



## Full wwPDB EM Validation Report ⓘ

Dec 28, 2023 – 02:27 PM EST

PDB ID : 8FO2  
EMDB ID : EMD-29339  
Title : Cryo-EM structure of Rab29-LRRK2 complex in the LRRK2 monomer state  
Authors : Zhu, H.; Sun, J.  
Deposited on : 2022-12-29  
Resolution : 4.13 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](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev70  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

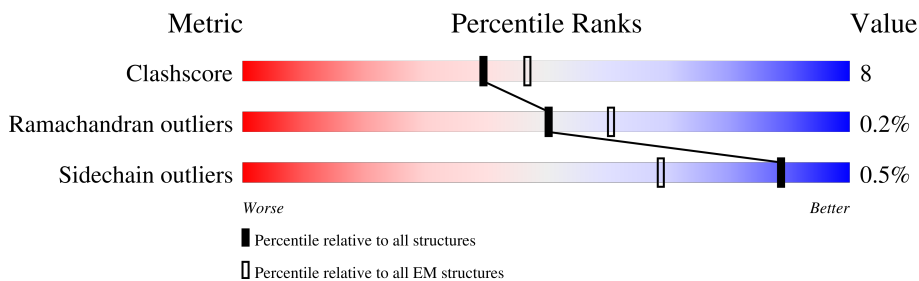
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.13 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  $\geq 3$ , 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	B	177	
2	E	2527	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	GNP	B	202	X	-	-	-

## 2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 18255 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 Ras-related protein Rab-7L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	172	1115	714	189	205	7	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	67	LEU	GLN	conflict	UNP O14966
B	71	ALA	THR	conflict	UNP O14966
B	72	ALA	SER	conflict	UNP O14966

- Molecule 2 is a protein called Leucine-rich repeat serine/threonine-protein kinase 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	2275	17048	10905	2931	3106	106	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	50	HIS	ARG	conflict	UNP Q5S007
E	1647	THR	SER	conflict	UNP Q5S007
E	2397	THR	MET	conflict	UNP Q5S007

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

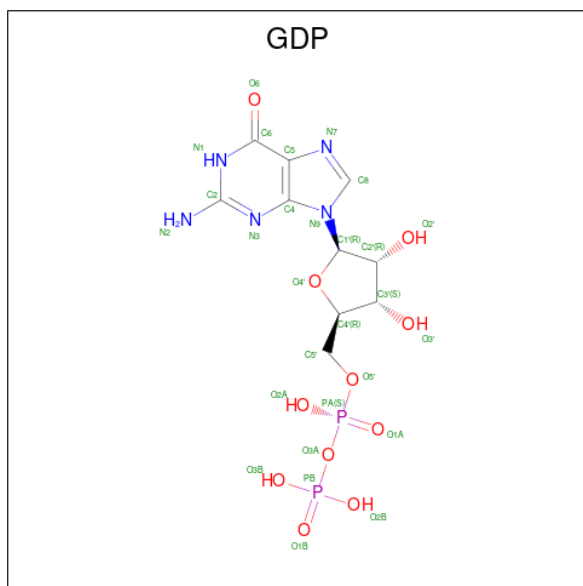
Mol	Chain	Residues	Atoms		AltConf
3	B	1	Total	Mg	0
			1	1	

- Molecule 4 is PHOSPHOAMINOPHOSPHONIC ACID-GUANYLATE ESTER (three-letter code: GNP) (formula: C<sub>10</sub>H<sub>17</sub>N<sub>6</sub>O<sub>13</sub>P<sub>3</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
4	B	1	32	10	6	13	3	0

- Molecule 5 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula:  $C_{10}H_{15}N_5O_{11}P_2$ ).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
5	E	1	28	10	5	11	2	0

- Molecule 6 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ).







T2524	S2525	V2526	E2527	GLU	ASN	THR	GLU	GLY	THR	GLN	LYS	GLN	K2487	Q2490	E2519	K2520	M2521	R2522	R2523	GLU	ASN	THR	GLU	GLY	THR	GLN	LYS	GLN	K2478	K2471	V2472	L2473	G2474	K2475	S2465	Q2462	M2458	V2455	I2445	T2441	D2438	L2435	G2430	I2427	W2426	Y2410	S2409	K2407	HIS	LYS	SER	GLU	LYS	ASN	GLU	T2321	G2320	Q2367	Q2368	A2366	L2365	I2364	T2361	L2363	L2362	A2362	T2357	V2357	T2356	I2355	I2354	A2285	D2351	A2348	A2347	Y2346	S2345	F2344	L2343	Q2342	S2341	T2340	E2339	K2334	Q2333	L2332	D2329	M2328	S2327	I2323	K2322	T2321	L2320	SER	GLN	LYS	GLN	SER	GLN	L2280	V2280	T2279	K2278	D2277	L2272	K2271	G2270	D2269	A2268	T2267	G2266	L2264	F2262	L2263	P2262	M2261	K2260	GLN	SER	GLN	LYS	L2182	F2181	S2180	L2179	C2247	T2246	V2245	D2244	H2243	S2244	V2242	M2241	T2240	E2239	L2238	T2237	H2236	R2235	K2234	L2233	G2232	D2231	E2230	T2229	N2228	I2227	V2226	L2224	G2222	T2223	V2216	I2215	W2214	S2213	W2128	V2128	GLN	A2126	S2125	T2124	E2121	N2118	E2117	K2116	L2115	C2114	Q2113	K2112	I2111	L2110	K2109	E2108	K2097	V2096	P2095	D2094	F2093	L2092	K2091	G2090	Q2178	R2176	D2175	T2174	H2173	G2172	C2170	L2169	W2168	L2167	S2166	A2165	N2164	R2163	S2162	N2161	HIS	H2159	M2155	V2152	I2151	V2147	L2146	K2148	F2147
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## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	70139	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	58.8	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	3.220	Depositor
Minimum map value	-2.051	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.041	Depositor
Recommended contour level	0.55	Depositor
Map size ( $\text{\AA}$ )	508.8, 508.8, 508.8	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.06, 1.06, 1.06	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: MG, GNP, ATP, GDP

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	B	0.27	0/1134	0.54	0/1562
2	E	0.27	0/17342	0.56	4/23561 (0.0%)
All	All	0.27	0/18476	0.56	4/25123 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	E	0	1

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
2	E	183	ALA	N-CA-C	-6.23	94.17	111.00
2	E	308	LEU	CA-CB-CG	5.17	127.18	115.30
2	E	1796	LEU	CA-CB-CG	5.10	127.04	115.30
2	E	316	LEU	CA-CB-CG	5.00	126.80	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	E	571	VAL	Mainchain

