257:VAL:HG12	2:E:266:ARG:H	1.58	0.68
2:G:257:VAL:HG12	2:G:266:ARG:H	1.59	0.68
2:E:83:GLN:HG3	2:E:431:GLU:HG2	1.77	0.67
1:C:1026:THR:OG1	1:C:1027:GLU:OE2	2.13	0.66
2:H:83:GLN:HG3	2:H:431:GLU:HG2	1.78	0.66
2:G:84:THR:HA	2:G:120:MET:HE1	1.77	0.65
1:D:515:ARG:NH2	1:D:520:ASP:OD2	2.30	0.64
1:A:1226:ALA:HB2	2:E:384:THR:HG23	1.81	0.63
1:C:708:VAL:HG21	1:C:724:MET:HE3	1.81	0.62
1:A:708:VAL:HG21	1:A:724:MET:HE3	1.82	0.62
2:F:83:GLN:HG3	2:F:431:GLU:HG2	1.82	0.62
1:B:1106:MET:SD	1:B:1106:MET:N	2.73	0.61
1:B:1462:TRP:O	2:F:375:ARG:NH2	2.34	0.61
1:D:1462:TRP:O	2:H:375:ARG:NH2	2.34	0.61
1:C:1027:GLU:OE2	1:C:1027:GLU:N	2.33	0.61
2:F:149:ILE:HD11	2:F:400:MET:HG3	1.83	0.60
1:D:302:LEU:HD11	1:D:332:TYR:CD1	2.37	0.60
1:B:302:LEU:HD11	1:B:332:TYR:CD1	2.37	0.59
1:D:1106:MET:N	1:D:1106:MET:SD	2.74	0.59
1:D:708:VAL:HG21	1:D:724:MET:HE3	1.85	0.59
1:B:308:ASP:HA	1:B:311:LYS:HG3	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:708:VAL:HG21	1:B:724:MET:HE3	1.84	0.59
2:H:315:GLN:HG2	2:H:318:ASP:HB2	1.85	0.58
1:A:1525:LYS:H	1:A:1525:LYS:HD2	1.69	0.58
2:F:308:VAL:HG22	2:F:309:ARG:HH21	1.69	0.58
1:C:1525:LYS:HD2	1:C:1525:LYS:H	1.69	0.58
2:E:237:VAL:O	2:E:240:THR:OG1	2.21	0.57
2:H:114:MET:HE1	2:H:117:ARG:HE	1.69	0.57
2:H:257:VAL:HG12	2:H:266:ARG:H	1.69	0.57
2:G:237:VAL:O	2:G:240:THR:OG1	2.22	0.57
1:B:1359:ARG:HH11	1:B:1362:ARG:HD3	1.69	0.56
2:H:330:LEU:HG	2:H:334:LYS:HB2	1.87	0.56
2:F:118:ILE:HG21	2:F:413:GLN:HE21	1.72	0.55
2:H:330:LEU:HD12	2:H:333:GLU:HB3	1.88	0.55
2:H:152:PRO:HA	2:H:157:ASN:OD1	2.06	0.55
2:H:149:ILE:HD11	2:H:400:MET:HG3	1.88	0.55
1:A:196:GLU:OE1	1:A:196:GLU:N	2.40	0.54
1:A:1044:MET:HE3	1:A:1059:PHE:HB3	1.89	0.54
1:C:196:GLU:N	1:C:196:GLU:OE2	2.40	0.54
1:D:302:LEU:HD21	1:D:332:TYR:CE1	2.43	0.54
1:A:825:ASN:HD22	2:E:54:THR:C	2.17	0.53
2:F:118:ILE:HD13	2:F:413:GLN:NE2	2.23	0.53
2:H:309:ARG:HH12	2:H:313:LYS:HD3	1.74	0.53
1:A:1:FME:O1	1:D:171:HIS:ND1	2.43	0.52
1:B:1112:GLN:O	1:B:1116:GLN:HG3	2.09	0.52
1:D:1041:ARG:HE	2:H:316:THR:HG23	1.73	0.52
1:B:1525:LYS:H	1:B:1525:LYS:HE2	1.74	0.52
1:C:941:ARG:HB2	1:C:941:ARG:NH1	2.24	0.52
1:B:171:HIS:ND1	1:C:1:FME:O1	2.43	0.52
1:D:1112:GLN:O	1:D:1116:GLN:HG3	2.09	0.52
1:D:1525:LYS:HE2	1:D:1525:LYS:H	1.75	0.52
2:G:132:LEU:HD21	2:G:400:MET:HE1	1.92	0.51
1:A:937:MET:HE2	1:A:941:ARG:HE	1.74	0.51
1:C:1469:TRP:CD1	2:G:373:GLU:HG3	2.45	0.51
1:A:1469:TRP:CD1	2:E:373:GLU:HG3	2.45	0.51
2:E:132:LEU:HD21	2:E:400:MET:HE1	1.93	0.50
2:F:153:GLU:H	2:F:157:ASN:HD21	1.58	0.50
1:C:1044:MET:HE3	1:C:1059:PHE:HB3	1.92	0.50
1:A:937:MET:HE2	1:A:941:ARG:NE	2.26	0.50
1:D:63:GLN:HG2	1:D:81:MET:SD	2.52	0.50
1:B:515:ARG:NH2	1:B:520:ASP:OD2	2.44	0.50
1:D:228:ILE:HG21	1:D:340:PHE:CZ	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:244:LYS:O	1:B:248:GLU:HG2	2.12	0.50
1:B:63:GLN:HG2	1:B:81:MET:SD	2.52	0.49
1:B:228:ILE:HG21	1:B:340:PHE:CZ	2.48	0.49
1:B:302:LEU:HD21	1:B:332:TYR:CE1	2.48	0.49
1:B:1059:PHE:HB2	2:F:296:VAL:HG13	1.95	0.48
2:F:297:ILE:HG22	2:F:330:LEU:HD23	1.94	0.48
1:A:1530:LYS:HA	1:A:1530:LYS:HE2	1.95	0.48
1:A:1:FME:HE2	1:A:1:FME:HB3	1.71	0.48
1:B:1134:ARG:HH11	1:B:1134:ARG:HB3	1.78	0.48
2:F:86:MET:HE1	2:F:120:MET:HE3	1.94	0.48
2:F:152:PRO:HA	2:F:157:ASN:ND2	2.29	0.48
2:G:159:MET:HE3	2:G:159:MET:HB2	1.62	0.48
1:C:1530:LYS:HA	1:C:1530:LYS:HE2	1.95	0.47
2:F:80:PHE:CE2	2:F:397:GLN:HG2	2.49	0.47
2:F:118:ILE:HD13	2:F:413:GLN:HE22	1.80	0.47
2:F:80:PHE:HE2	2:F:397:GLN:HG2	1.78	0.47
1:A:530:ILE:HD12	1:A:536:ILE:HD13	1.96	0.47
2:H:302:PRO:HD3	2:H:326:ASP:HB2	1.97	0.47
1:B:291:LYS:HB3	1:B:322:TRP:CE3	2.50	0.46
1:D:1134:ARG:HB3	1:D:1134:ARG:HH11	1.79	0.46
2:F:151:GLU:HA	2:F:407:GLN:HE21	1.80	0.46
1:A:170:LYS:NZ	1:A:177:GLU:O	2.48	0.46
1:B:825:ASN:HD22	2:F:54:THR:C	2.23	0.46
2:H:86:MET:HE1	2:H:120:MET:HE3	1.98	0.46
1:B:990:ILE:HG23	1:B:991:PHE:HD2	1.80	0.46
1:B:132:LYS:H	1:B:132:LYS:HE2	1.81	0.46
1:D:291:LYS:HB3	1:D:322:TRP:CE3	2.50	0.46
2:F:426:ILE:HG22	2:F:428:THR:HG23	1.98	0.46
2:H:117:ARG:NH1	2:H:121:ASN:HB2	2.24	0.46
1:B:65:LYS:HA	1:B:65:LYS:HD3	1.81	0.45
1:B:1041:ARG:HE	2:F:316:THR:HG23	1.81	0.45
2:H:80:PHE:CE2	2:H:397:GLN:HG2	2.51	0.45
1:A:754:ARG:HH12	1:A:756:LEU:HD23	1.81	0.45
1:C:1469:TRP:HD1	2:G:373:GLU:HG3	1.81	0.45
1:A:863:SER:O	1:A:867:MET:HG3	2.17	0.45
1:D:65:LYS:HD3	1:D:65:LYS:HA	1.82	0.45
1:D:205:ASP:OD2	1:D:205:ASP:N	2.50	0.45
1:C:170:LYS:NZ	1:C:177:GLU:O	2.50	0.45
1:B:1134:ARG:HB3	1:B:1134:ARG:NH1	2.32	0.44
1:D:1134:ARG:HB3	1:D:1134:ARG:NH1	2.32	0.44
1:C:1:FME:HE2	1:C:1:FME:HB3	1.71	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1059:PHE:HB2	2:H:296:VAL:HG13	1.98	0.44
1:B:1287:ILE:HD12	1:B:1288:ASN:N	2.33	0.44
1:C:492:ASN:OD1	1:C:492:ASN:N	2.50	0.44
1:C:784:GLU:HG2	1:C:867:MET:HE1	1.98	0.44
1:B:205:ASP:OD2	1:B:205:ASP:N	2.49	0.44
2:H:157:ASN:HD22	2:H:157:ASN:HA	1.53	0.44
2:G:79:LEU:HB3	2:G:80:PHE:CD2	2.52	0.44
1:B:1120:GLU:O	1:B:1123:LYS:HE2	2.18	0.43
1:A:778:HIS:CE1	1:A:860:TYR:HD1	2.36	0.43
1:A:1112:GLN:CD	1:A:1112:GLN:H	2.26	0.43
2:H:84:THR:HA	2:H:120:MET:HE1	2.00	0.43
1:A:1469:TRP:HD1	2:E:373:GLU:HG3	1.82	0.43
1:D:1046:ILE:HD12	2:H:311:LEU:HB3	2.01	0.43
1:A:527:ILE:O	1:A:531:VAL:HG23	2.19	0.43
1:D:1359:ARG:NH1	1:D:1362:ARG:HD3	2.34	0.43
1:D:1524:LYS:HD2	1:D:1524:LYS:HA	1.78	0.43
2:F:307:GLN:OE1	2:F:309:ARG:HG2	2.18	0.43
1:B:914:GLU:H	1:B:914:GLU:CD	2.27	0.43
2:E:79:LEU:HB3	2:E:80:PHE:CD2	2.53	0.43
2:H:295:LYS:HE3	2:H:334:LYS:NZ	2.34	0.42
2:H:357:MET:HE1	2:H:385:LEU:HD11	2.01	0.42
1:C:883:LYS:HD3	1:C:883:LYS:N	2.34	0.42
2:H:77:LEU:HD12	2:H:77:LEU:HA	1.89	0.42
1:A:492:ASN:OD1	1:A:492:ASN:N	2.50	0.42
1:C:1099:GLU:O	1:C:1102:LYS:HG3	2.20	0.42
2:E:151:GLU:HA	2:E:152:PRO:HD3	1.90	0.42
2:G:84:THR:HA	2:G:120:MET:CE	2.46	0.42
2:H:151:GLU:HA	2:H:407:GLN:HE21	1.83	0.42
1:D:914:GLU:CD	1:D:914:GLU:H	2.27	0.42
2:G:257:VAL:HG11	2:G:266:ARG:HB2	2.01	0.42
1:B:883:LYS:HD2	1:B:883:LYS:H	1.85	0.42
1:C:1577:VAL:O	1:C:1581:MET:HG3	2.20	0.42
1:D:863:SER:O	1:D:867:MET:HG3	2.20	0.42
1:D:883:LYS:H	1:D:883:LYS:HD2	1.85	0.42
2:G:83:GLN:OE1	2:G:84:THR:N	2.53	0.42
1:A:1026:THR:OG1	1:A:1027:GLU:OE2	2.34	0.41
1:B:817:PHE:CE2	1:B:827:ILE:HD11	2.54	0.41
2:E:76:MET:HE3	2:E:129:ARG:HE	1.85	0.41
2:F:194:ASP:OD2	2:F:195:VAL:N	2.52	0.41
1:B:1113:ILE:H	1:B:1113:ILE:HG12	1.70	0.41
1:C:3:LYS:HG2	1:C:4:PRO:HD2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1577:VAL:O	1:A:1581:MET:HG3	2.20	0.41
1:B:140:LYS:O	1:B:143:GLU:HG3	2.21	0.41
2:E:257:VAL:HG11	2:E:266:ARG:HB2	2.02	0.41
2:F:117:ARG:HH22	2:F:121:ASN:HD22	1.69	0.41
1:A:1512:GLY:HA2	1:A:1515:TRP:CE3	2.56	0.41
1:D:18:GLN:NE2	1:D:66:PHE:O	2.54	0.41
1:A:883:LYS:N	1:A:883:LYS:HD3	2.35	0.41
1:C:438:PHE:HE1	1:C:1555:ARG:HH12	1.68	0.41
1:A:990:ILE:HD11	2:E:311:LEU:HD13	2.03	0.41
1:A:1106:MET:HE2	1:A:1107:TYR:CZ	2.56	0.41
1:C:1512:GLY:HA2	1:C:1515:TRP:CE3	2.56	0.41
1:B:863:SER:O	1:B:867:MET:HG3	2.21	0.41
1:C:1119:LYS:HA	1:C:1122:ILE:HG22	2.03	0.41
2:E:380:GLU:HA	2:E:384:THR:OG1	2.21	0.41
1:C:1106:MET:HE2	1:C:1107:TYR:CZ	2.56	0.40
2:E:315:GLN:HG2	2:E:318:ASP:HB2	2.02	0.40
1:A:1099:GLU:O	1:A:1102:LYS:HG3	2.20	0.40
1:B:228:ILE:HD13	1:B:340:PHE:CZ	2.57	0.40
1:C:63:GLN:OE1	1:C:64:SER:N	2.54	0.40
1:D:1272:HIS:ND1	1:D:1272:HIS:C	2.79	0.40
1:A:70:LYS:NZ	1:A:72:SER:OG	2.54	0.40
1:A:769:GLU:HG2	1:A:778:HIS:CE1	2.57	0.40
1:D:140:LYS:O	1:D:143:GLU:HG3	2.20	0.40
1:D:817:PHE:CE2	1:D:827:ILE:HD11	2.56	0.40
2:E:381:LEU:O	2:E:385:LEU:HD23	2.22	0.40
2:F:357:MET:HE1	2:F:385:LEU:HD11	2.03	0.40
2:E:398:LEU:HA	2:E:398:LEU:HD23	1.93	0.40
1:A:63:GLN:OE1	1:A:64:SER:N	2.54	0.40
1:B:1569:ASP:N	1:B:1569:ASP:OD1	2.51	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	1531/1587 (96%)	1499 (98%)	32 (2%)	0	100	100
1	B	1524/1587 (96%)	1490 (98%)	34 (2%)	0	100	100
1	C	1531/1587 (96%)	1501 (98%)	30 (2%)	0	100	100
1	D	1524/1587 (96%)	1490 (98%)	34 (2%)	0	100	100
2	E	434/535 (81%)	422 (97%)	12 (3%)	0	100	100
2	F	434/535 (81%)	422 (97%)	12 (3%)	0	100	100
2	G	434/535 (81%)	419 (96%)	15 (4%)	0	100	100
2	H	434/535 (81%)	425 (98%)	9 (2%)	0	100	100
All	All	7846/8488 (92%)	7668 (98%)	178 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	1422/1461 (97%)	1418 (100%)	4 (0%)	91	97
1	B	1418/1461 (97%)	1411 (100%)	7 (0%)	86	96
1	C	1422/1461 (97%)	1416 (100%)	6 (0%)	89	97
1	D	1418/1461 (97%)	1408 (99%)	10 (1%)	81	94
2	E	370/435 (85%)	367 (99%)	3 (1%)	79	93
2	F	370/435 (85%)	365 (99%)	5 (1%)	62	86
2	G	370/435 (85%)	369 (100%)	1 (0%)	91	97
2	H	370/435 (85%)	366 (99%)	4 (1%)	70	90
All	All	7160/7584 (94%)	7120 (99%)	40 (1%)	82	95