## 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	B	1115	0	923	23	0
2	E	17048	0	16705	256	0
3	B	1	0	0	0	0
4	B	32	0	13	5	0
5	E	28	0	12	0	0
6	E	31	0	12	0	0
All	All	18255	0	17665	276	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (276) 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:B:36:TYR:CB	4:B:202:GNP:H4'	1.83	1.07
2:E:1711:ARG:HD2	2:E:1787:LEU:HD12	1.65	0.77
2:E:819:GLY:HA2	2:E:1006:ILE:HD11	1.66	0.76
2:E:1070:ILE:H	2:E:1093:ASN:HB3	1.51	0.75
2:E:2216:VAL:HG12	2:E:2226:VAL:HG22	1.69	0.73
1:B:20:LYS:NZ	4:B:202:GNP:O1G	2.21	0.73
1:B:126:LYS:HA	1:B:155:SER:HA	1.70	0.72
2:E:1902:GLU:HB3	2:E:1949:LEU:HD23	1.71	0.72
2:E:296:VAL:HG22	2:E:349:TRP:HE1	1.55	0.71
2:E:2293:ILE:HD12	2:E:2332:ILE:HD11	1.74	0.70
2:E:573:PHE:HB2	2:E:576:ALA:HB2	1.75	0.69
1:B:21:THR:HA	1:B:24:VAL:HG12	1.78	0.66
2:E:320:THR:HA	2:E:323:ILE:HG22	1.78	0.66
2:E:1195:LEU:HD12	2:E:1198:LEU:HD12	1.78	0.66
2:E:2462:GLN:HG2	2:E:2468:ASN:H	1.61	0.66
2:E:1303:HIS:HB3	2:E:1514:ARG:HD3	1.76	0.65
1:B:126:LYS:HG2	1:B:156:VAL:HG22	1.77	0.65
2:E:2109:LYS:HG2	2:E:2113:GLN:HE22	1.61	0.65
2:E:406:LEU:HD21	2:E:444:ASN:HD21	1.61	0.65
2:E:992:ASN:O	2:E:1021:ASN:ND2	2.29	0.65
2:E:181:CYS:HB3	2:E:224:HIS:HB3	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:2110:LEU:HD13	2:E:2131:ILE:HD11	1.80	0.64
1:B:10:VAL:HG22	1:B:83:ALA:HB3	1.81	0.63
2:E:1590:LEU:HD22	2:E:1655:LYS:HG3	1.80	0.63
2:E:792:ARG:NH2	2:E:820:PRO:O	2.31	0.63
2:E:667:VAL:O	2:E:715:ARG:NH2	2.32	0.63
2:E:568:SER:HB2	2:E:609:LEU:HD21	1.80	0.61
2:E:1695:TYR:HB2	2:E:1763:LEU:HB3	1.82	0.61
1:B:124:ALA:HB3	1:B:153:GLU:HA	1.82	0.61
2:E:813:VAL:HG11	2:E:989:LEU:HD21	1.81	0.61
2:E:184:LEU:H	2:E:187:LEU:HD13	1.66	0.60
2:E:1251:HIS:HA	2:E:1274:ASP:HB3	1.82	0.60
2:E:2152:VAL:HG21	2:E:2169:LEU:HD23	1.82	0.60
2:E:1341:GLY:O	2:E:1434:TRP:NE1	2.35	0.59
2:E:2318:GLY:HA2	2:E:2323:ILE:HA	1.82	0.59
2:E:2267:THR:HG22	2:E:2269:ASP:H	1.68	0.59
2:E:1339:ILE:HG12	2:E:1416:LEU:HD12	1.85	0.58
2:E:600:GLN:HG3	2:E:644:ILE:HD11	1.85	0.58
2:E:2110:LEU:HD11	2:E:2128:VAL:HG23	1.86	0.58
2:E:1043:HIS:HB3	2:E:1066:SER:H	1.69	0.58
2:E:1275:VAL:O	2:E:1278:ASN:ND2	2.36	0.58
2:E:2427:ILE:HB	2:E:2435:LEU:HB3	1.86	0.57
2:E:1045:ASN:HB2	2:E:1068:ASN:HD21	1.70	0.57
2:E:1509:LEU:HA	2:E:1519:VAL:HG11	1.86	0.57
2:E:181:CYS:C	2:E:183:ALA:H	2.07	0.56
1:B:36:TYR:CA	4:B:202:GNP:H4'	2.35	0.56
2:E:2109:LYS:O	2:E:2113:GLN:NE2	2.38	0.56
2:E:2146:LEU:O	2:E:2490:GLN:NE2	2.37	0.56
2:E:230:HIS:CD2	2:E:272:CYS:HG	2.23	0.56
2:E:1912:THR:O	2:E:1943:ARG:NH1	2.39	0.56
2:E:409:SER:O	2:E:452:HIS:NE2	2.40	0.55
2:E:2304:SER:OG	2:E:2305:GLU:N	2.38	0.55
2:E:123:THR:HA	2:E:162:LEU:HD21	1.88	0.55
2:E:2124:THR:HG23	2:E:2126:ALA:H	1.71	0.55
2:E:143:LEU:HD22	2:E:149:THR:HG22	1.89	0.55
2:E:593:LEU:HD11	2:E:606:GLY:HA3	1.88	0.55
2:E:1701:PRO:HG2	2:E:1704:PHE:HB2	1.88	0.55
2:E:1198:LEU:HD21	2:E:1201:LEU:HB2	1.89	0.55
2:E:767:ARG:NH1	2:E:770:ASP:OD2	2.40	0.55
2:E:1334:ARG:O	2:E:1412:ARG:NH2	2.40	0.54
2:E:2302:CYS:SG	2:E:2303:LEU:N	2.80	0.54
2:E:2394:ARG:HH21	2:E:2410:TYR:HB2	1.71	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:498:LEU:HD13	2:E:553:PHE:HD2	1.71	0.54
2:E:2427:ILE:HD12	2:E:2435:LEU:HD23	1.88	0.54
2:E:460:GLU:HB2	2:E:500:VAL:HG22	1.89	0.54
2:E:1260:ILE:HG23	2:E:1264:ILE:HD12	1.90	0.54
2:E:1439:LYS:HB2	2:E:1480:PRO:HD3	1.90	0.54
2:E:1816:PHE:HB3	2:E:1848:LEU:HD11	1.90	0.54
2:E:2181:PHE:HB3	2:E:2190:THR:HB	1.90	0.54
1:B:74:THR:HG22	1:B:76:LEU:H	1.73	0.54
2:E:2094:ASP:OD2	2:E:2097:LYS:NZ	2.30	0.54
2:E:2357:VAL:HG23	2:E:2365:ILE:HG12	1.90	0.54
2:E:1198:LEU:HD11	2:E:1201:LEU:HD12	1.90	0.53
2:E:1675:ASP:OD1	2:E:1735:ARG:NH1	2.42	0.53
2:E:2243:ASP:HB3	2:E:2268:ALA:HB3	1.88	0.53
2:E:2125:SER:HA	2:E:2128:VAL:HG12	1.91	0.53
2:E:2151:ILE:O	2:E:2172:GLY:N	2.41	0.53
2:E:2438:ASP:HB2	2:E:2445:ILE:HD11	1.91	0.53
2:E:398:HIS:CD2	2:E:399:ARG:HG3	2.44	0.53
2:E:1231:GLN:HB2	2:E:1256:LYS:HE3	1.89	0.53
2:E:1433:PRO:O	2:E:1437:ASN:ND2	2.30	0.53
2:E:2224:LEU:HB3	2:E:2238:LEU:HB2	1.91	0.53
1:B:46:LEU:HD12	2:E:440:GLY:HA2	1.91	0.53
1:B:25:GLN:HB3	1:B:31:SER:HB3	1.90	0.53
2:E:2214:TRP:HD1	2:E:2228:ASN:HA	1.74	0.53
2:E:1106:VAL:HG12	2:E:1109:LEU:HB2	1.90	0.52
2:E:1406:PRO:HG2	2:E:1703:GLY:HA3	1.92	0.52
2:E:762:LEU:HD11	2:E:790:LEU:HD23	1.90	0.52
2:E:2247:CYS:O	2:E:2266:GLY:N	2.40	0.52
2:E:388:ILE:HD11	2:E:397:ALA:HB3	1.91	0.52
2:E:2166:SER:OG	2:E:2182:LEU:O	2.25	0.52
2:E:389:GLY:HA2	2:E:432:PHE:HZ	1.75	0.51
2:E:1377:PRO:HB3	2:E:1389:VAL:HG12	1.92	0.51
2:E:1286:ASN:HD21	2:E:1325:ARG:HE	1.58	0.51
2:E:1332:TYR:HB2	2:E:1523:ILE:HG12	1.91	0.51
2:E:2236:HIS:NE2	2:E:2280:VAL:O	2.40	0.51
2:E:2327:SER:OG	2:E:2328:ASN:N	2.44	0.51
2:E:1707:ARG:HB3	2:E:1787:LEU:HD11	1.92	0.50
2:E:1391:ASN:HD21	2:E:1580:GLY:HA3	1.76	0.50
2:E:320:THR:HG1	2:E:349:TRP:HZ3	1.58	0.50
2:E:1454:LEU:HB2	2:E:1489:ASN:HD22	1.77	0.50
2:E:285:ILE:O	2:E:288:LEU:HB3	2.11	0.49
2:E:566:VAL:O	2:E:570:ILE:HG12	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1177:ILE:HG22	2:E:1200:SER:HB3	1.94	0.49
2:E:295:VAL:HG13	2:E:312:ALA:HB1	1.94	0.49
2:E:754:SER:HB2	2:E:757:LEU:HD23	1.94	0.49
2:E:1044:SER:H	2:E:1067:ARG:HB2	1.77	0.49
2:E:1208:ILE:HG22	2:E:1230:ASN:HB3	1.93	0.49
2:E:2300:LEU:HA	2:E:2319:CYS:HA	1.93	0.49
1:B:28:SER:OG	1:B:46:LEU:O	2.28	0.49
2:E:734:ASP:OD1	2:E:734:ASP:N	2.46	0.49
2:E:460:GLU:HG3	2:E:499:PRO:HB2	1.93	0.49
2:E:2426:TRP:HB3	2:E:2458:MET:HE1	1.94	0.49
2:E:1372:ASP:OD2	2:E:1374:LYS:NZ	2.45	0.49
2:E:1771:ARG:NH2	2:E:1864:LEU:O	2.43	0.49
2:E:571:VAL:O	2:E:573:PHE:N	2.45	0.48
2:E:713:LEU:HD21	2:E:728:LEU:HB3	1.94	0.48
2:E:1229:HIS:HA	2:E:1254:HIS:HB2	1.95	0.48
2:E:556:ASN:O	2:E:559:ILE:HG12	2.13	0.48
2:E:759:GLU:HG2	2:E:789:LEU:HD11	1.95	0.48
2:E:2040:ALA:HB3	2:E:2043:VAL:HG12	1.95	0.48
1:B:125:ASN:HA	1:B:154:THR:HG23	1.96	0.48
2:E:434:LYS:HA	2:E:437:LEU:HB3	1.95	0.48
2:E:1004:CYS:SG	2:E:1005:CYS:N	2.84	0.48
2:E:2305:GLU:OE2	2:E:2313:ASN:ND2	2.43	0.48
2:E:1455:ASP:OD1	2:E:1455:ASP:N	2.45	0.48
1:B:92:ASN:O	1:B:95:THR:OG1	2.30	0.48
2:E:812:LYS:NZ	2:E:814:GLU:OE2	2.47	0.47
2:E:498:LEU:HD11	2:E:559:ILE:HD13	1.95	0.47
2:E:638:PHE:O	2:E:645:GLN:NE2	2.47	0.47
2:E:1375:ASP:HA	2:E:1391:ASN:HA	1.95	0.47
2:E:1417:ALA:HB3	2:E:1449:LEU:HD23	1.95	0.47
2:E:2267:THR:OG1	2:E:2271:LYS:O	2.28	0.47
2:E:1026:PHE:O	2:E:1053:TYR:OH	2.30	0.47
2:E:1831:MET:HA	2:E:1834:ALA:HB3	1.97	0.47
2:E:2458:MET:HA	2:E:2471:LEU:O	2.15	0.47
2:E:1467:SER:O	2:E:1470:THR:OG1	2.23	0.47