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	602	LEU
1	A	729	THR

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Mol	Chain	Res	Type
1	A	990	ILE
1	A	1081	HIS
1	B	228	ILE
1	B	492	ASN
1	B	530	ILE
1	B	592	LEU
1	B	729	THR
1	B	1003	GLU
1	B	1518	GLU
1	C	602	LEU
1	C	729	THR
1	C	731	LEU
1	C	914	GLU
1	C	941	ARG
1	C	1081	HIS
1	D	228	ILE
1	D	234	GLU
1	D	492	ASN
1	D	530	ILE
1	D	592	LEU
1	D	729	THR
1	D	1003	GLU
1	D	1155	GLN
1	D	1272	HIS
1	D	1518	GLU
2	E	214	TYR
2	E	291	MET
2	E	320	VAL
2	F	22	LEU
2	F	77	LEU
2	F	86	MET
2	F	112	LEU
2	F	114	MET
2	G	320	VAL
2	H	22	LEU
2	H	77	LEU
2	H	86	MET
2	H	199	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (69) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	31	GLN
1	A	165	ASN
1	A	220	HIS
1	A	337	ASN
1	A	350	ASN
1	A	355	ASN
1	A	384	ASN
1	A	423	GLN
1	A	644	GLN
1	A	668	GLN
1	A	821	HIS
1	A	825	ASN
1	A	925	GLN
1	A	987	HIS
1	A	1112	GLN
1	A	1137	ASN
1	A	1324	ASN
1	A	1328	GLN
1	A	1465	ASN
1	B	31	GLN
1	B	337	ASN
1	B	355	ASN
1	B	384	ASN
1	B	644	GLN
1	B	650	ASN
1	B	668	GLN
1	B	688	HIS
1	B	821	HIS
1	B	825	ASN
1	B	976	HIS
1	B	1081	HIS
1	B	1297	HIS
1	B	1324	ASN
1	B	1328	GLN
1	C	31	GLN
1	C	165	ASN
1	C	214	HIS
1	C	337	ASN
1	C	350	ASN
1	C	355	ASN
1	C	384	ASN
1	C	423	GLN
1	C	637	ASN

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Mol	Chain	Res	Type
1	C	644	GLN
1	C	650	ASN
1	C	668	GLN
1	C	779	HIS
1	C	925	GLN
1	C	943	HIS
1	C	1137	ASN
1	C	1324	ASN
1	C	1328	GLN
1	D	31	GLN
1	D	337	ASN
1	D	355	ASN
1	D	384	ASN
1	D	644	GLN
1	D	668	GLN
1	D	976	HIS
1	D	1137	ASN
1	D	1324	ASN
1	D	1328	GLN
2	E	281	ASN
2	F	157	ASN
2	F	281	ASN
2	F	413	GLN
2	G	281	ASN
2	G	359	ASN
2	H	281	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	FME	A	1	1	8,9,10	1.02	0	8,9,11	2.53	2 (25%)
1	FME	C	1	1	8,9,10	1.02	0	8,9,11	2.62	2 (25%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	FME	A	1	1	-	6/7/9/11	-
1	FME	C	1	1	-	6/7/9/11	-

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1	FME	CA-N-CN	-5.49	114.38	122.82
1	A	1	FME	CA-N-CN	-5.30	114.67	122.82
1	C	1	FME	O1-CN-N	4.57	137.12	125.32
1	A	1	FME	O1-CN-N	4.42	136.74	125.32

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1	FME	O1-CN-N-CA
1	A	1	FME	O-C-CA-CB
1	C	1	FME	O1-CN-N-CA
1	C	1	FME	O-C-CA-CB
1	A	1	FME	CB-CG-SD-CE
1	C	1	FME	CB-CG-SD-CE
1	A	1	FME	N-CA-CB-CG
1	C	1	FME	N-CA-CB-CG
1	A	1	FME	CA-CB-CG-SD
1	C	1	FME	CA-CB-CG-SD
1	A	1	FME	C-CA-CB-CG
1	C	1	FME	C-CA-CB-CG

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1	FME	2	0
1	C	1	FME	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	ATP	A	1601	4	28,33,33	1.16	2 (7%)	34,52,52	0.64	1 (2%)
3	ATP	C	1601	4	28,33,33	1.15	2 (7%)	34,52,52	0.64	1 (2%)
3	ATP	D	1601	4	28,33,33	1.34	2 (7%)	34,52,52	0.66	1 (2%)
3	ATP	B	1601	4	28,33,33	1.34	2 (7%)	34,52,52	0.66	1 (2%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	ATP	A	1601	4	-	1/18/38/38	0/3/3/3
3	ATP	C	1601	4	-	1/18/38/38	0/3/3/3
3	ATP	D	1601	4	-	0/18/38/38	0/3/3/3
3	ATP	B	1601	4	-	0/18/38/38	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	1601	ATP	PA-O3A	-5.52	1.53	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1601	ATP	PA-O3A	-5.51	1.53	1.59
3	A	1601	ATP	PA-O3A	-3.64	1.55	1.59
3	C	1601	ATP	PA-O3A	-3.58	1.55	1.59
3	A	1601	ATP	PB-O3B	-3.04	1.56	1.59
3	C	1601	ATP	PB-O3B	-3.01	1.56	1.59
3	D	1601	ATP	PB-O3B	-2.43	1.56	1.59
3	B	1601	ATP	PB-O3B	-2.42	1.56	1.59

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1601	ATP	C5-C6-N6	2.13	123.56	120.31
3	C	1601	ATP	C5-C6-N6	2.09	123.49	120.31
3	D	1601	ATP	C5-C6-N6	2.08	123.48	120.31
3	B	1601	ATP	C5-C6-N6	2.05	123.44	120.31

There are no chirality outliers.

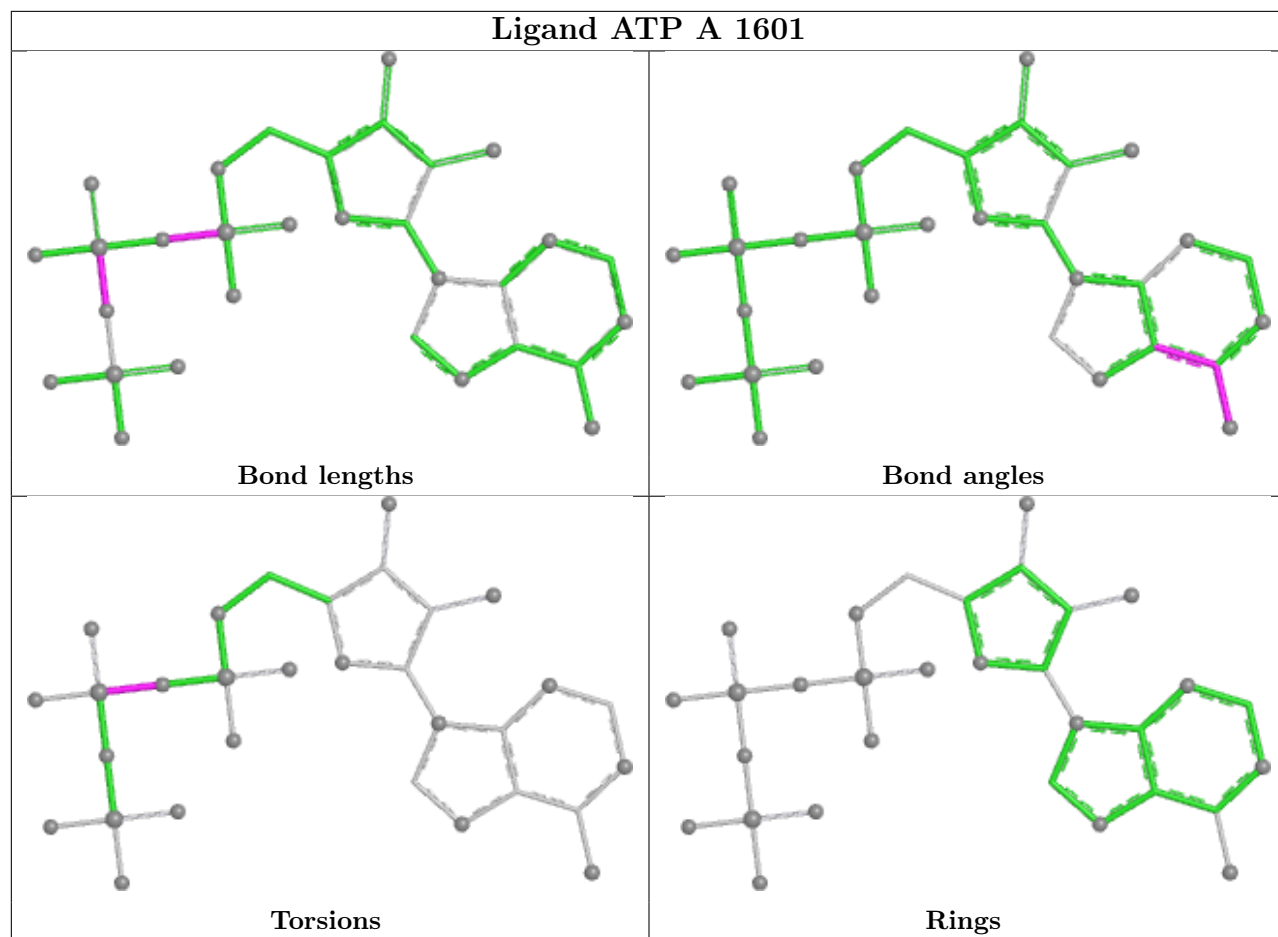
All (2) torsion outliers are listed below:

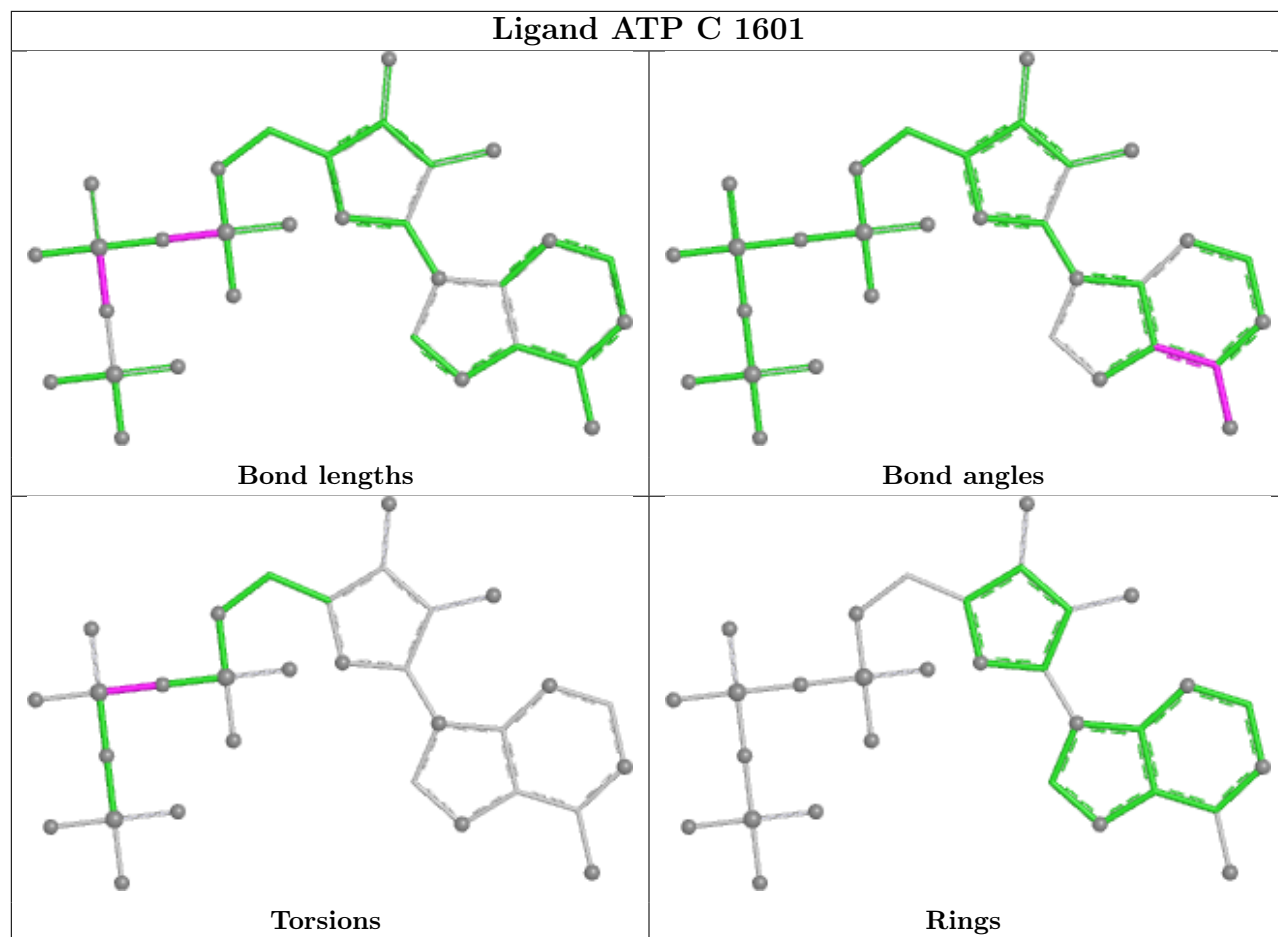
Mol	Chain	Res	Type	Atoms
3	A	1601	ATP	PA-O3A-PB-O2B
3	C	1601	ATP	PA-O3A-PB-O2B