2:E:317:ALA:HB2	2:E:373:ALA:HA	1.97	0.47
2:E:2354:ILE:HA	2:E:2367:LYS:HD3	1.96	0.47
2:E:1991:ILE:HD11	2:E:1993:ARG:HE	1.80	0.47
2:E:1530:LEU:HA	2:E:1533:ILE:HG22	1.95	0.46
2:E:2321:THR:HG21	2:E:2339:ARG:HE	1.80	0.46
2:E:350:LEU:HD11	2:E:384:LEU:HD13	1.96	0.46
2:E:1378:ILE:HD13	2:E:1505:ILE:HD11	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:2521:MET:HA	2:E:2524:THR:HG23	1.97	0.46
2:E:2173:HIS:CD2	2:E:2174:THR:HG23	2.51	0.46
2:E:2375:VAL:HG12	2:E:2384:CYS:HB2	1.98	0.46
2:E:672:ASP:HB2	2:E:676:PHE:CE2	2.51	0.46
2:E:2118:ASN:OD1	2:E:2121:GLU:N	2.47	0.46
2:E:184:LEU:HG	2:E:188:PHE:CE2	2.50	0.46
2:E:750:GLU:O	2:E:781:LYS:NZ	2.49	0.46
2:E:1346:GLY:H	2:E:1452:THR:HG21	1.81	0.46
2:E:1799:ASP:OD1	2:E:1799:ASP:N	2.45	0.46
2:E:1695:TYR:HD2	2:E:1763:LEU:HD23	1.81	0.45
2:E:1838:ASP:N	2:E:1838:ASP:OD1	2.49	0.45
2:E:567:ILE:O	2:E:571:VAL:HG23	2.16	0.45
2:E:1977:HIS:HB2	2:E:2013:ALA:HB3	1.98	0.45
2:E:2519:GLU:OE1	2:E:2522:ARG:NH1	2.47	0.45
2:E:1380:ILE:HG13	2:E:1386:ARG:HB2	1.97	0.45
2:E:1488:VAL:HG12	2:E:1490:ALA:H	1.82	0.45
2:E:1816:PHE:HA	2:E:1850:ILE:HD11	1.97	0.45
2:E:292:HIS:O	2:E:296:VAL:HG23	2.17	0.45
2:E:1845:GLN:OE1	2:E:1847:ARG:HD2	2.17	0.45
2:E:2267:THR:HG21	2:E:2271:LYS:HB2	1.96	0.45
2:E:756:LYS:HE2	2:E:760:LEU:HD21	1.98	0.45
2:E:1435:LEU:HD23	2:E:1438:ILE:HD12	1.98	0.45
2:E:2413:ARG:O	2:E:2430:GLY:N	2.48	0.45
2:E:683:ILE:HD11	2:E:839:LEU:HD21	1.99	0.45
2:E:163:ILE:HD13	2:E:184:LEU:HD13	1.99	0.45
2:E:1918:ARG:HH12	2:E:1922:VAL:HB	1.82	0.45
2:E:364:LYS:HG2	2:E:408:HIS:ND1	2.31	0.45
2:E:284:ASN:O	2:E:288:LEU:N	2.27	0.45
2:E:1491:THR:OG1	2:E:1492:GLU:OE1	2.33	0.45
2:E:1959:LEU:HD13	2:E:2070:GLY:HA3	1.99	0.45
2:E:2043:VAL:HG23	2:E:2050:TYR:CZ	2.52	0.45
1:B:36:TYR:HA	4:B:202:GNP:O5'	2.17	0.45
1:B:44:PHE:HE2	2:E:402:MET:HG2	1.82	0.44
1:B:152:THR:HG21	1:B:165:ALA:HB2	1.98	0.44
2:E:215:PHE:C	2:E:217:ASP:N	2.70	0.44
2:E:2124:THR:O	2:E:2128:VAL:N	2.50	0.44
2:E:1059:CYS:HA	2:E:1084:THR:HG21	2.00	0.44
2:E:1175:MET:HB2	2:E:1195:LEU:HD13	2.00	0.44
2:E:2455:VAL:HA	2:E:2474:GLY:HA2	1.98	0.44
2:E:176:VAL:O	2:E:180:GLY:N	2.50	0.44
2:E:1362:LEU:HD23	2:E:1365:GLN:HG3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:140:ASP:HA	1:B:143:SER:HB2	1.99	0.44
2:E:635:LEU:HD13	2:E:674:VAL:HG11	1.99	0.44
2:E:1486:HIS:HE2	2:E:1503:THR:HG21	1.83	0.44
2:E:1493:GLU:HA	2:E:1497:LEU:HD13	1.99	0.44
2:E:1689:GLU:OE1	2:E:1689:GLU:N	2.51	0.44
2:E:1990:ILE:HD11	2:E:2020:ILE:HB	1.99	0.44
2:E:2152:VAL:HG13	2:E:2473:LEU:HD21	2.00	0.44
2:E:814:GLU:OE1	2:E:817:TRP:NE1	2.50	0.44
2:E:1055:LEU:HD22	2:E:1085:LEU:HD11	1.98	0.44
2:E:399:ARG:HE	2:E:399:ARG:HB2	1.60	0.44
2:E:1106:VAL:HG11	2:E:1109:LEU:HD12	2.00	0.44
2:E:1328:LYS:HE2	2:E:1328:LYS:HB2	1.71	0.44
2:E:1828:ASP:HB3	2:E:1831:MET:SD	2.58	0.44
2:E:2092:LEU:HD21	2:E:2115:LEU:HG	1.99	0.44
2:E:2374:GLU:HA	2:E:2386:LEU:HD23	1.99	0.44
2:E:1137:SER:HB2	2:E:1161:ARG:HB2	1.99	0.43
2:E:1353:GLN:HB3	2:E:1497:LEU:HD11	2.00	0.43
2:E:1733:TYR:HB3	2:E:1738:ILE:HA	1.99	0.43
2:E:1116:GLY:H	2:E:1138:LYS:HB2	1.83	0.43
2:E:1452:THR:HG23	2:E:1453:HIS:ND1	2.33	0.43
2:E:1092:TYR:OH	2:E:1138:LYS:NZ	2.41	0.43
2:E:1099:PRO:HB2	2:E:1102:LEU:HG	2.00	0.43
2:E:998:ASP:O	2:E:1001:SER:OG	2.27	0.43
2:E:1813:LEU:HD13	2:E:1824:LYS:HD3	2.00	0.43
2:E:573:PHE:HB2	2:E:576:ALA:CB	2.47	0.43
2:E:184:LEU:O	2:E:185:HIS:C	2.56	0.43
2:E:2113:GLN:HA	2:E:2116:LYS:HE2	2.00	0.43
2:E:2167:ILE:HD11	2:E:2182:LEU:HD23	1.99	0.43
2:E:437:LEU:HD13	2:E:470:PHE:HE1	1.83	0.43
2:E:2171:CYS:SG	2:E:2178:GLN:N	2.91	0.43
2:E:2196:ASP:OD1	2:E:2196:ASP:N	2.52	0.43
2:E:640:ASP:OD1	2:E:640:ASP:N	2.52	0.43
2:E:1270:LEU:HD23	2:E:1270:LEU:HA	1.82	0.43
2:E:1343:THR:H	2:E:1397:GLY:HA3	1.83	0.43
2:E:1813:LEU:HD23	2:E:1813:LEU:HA	1.82	0.43
2:E:1831:MET:O	2:E:1835:GLU:N	2.51	0.43
2:E:1863:ASP:N	2:E:1863:ASP:OD1	2.50	0.43
2:E:2068:THR:HG23	2:E:2071:GLY:H	1.84	0.43
2:E:1862:ALA:O	2:E:1866:ARG:NH2	2.52	0.43
2:E:1940:ILE:HG22	2:E:1941:ARG:H	1.82	0.43
2:E:2355:ILE:HD11	2:E:2368:GLN:HG2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:588:SER:O	2:E:592:THR:HG23	2.19	0.43
2:E:1041:ASP:OD1	2:E:1041:ASP:N	2.51	0.43
2:E:512:ILE:HG23	2:E:513:VAL:HG12	2.00	0.42
2:E:1045:ASN:HB2	2:E:1068:ASN:ND2	2.32	0.42
2:E:1729:PRO:HD2	2:E:1731:ARG:HH21	1.85	0.42
2:E:2176:ARG:NH1	2:E:2193:GLU:HB3	2.34	0.42
1:B:87:MET:HB2	1:B:123:LEU:HD12	2.00	0.42
2:E:1128:LEU:HD23	2:E:1128:LEU:HA	1.80	0.42
2:E:1466:MET:O	2:E:1469:ILE:HG22	2.18	0.42
2:E:2108:GLU:O	2:E:2111:ILE:HB	2.19	0.42
2:E:2375:VAL:O	2:E:2384:CYS:N	2.52	0.42
2:E:1552:ARG:O	2:E:1556:LEU:HG	2.20	0.42
2:E:1868:ILE:HG13	2:E:1925:CYS:SG	2.60	0.42
2:E:2333:GLN:HG3	2:E:2334:LYS:HG3	2.02	0.42
2:E:192:SER:O	2:E:196:LEU:HG	2.19	0.42
1:B:39:THR:OG1	4:B:202:GNP:PG	2.77	0.42
2:E:184:LEU:HD12	2:E:184:LEU:HA	1.74	0.42
2:E:683:ILE:HD13	2:E:835:ILE:HG23	2.02	0.42
2:E:1194:ASN:OD1	2:E:1218:LYS:NZ	2.44	0.42
2:E:1933:ILE:HD13	2:E:2014:LYS:HD3	2.00	0.42
2:E:2204:LEU:HD21	2:E:2213:SER:HB2	2.02	0.42
2:E:1205:SER:HA	2:E:1229:HIS:O	2.20	0.41
2:E:2025:CYS:SG	2:E:2026:ARG:N	2.93	0.41
2:E:2064:TYR:CE2	2:E:2095:PRO:HG3	2.56	0.41
2:E:1729:PRO:HD2	2:E:1731:ARG:NH2	2.35	0.41
2:E:1709:ILE:HB	2:E:1738:ILE:HD11	2.02	0.41
2:E:184:LEU:HA	2:E:187:LEU:HB2	2.03	0.41
2:E:1070:ILE:O	2:E:1094:GLN:HB2	2.21	0.41
2:E:1373:VAL:HB	2:E:1601:LYS:HB3	2.03	0.41
2:E:1867:ASN:OD1	2:E:1867:ASN:N	2.54	0.41
2:E:184:LEU:O	2:E:187:LEU:N	2.54	0.41
2:E:215:PHE:O	2:E:217:ASP:N	2.53	0.41
2:E:590:LEU:O	2:E:594:GLN:HG3	2.21	0.41
2:E:797:ASP:O	2:E:799:ALA:N	2.54	0.41
2:E:990:SER:O	2:E:1021:ASN:ND2	2.54	0.41
2:E:2155:MET:HB3	2:E:2169:LEU:HG	2.02	0.41
2:E:2316:TRP:CZ3	2:E:2363:LEU:HD21	2.56	0.41
1:B:170:ILE:O	1:B:174:MET:HE2	2.20	0.41
2:E:1833:LYS:HA	2:E:1833:LYS:HD2	1.95	0.41
2:E:2245:VAL:HG13	2:E:2265:VAL:HG13	2.04	0.41
2:E:794:LEU:HD23	2:E:794:LEU:HA	1.93	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1394:ASP:N	2:E:1394:ASP:OD1	2.47	0.40
1:B:62:TRP:CZ2	2:E:406:LEU:HD13	2.56	0.40
2:E:1448:ILE:HD12	2:E:1484:ASP:HB2	2.04	0.40
2:E:2168:TRP:CZ3	2:E:2179:LEU:HD21	2.56	0.40
2:E:676:PHE:CD1	2:E:724:MET:HG2	2.57	0.40
2:E:1376:TRP:HA	2:E:1377:PRO:HD3	1.84	0.40
1:B:125:ASN:HA	1:B:154:THR:CG2	2.51	0.40
2:E:1322:LEU:HD12	2:E:1322:LEU:HA	1.90	0.40
2:E:1771:ARG:NE	2:E:1866:ARG:HH21	2.19	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	B	170/177 (96%)	161 (95%)	7 (4%)	2 (1%)	13	49
2	E	2238/2527 (89%)	2072 (93%)	164 (7%)	2 (0%)	51	85
All	All	2408/2704 (89%)	2233 (93%)	171 (7%)	4 (0%)	50	80