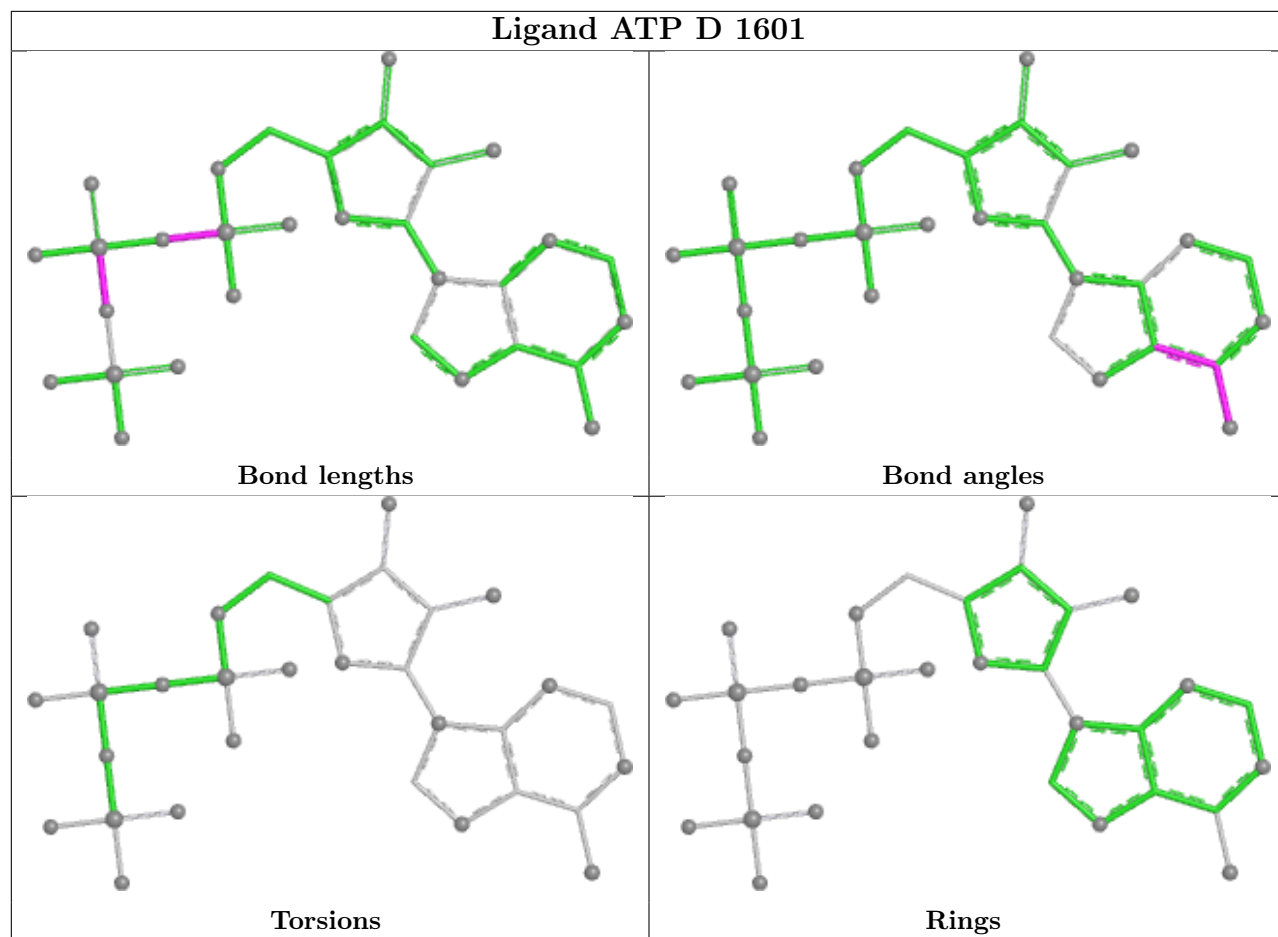
There are no ring outliers.

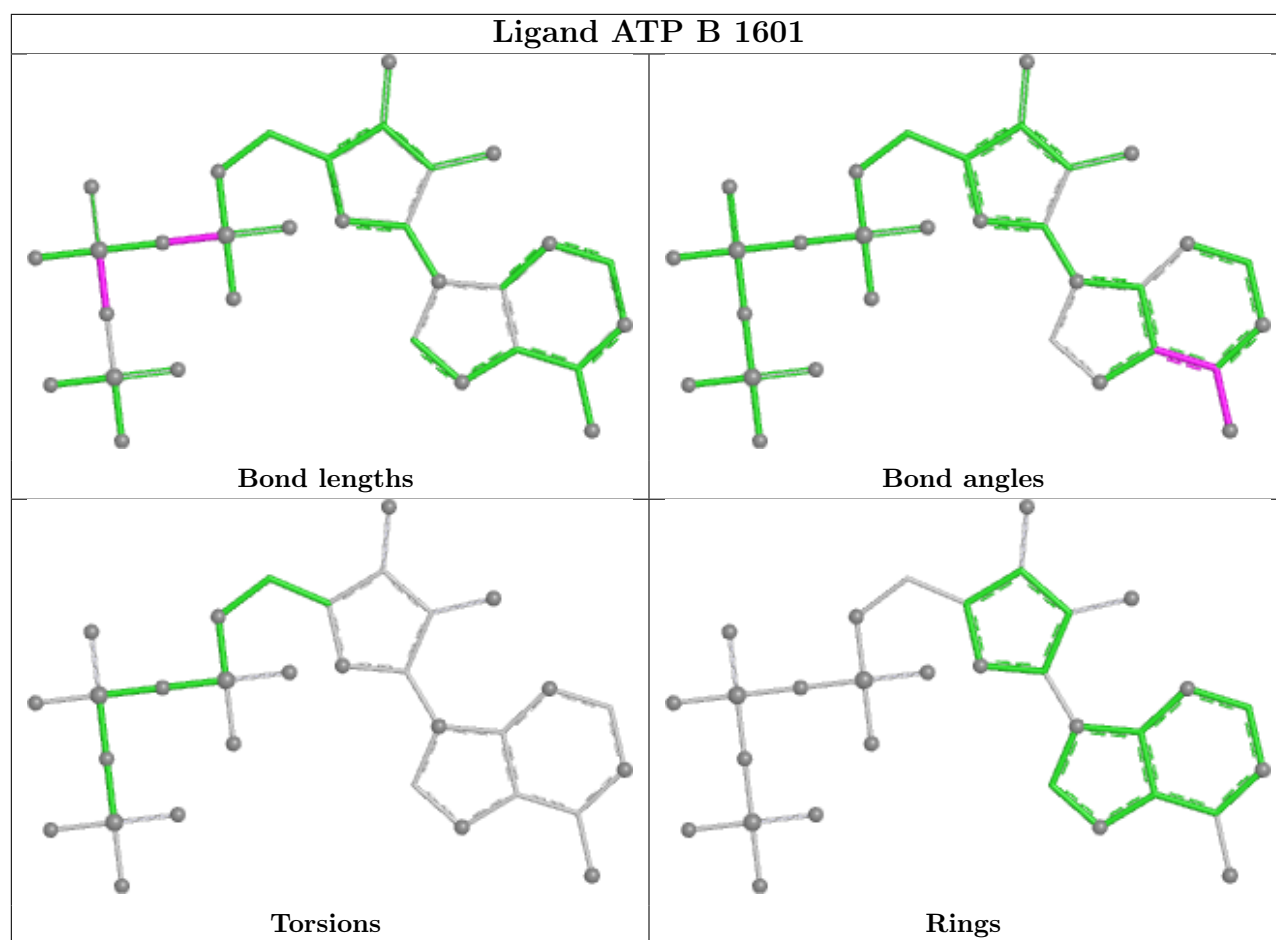
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









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.

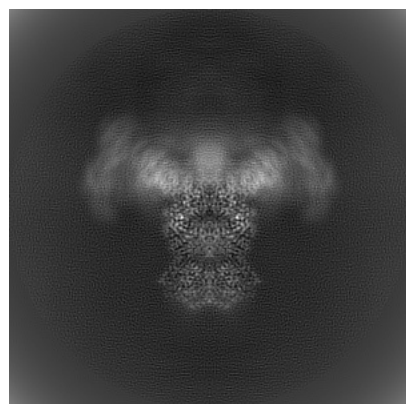
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-27422. These allow visual inspection of the internal detail of the map and identification of artifacts.

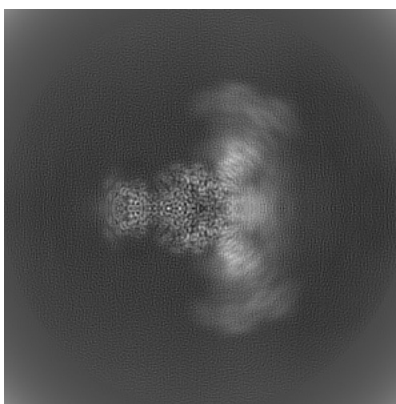
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