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	126	LYS
2	E	192	SER
1	B	127	CYS
2	E	216	LYS

### 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	B	84/157 (54%)	84 (100%)	0	100	100
2	E	1777/2281 (78%)	1768 (100%)	9 (0%)	88	93
All	All	1861/2438 (76%)	1852 (100%)	9 (0%)	89	93

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	E	22	ARG
2	E	184	LEU
2	E	200	VAL
2	E	1314	LYS
2	E	1328	LYS
2	E	1847	ARG
2	E	1918	ARG
2	E	2413	ARG
2	E	2478	LYS

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

Mol	Chain	Res	Type
2	E	224	HIS
2	E	367	GLN
2	E	444	ASN
2	E	1021	ASN
2	E	2113	GLN

### 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](#)

Of 4 ligands modelled in this entry, 1 is monoatomic - leaving 3 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
5	GDP	E	2601	-	24,30,30	0.94	1 (4%)	30,47,47	1.30	4 (13%)
6	ATP	E	2602	-	26,33,33	0.59	0	31,52,52	0.74	2 (6%)
4	GNP	B	202	3	29,34,34	1.42	7 (24%)	33,54,54	2.38	8 (24%)

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
5	GDP	E	2601	-	-	7/12/32/32	0/3/3/3
6	ATP	E	2602	-	-	7/18/38/38	0/3/3/3
4	GNP	B	202	3	1/1/7/8	5/14/38/38	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	202	GNP	C6-N1	3.89	1.39	1.33
4	B	202	GNP	PB-O2B	-2.61	1.49	1.56
4	B	202	GNP	PB-O1B	2.59	1.50	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	202	GNP	PG-O3G	-2.52	1.50	1.56
4	B	202	GNP	PG-O1G	2.42	1.50	1.46
5	E	2601	GDP	C6-N1	-2.41	1.34	1.37
4	B	202	GNP	PG-O2G	-2.36	1.50	1.56
4	B	202	GNP	C8-N7	-2.01	1.31	1.34

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	202	GNP	C5-C6-N1	-8.99	111.13	123.43
4	B	202	GNP	C2-N1-C6	5.94	125.37	115.93
4	B	202	GNP	O2B-PB-O1B	4.13	118.58	109.92
5	E	2601	GDP	C3'-C2'-C1'	3.45	106.17	100.98
5	E	2601	GDP	PA-O3A-PB	-3.30	121.52	132.83
4	B	202	GNP	C2-N3-C4	-2.96	111.97	115.36
4	B	202	GNP	O1B-PB-N3B	-2.85	107.58	111.77
4	B	202	GNP	N3-C2-N1	-2.69	123.63	127.22
4	B	202	GNP	O3G-PG-O1G	-2.56	107.03	113.45
5	E	2601	GDP	C8-N7-C5	2.34	107.45	102.99
5	E	2601	GDP	C5-C6-N1	2.29	118.00	113.95
6	E	2602	ATP	C5-C6-N6	2.28	123.81	120.35
4	B	202	GNP	O2G-PG-O1G	-2.10	108.16	113.45
6	E	2602	ATP	PB-O3B-PG	2.06	139.89	132.83

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	B	202	GNP	C3'

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	202	GNP	PB-N3B-PG-O1G
4	B	202	GNP	PG-N3B-PB-O1B
4	B	202	GNP	PA-O3A-PB-O1B
4	B	202	GNP	PA-O3A-PB-O2B
5	E	2601	GDP	C3'-C4'-C5'-O5'
6	E	2602	ATP	C5'-O5'-PA-O3A
5	E	2601	GDP	O4'-C4'-C5'-O5'
6	E	2602	ATP	O4'-C4'-C5'-O5'
6	E	2602	ATP	C3'-C4'-C5'-O5'
5	E	2601	GDP	C4'-C5'-O5'-PA

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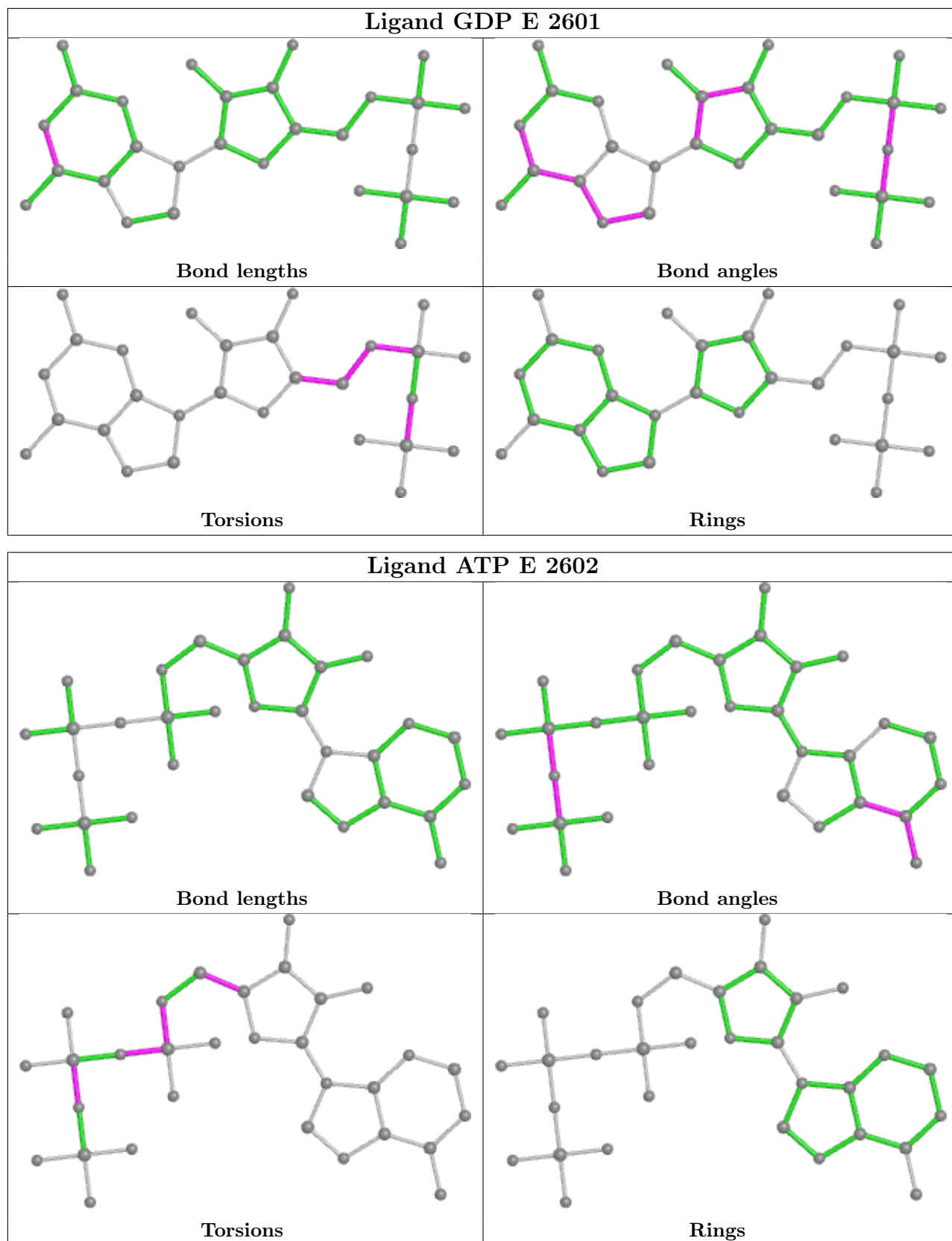
Mol	Chain	Res	Type	Atoms
6	E	2602	ATP	PB-O3A-PA-O2A
5	E	2601	GDP	PA-O3A-PB-O1B
5	E	2601	GDP	PA-O3A-PB-O2B
5	E	2601	GDP	PA-O3A-PB-O3B
5	E	2601	GDP	C5'-O5'-PA-O3A
4	B	202	GNP	O4'-C4'-C5'-O5'
6	E	2602	ATP	PG-O3B-PB-O2B
6	E	2602	ATP	PB-O3A-PA-O1A
6	E	2602	ATP	C5'-O5'-PA-O1A

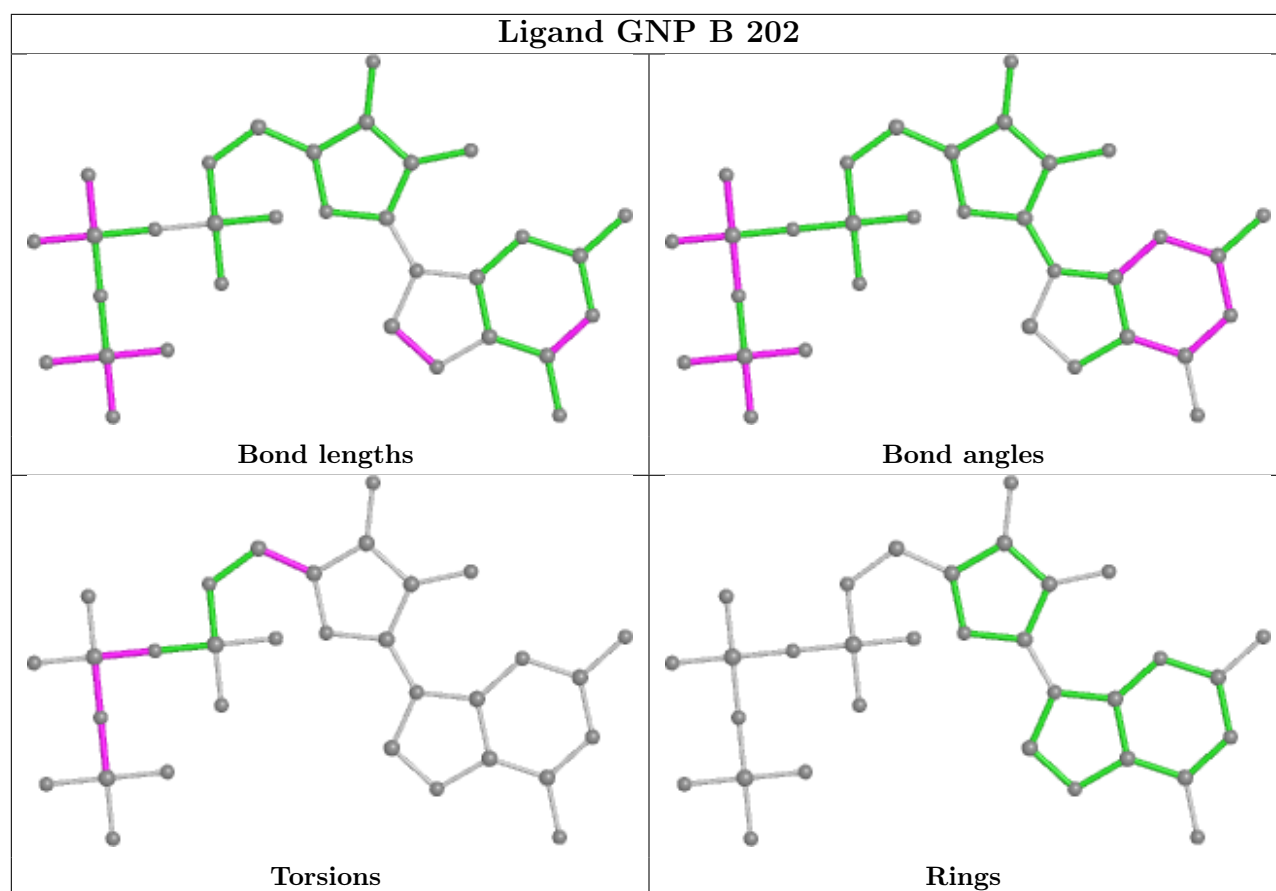
There are no ring outliers.