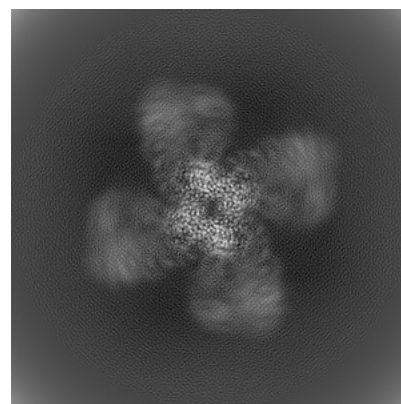
6.1.1 Primary map



X

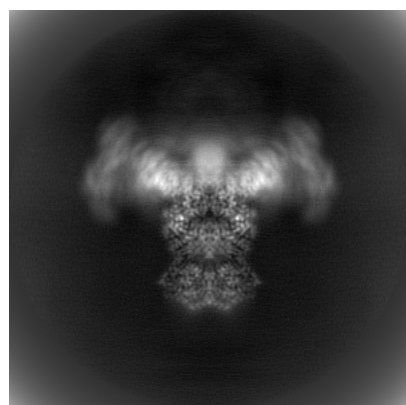


Y

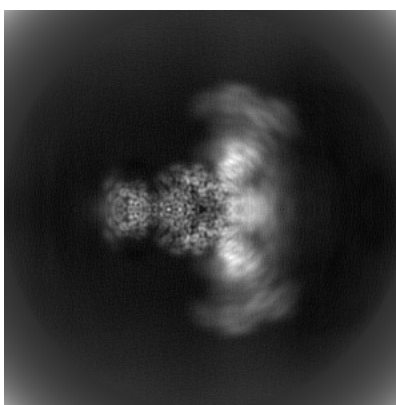


Z

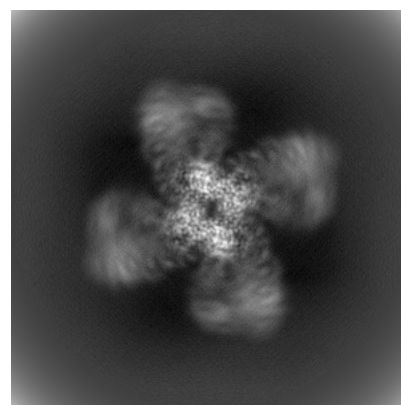
6.1.2 Raw map



X



Y

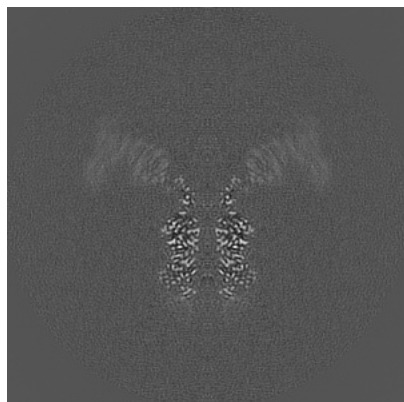


Z

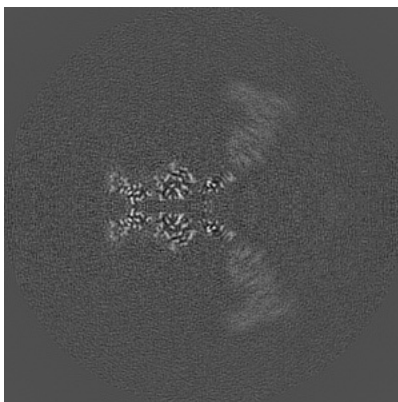
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

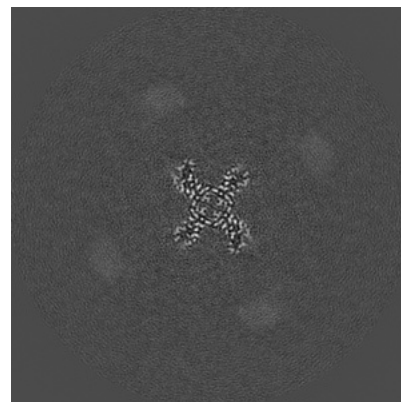
6.2.1 Primary map



X Index: 180

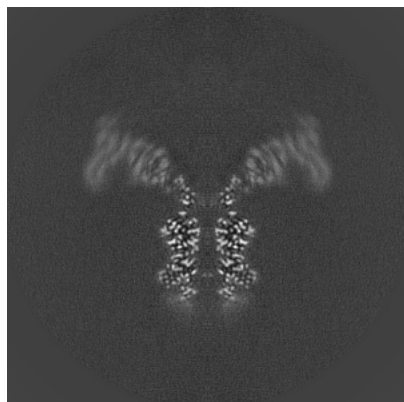


Y Index: 180

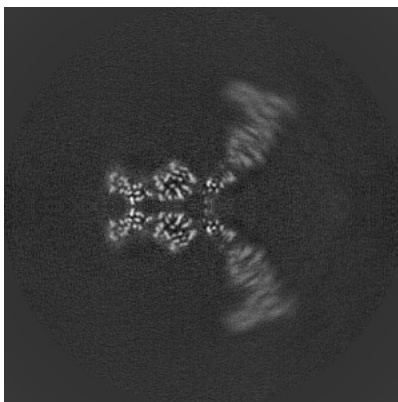


Z Index: 180

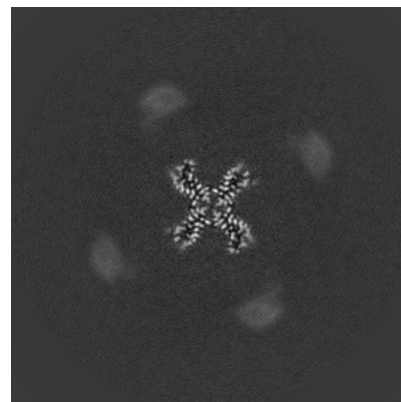
6.2.2 Raw map



X Index: 180



Y Index: 180

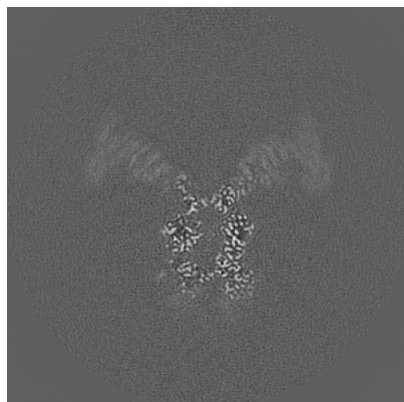


Z Index: 180

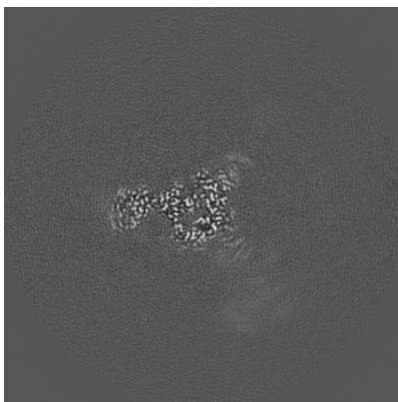
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

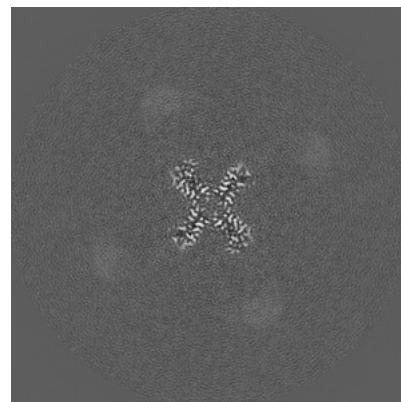
6.3.1 Primary map



X Index: 175

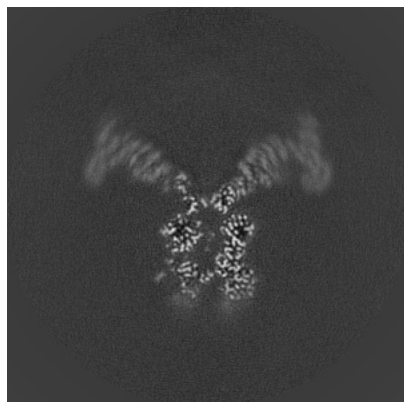


Y Index: 160

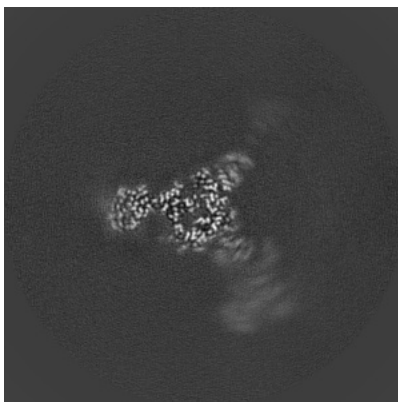


Z Index: 179

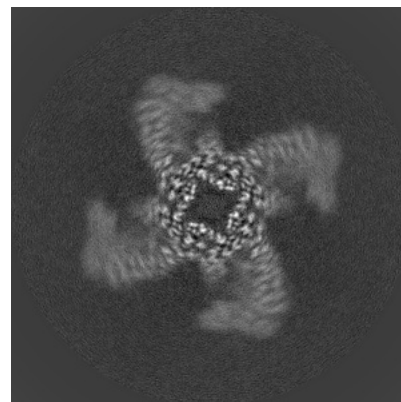
6.3.2 Raw map



X Index: 175



Y Index: 160

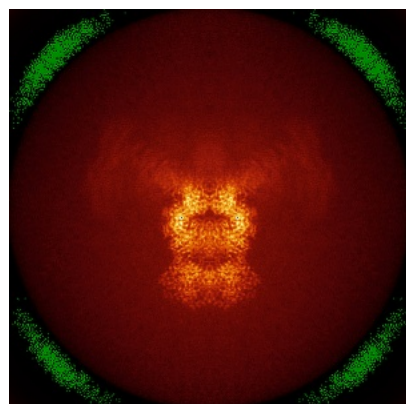


Z Index: 204

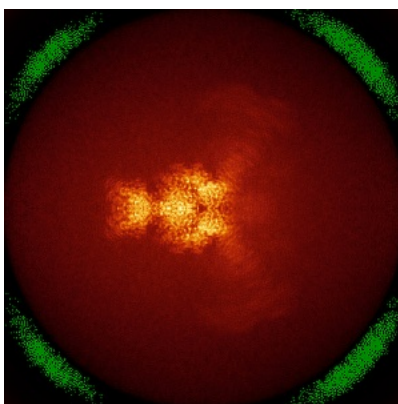
The images above show the largest variance slices of the map in three orthogonal directions.