1 monomer is involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	202	GNP	5	0

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.



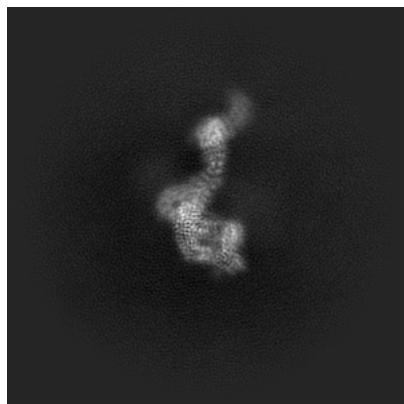
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29339. These allow visual inspection of the internal detail of the map and identification of artifacts.

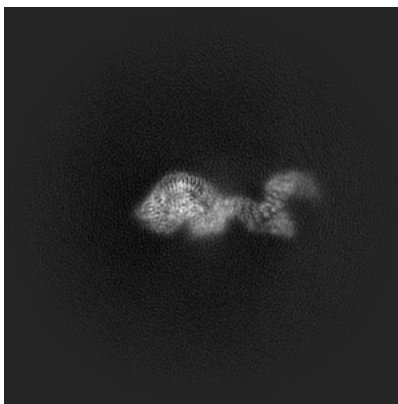
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

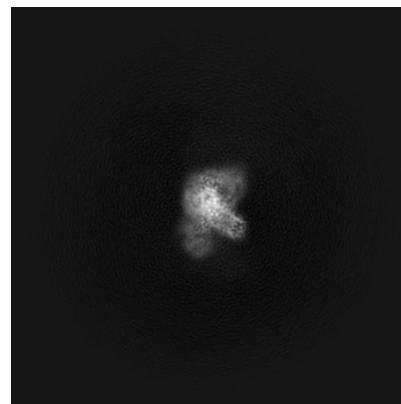
#### 6.1.1 Primary map



X

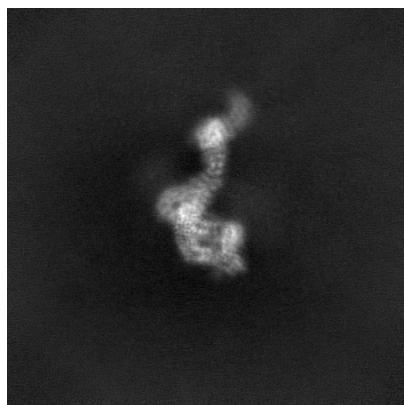


Y

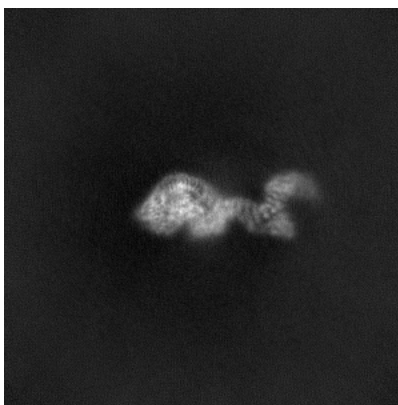


Z

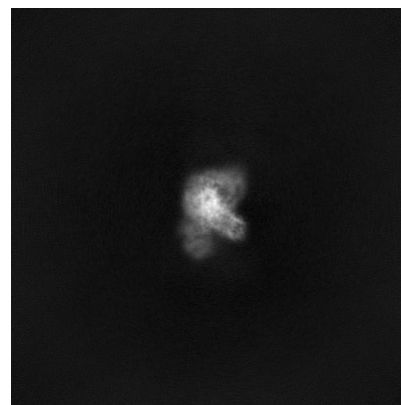
#### 6.1.2 Raw map



X



Y

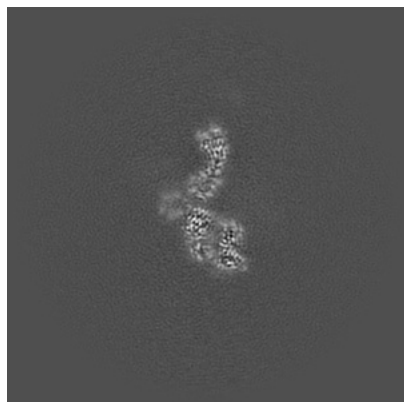


Z

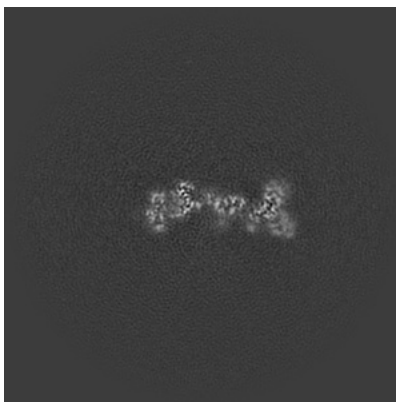
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

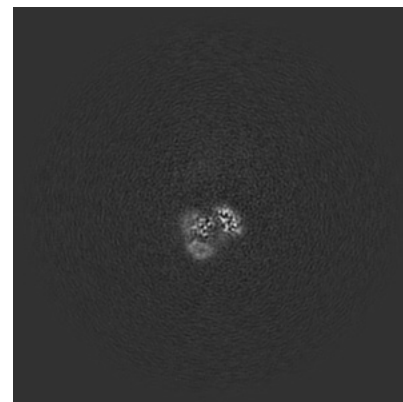
### 6.2.1 Primary map



X Index: 240

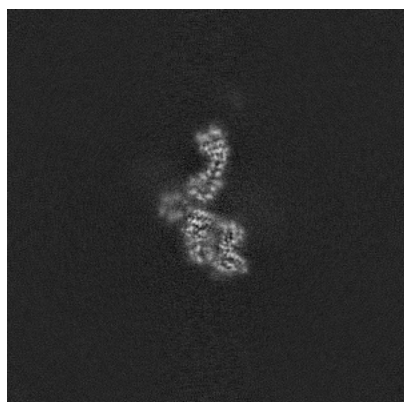


Y Index: 240

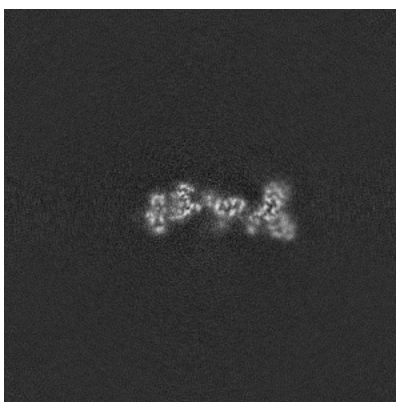


Z Index: 240

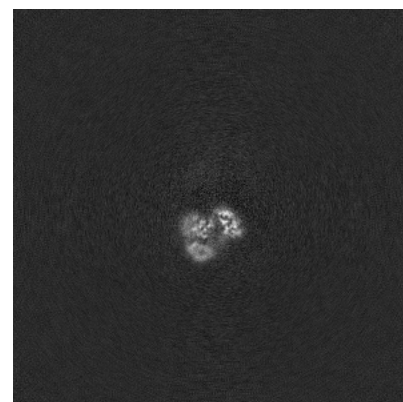
### 6.2.2 Raw map



X Index: 240



Y Index: 240



Z Index: 240

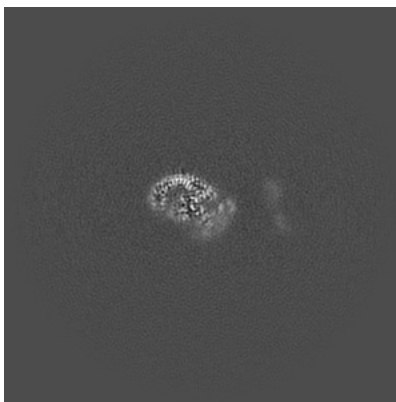
The images above show central slices of the map in three orthogonal directions.

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

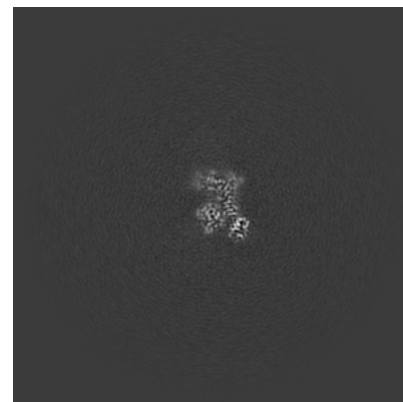
### 6.3.1 Primary map



X Index: 237

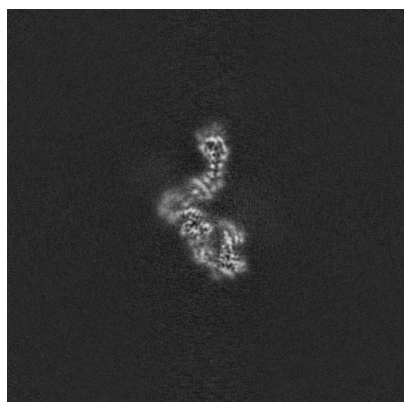


Y Index: 224

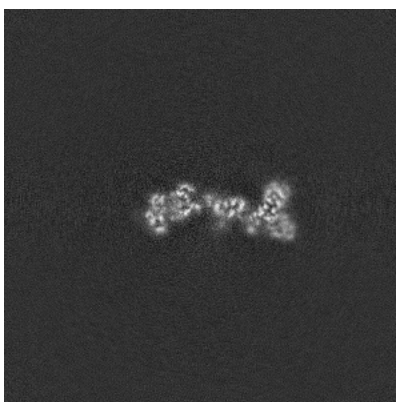


Z Index: 212

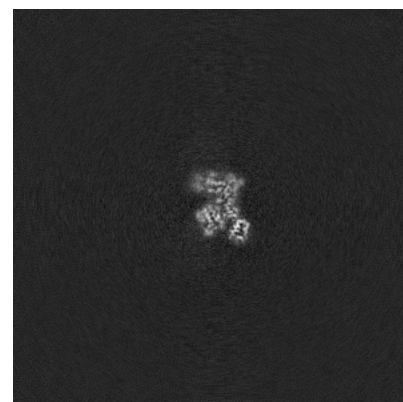
### 6.3.2 Raw map



X Index: 236



Y Index: 241

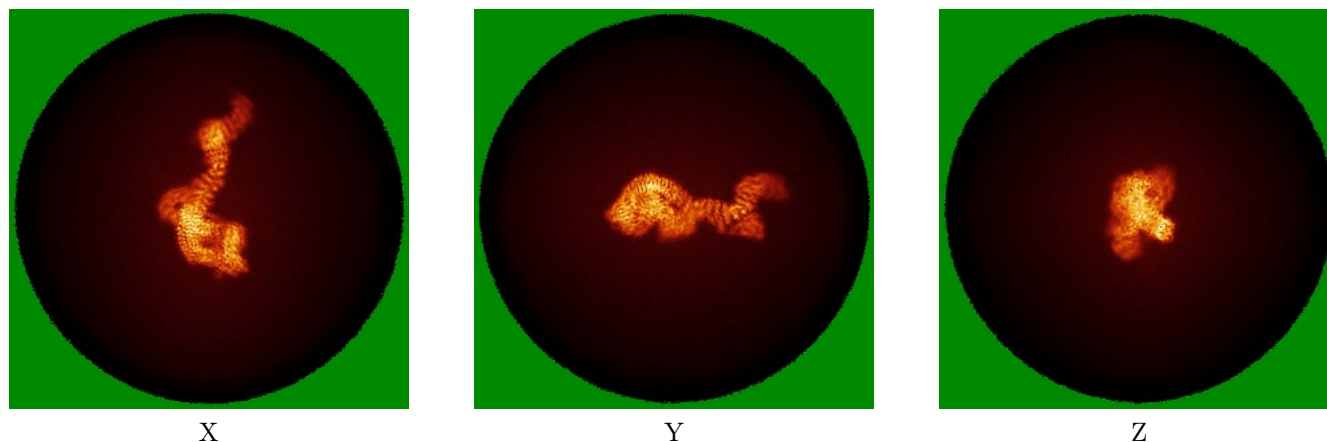


Z Index: 212

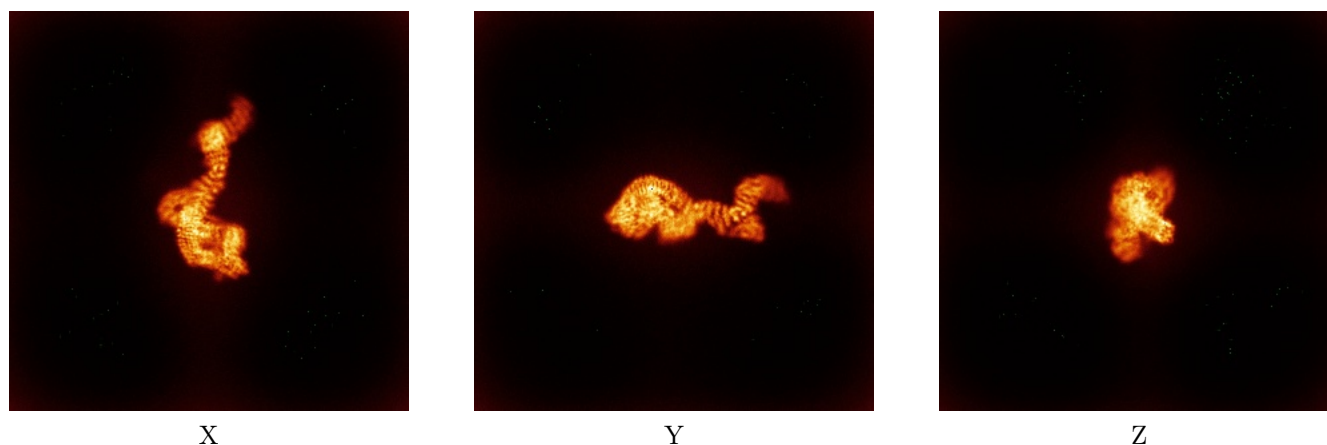
The images above show the largest variance slices of the map in three orthogonal directions.

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

### 6.4.1 Primary map



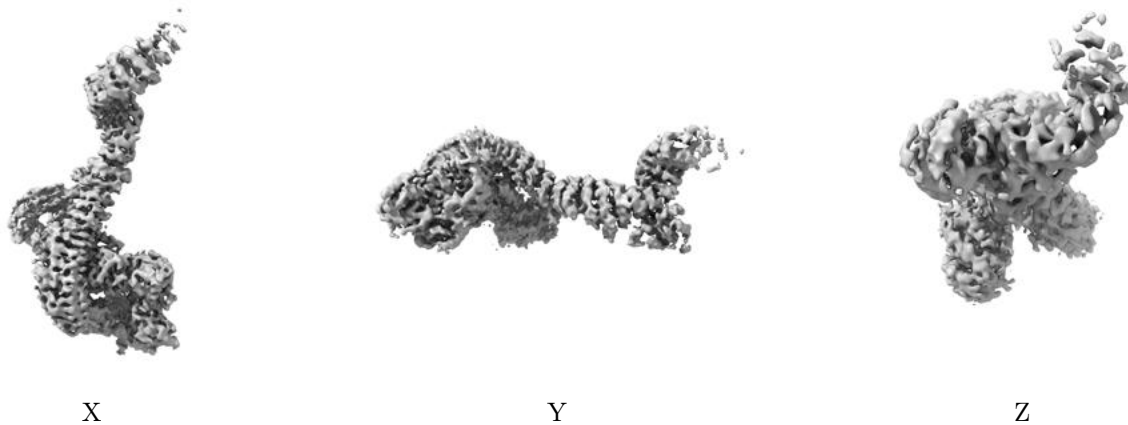
### 6.4.2 Raw map



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.