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

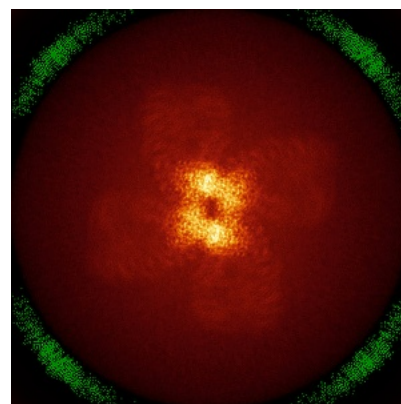
6.4.1 Primary map



X

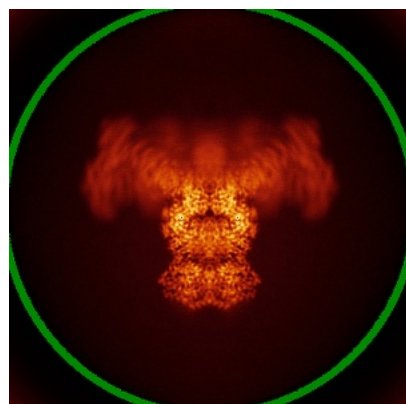


Y

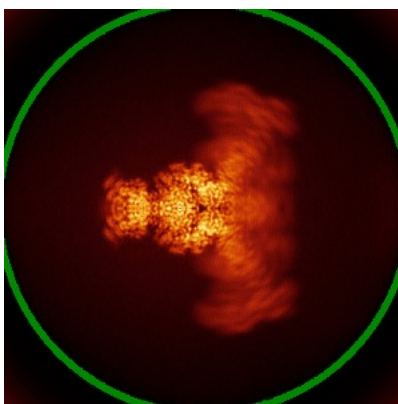


Z

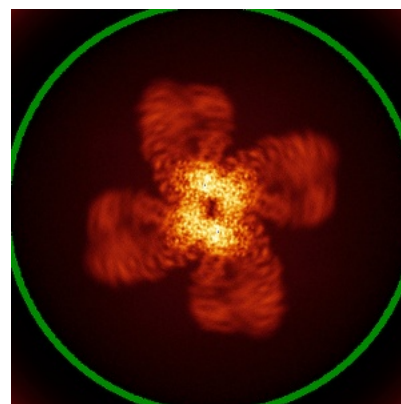
6.4.2 Raw map



X



Y

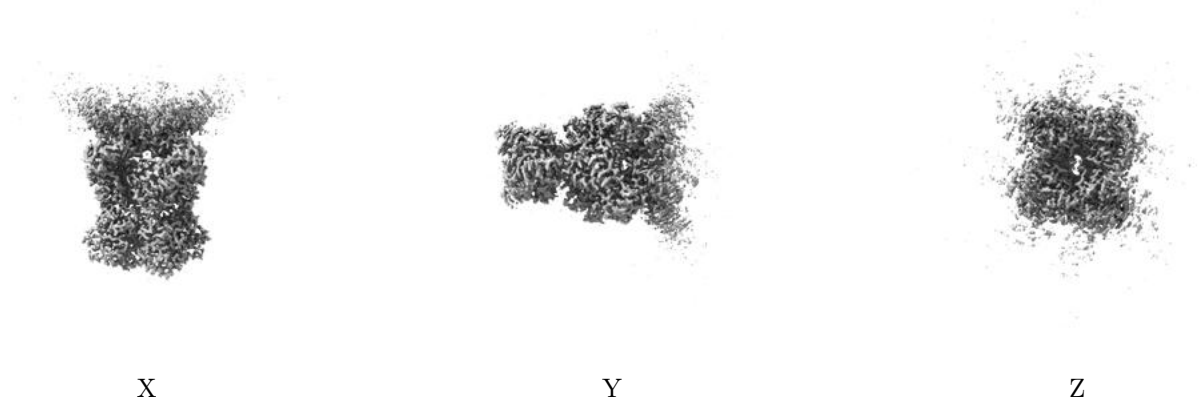


Z

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.

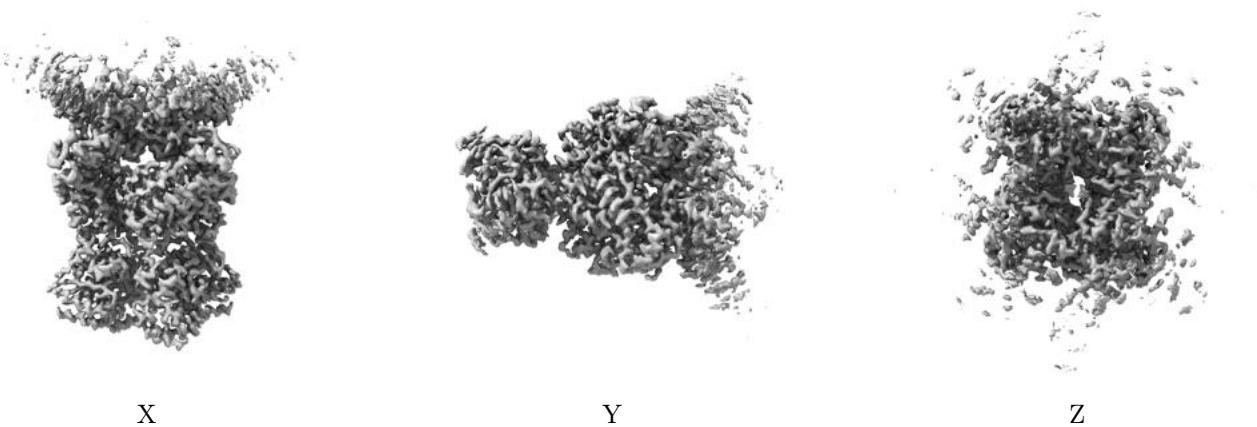
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. 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



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.

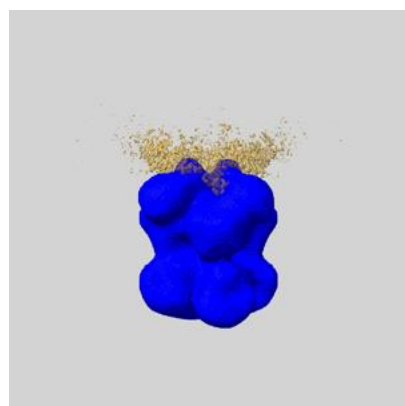
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

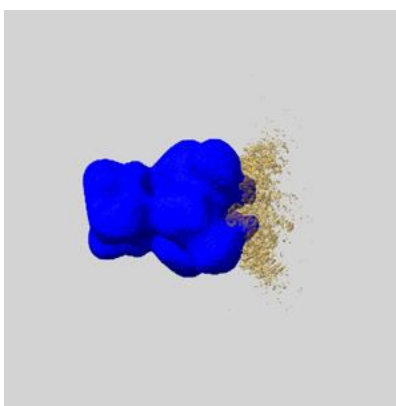
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

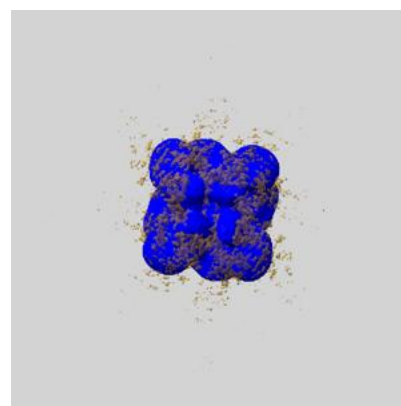
6.6.1 emd_27422_msk_1.map [i](#)



X



Y

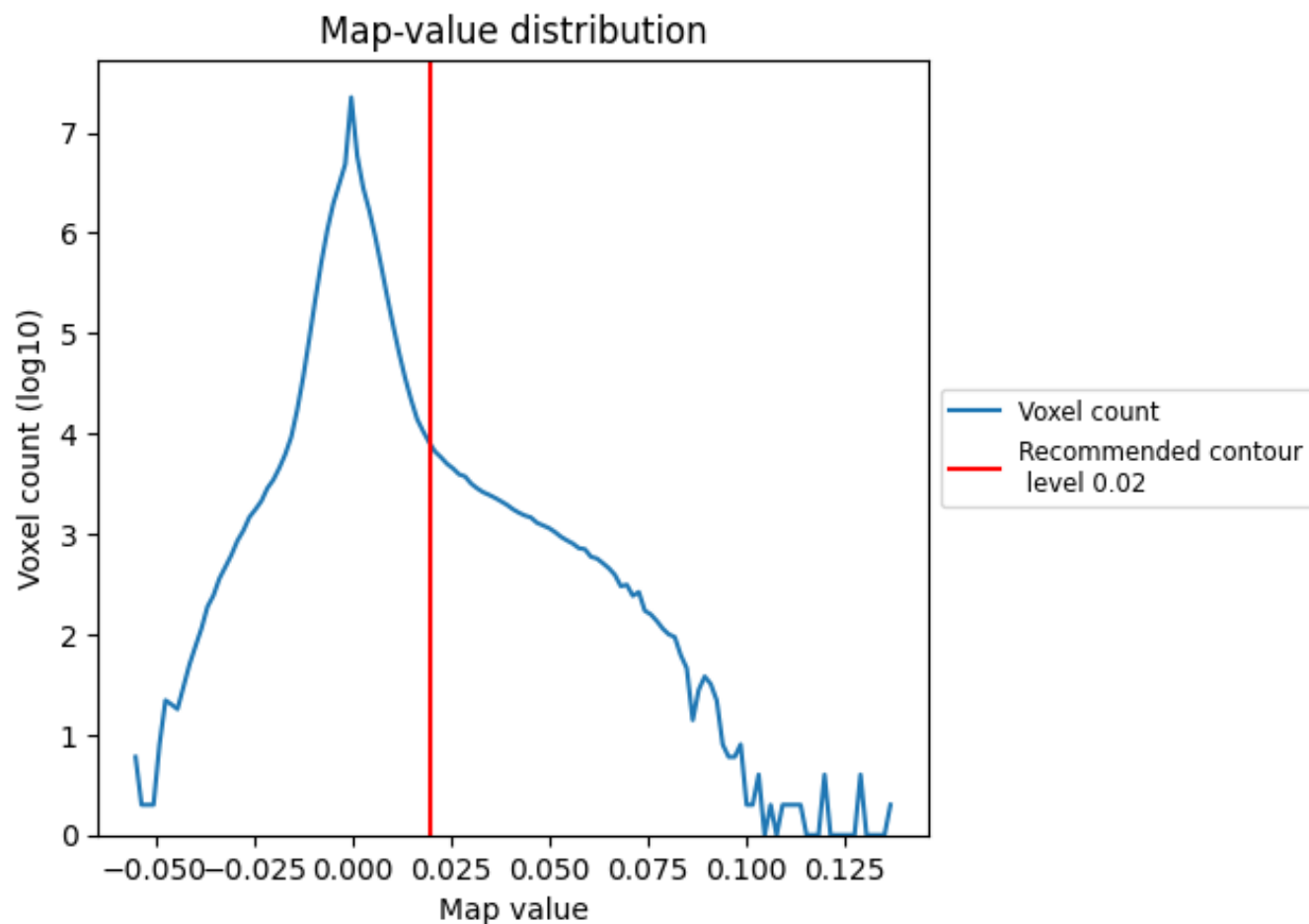


Z

7 Map analysis [i](#)

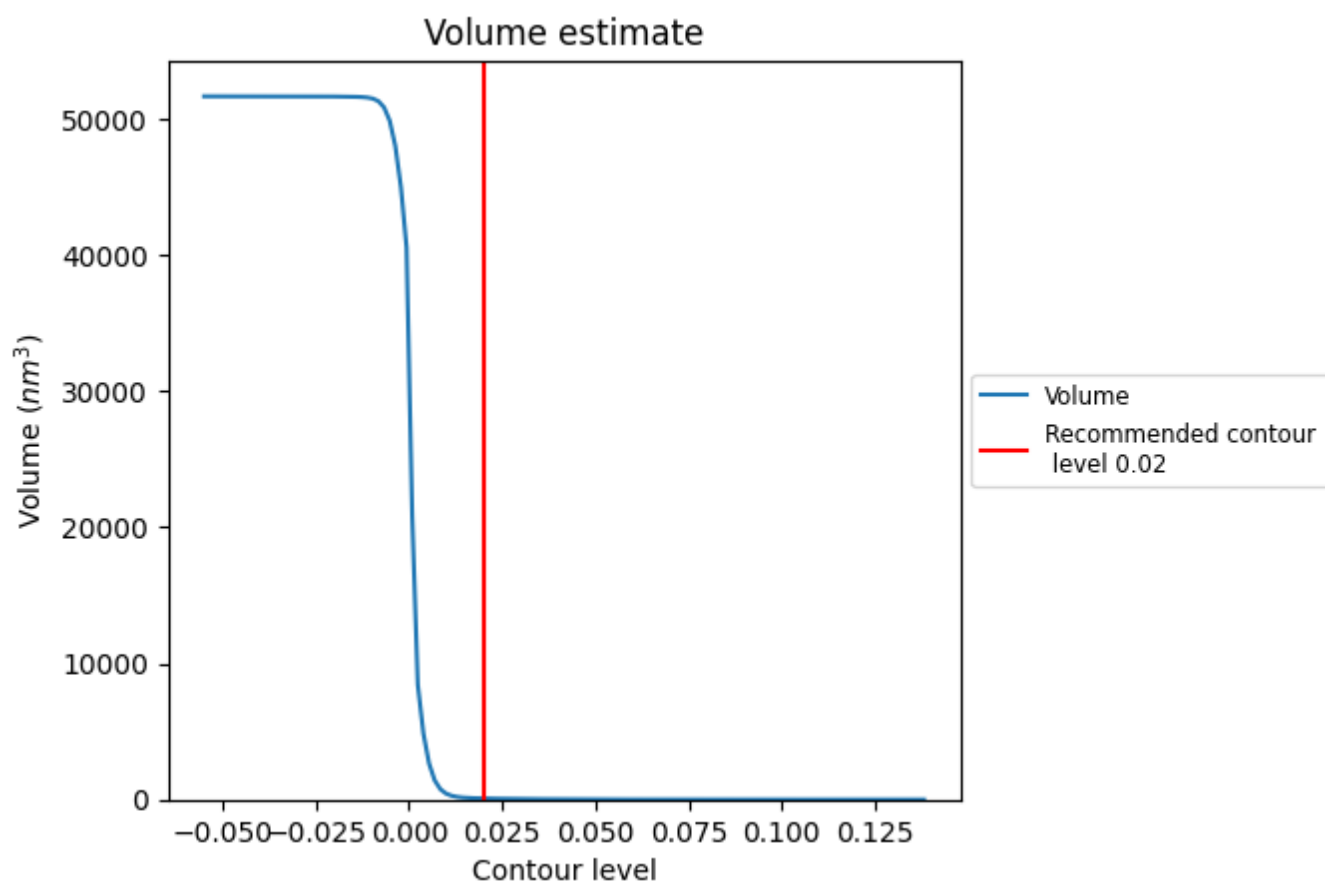
This section contains the results of statistical analysis of the map.

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.

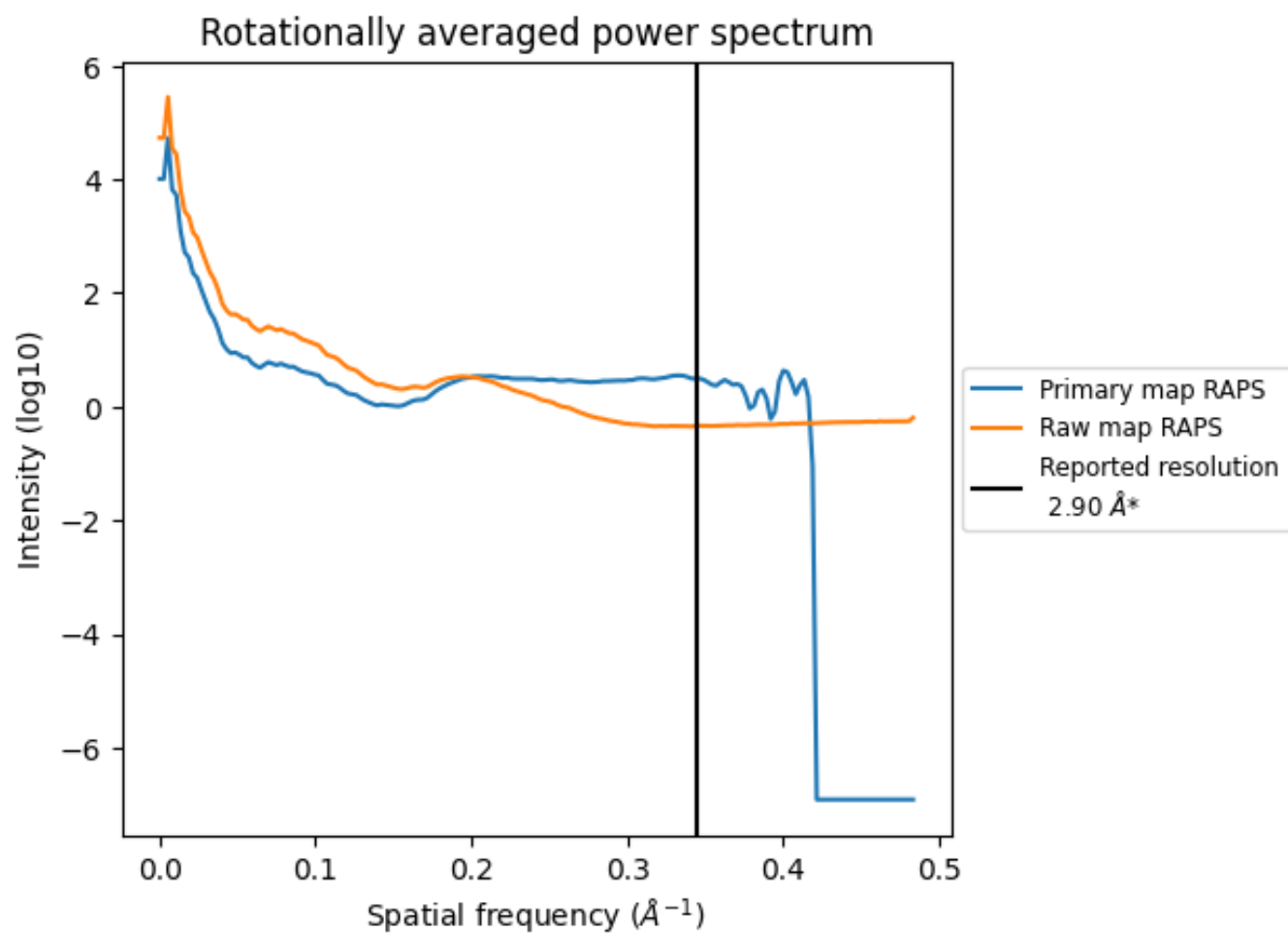
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 80 nm^3 ; this corresponds to an approximate mass of 73 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 ⓘ

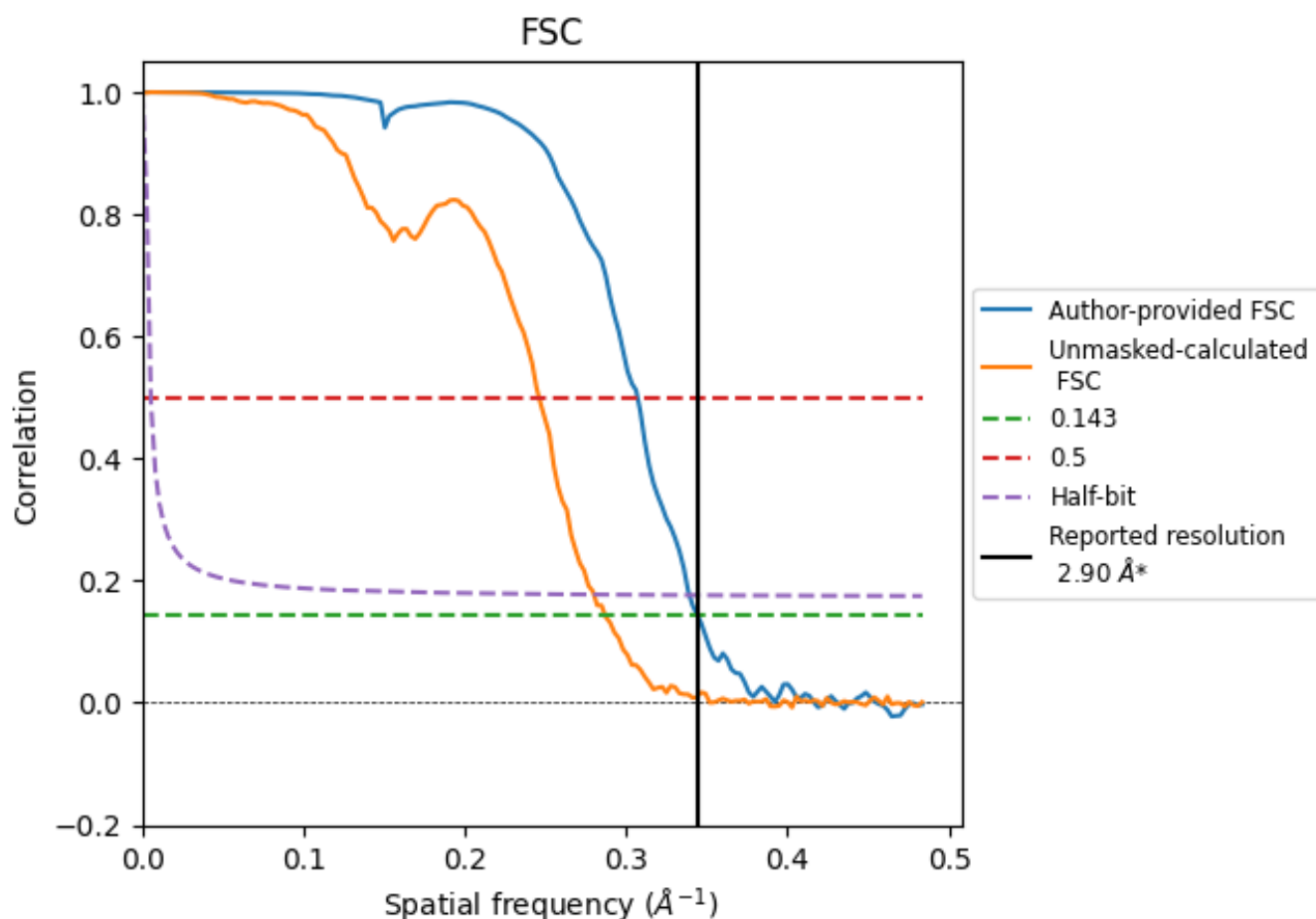


*Reported resolution corresponds to spatial frequency of 0.345 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.345 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

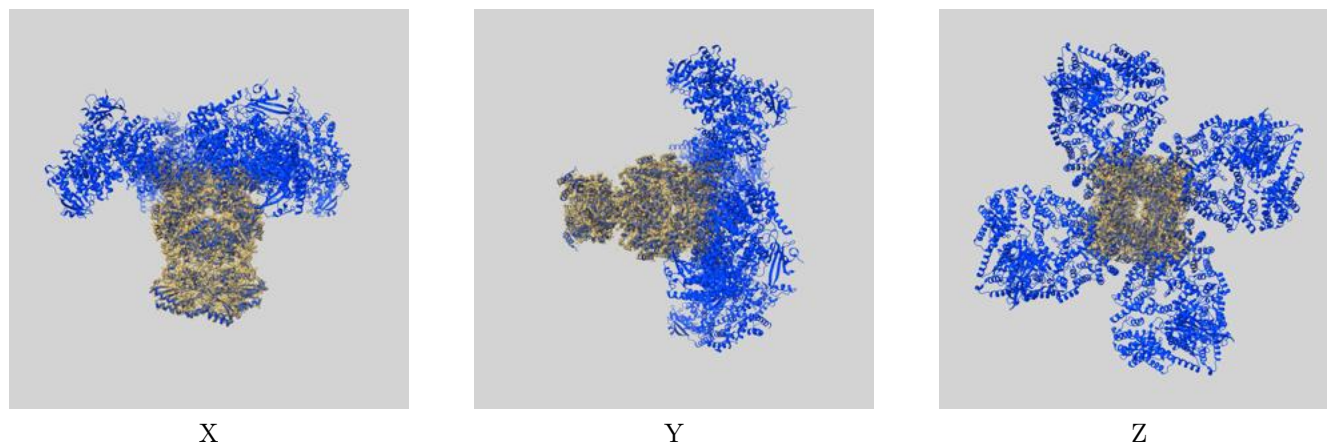
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.90	3.26	2.95
Unmasked-calculated*	3.48	4.07	3.57

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.48 differs from the reported value 2.9 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-27422 and PDB model 8DGF. Per-residue inclusion information can be found in [section 3](#) on [page 5](#).

9.1 Map-model overlay [i](#)



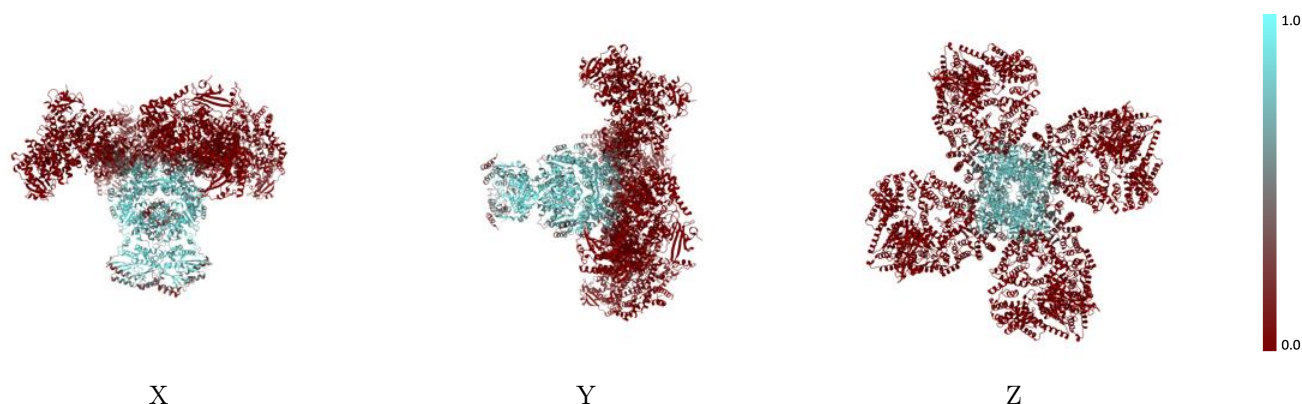
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



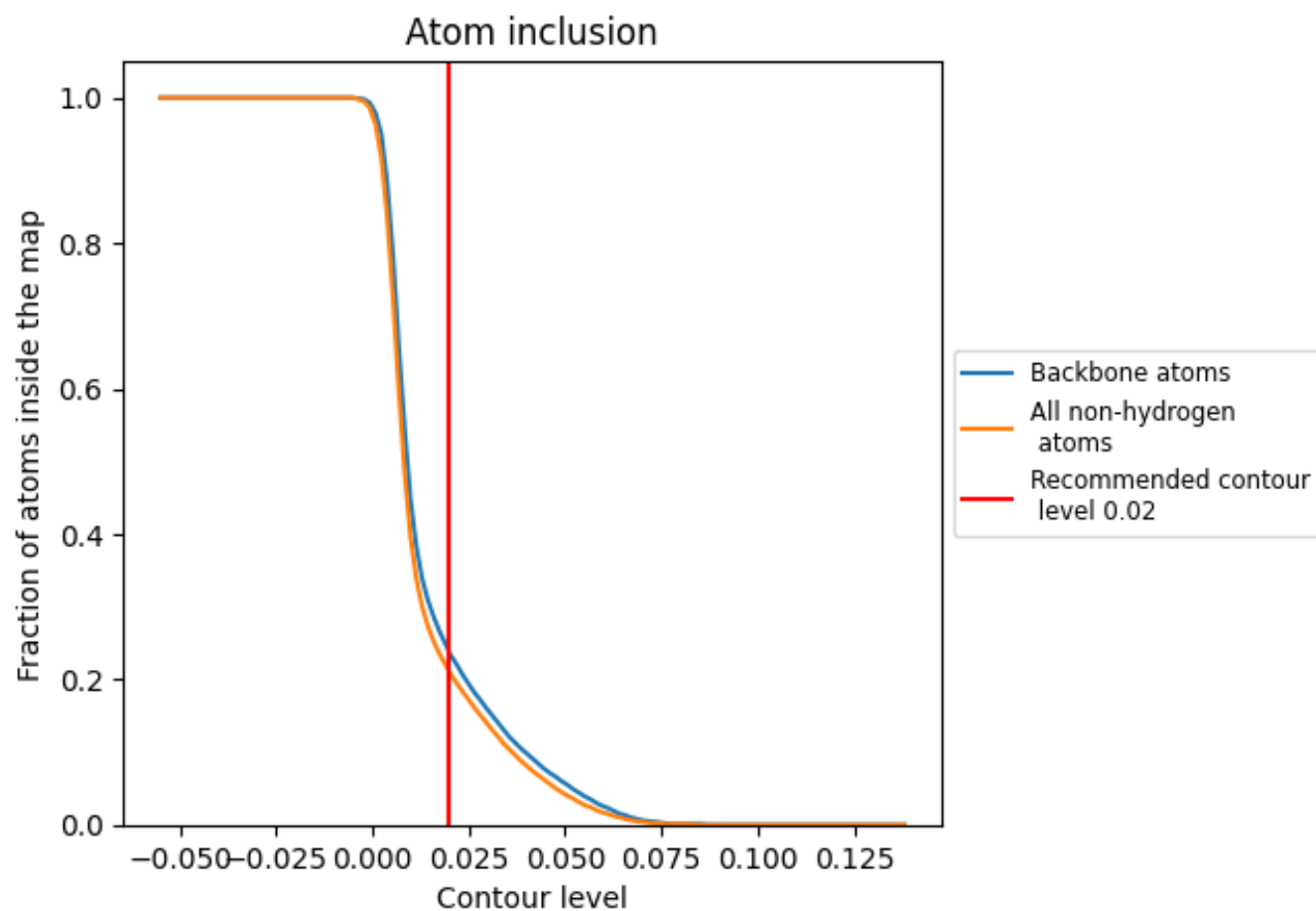
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.02).

9.4 Atom inclusion ⓘ



At the recommended contour level, 24% of all backbone atoms, 21% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.2110	0.2340
A	0.2860	0.2990
B	0.2480	0.2640
C	0.2860	0.3000
D	0.2470	0.2650
E	0.0000	0.0570
F	0.0000	0.0470
G	0.0000	0.0570
H	0.0000	0.0470

1.0

0.0

<0.0