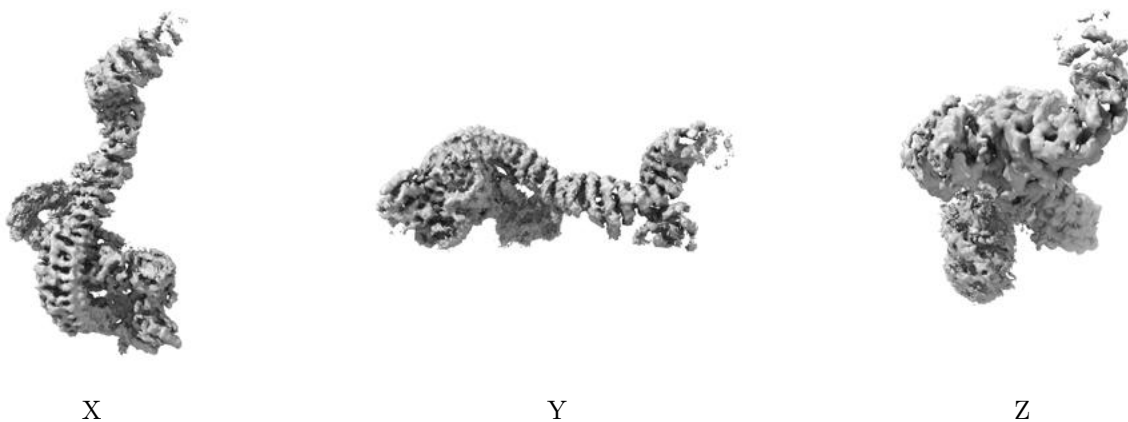
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.55. 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.

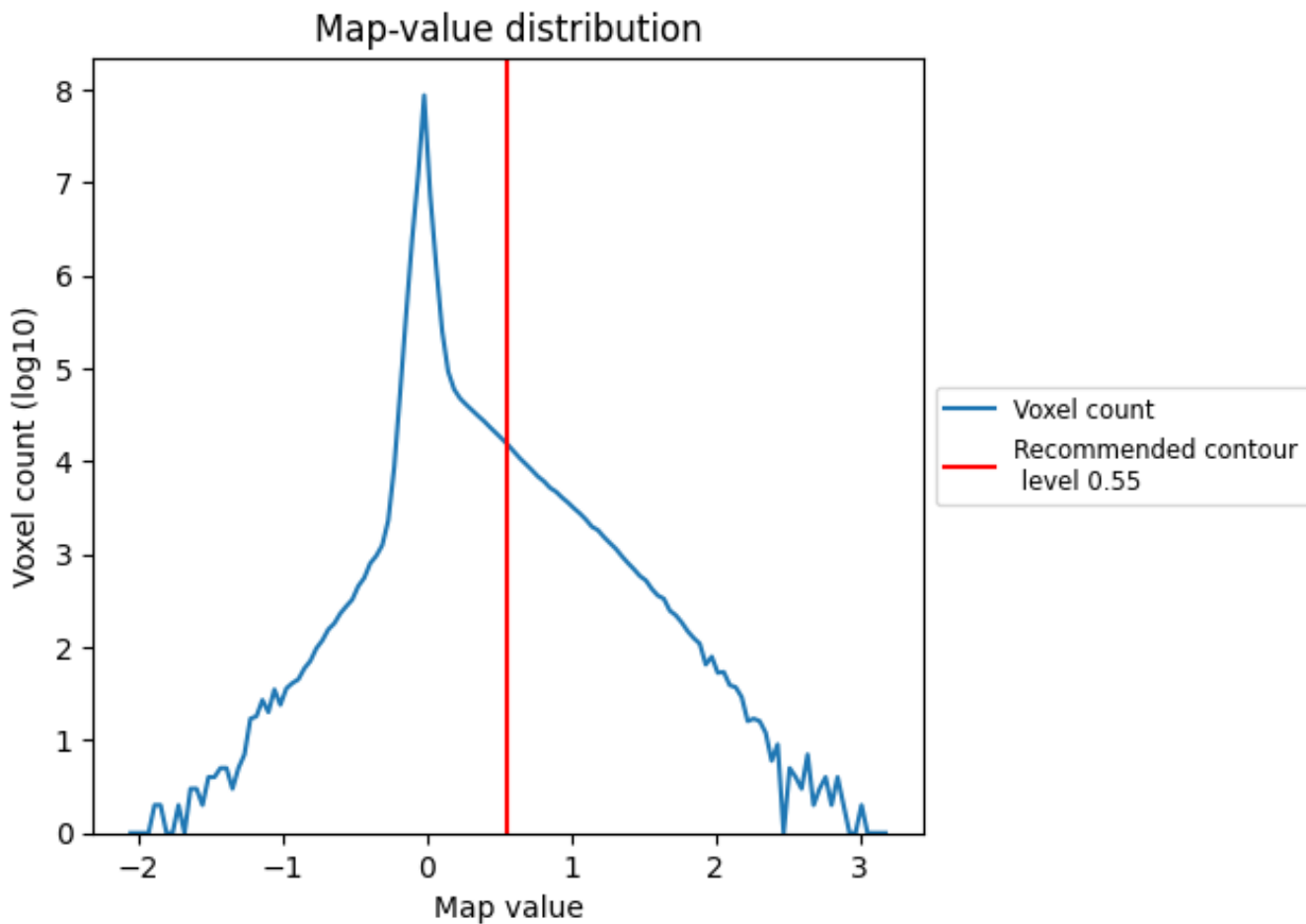
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

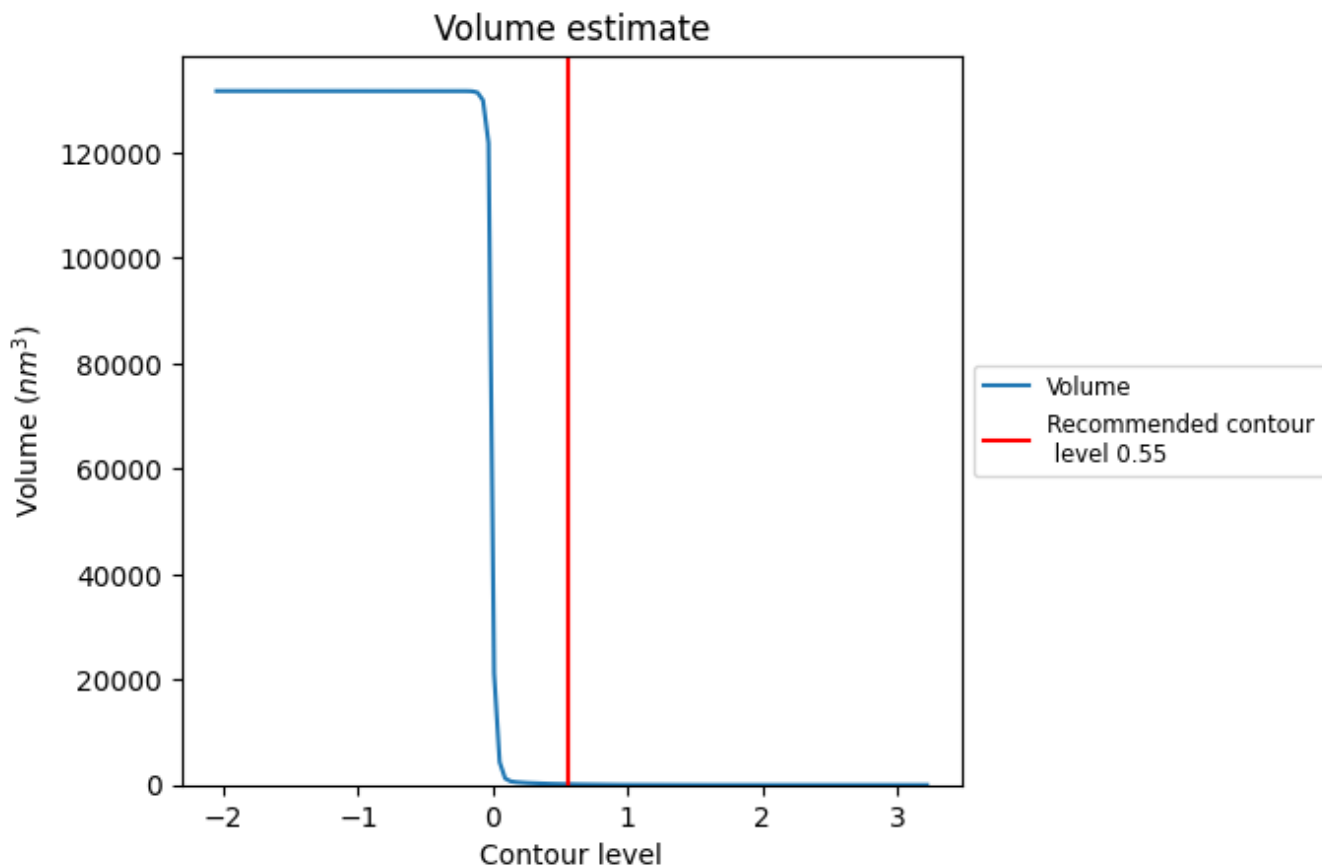
This section contains the results of statistical analysis of the map.

### 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.

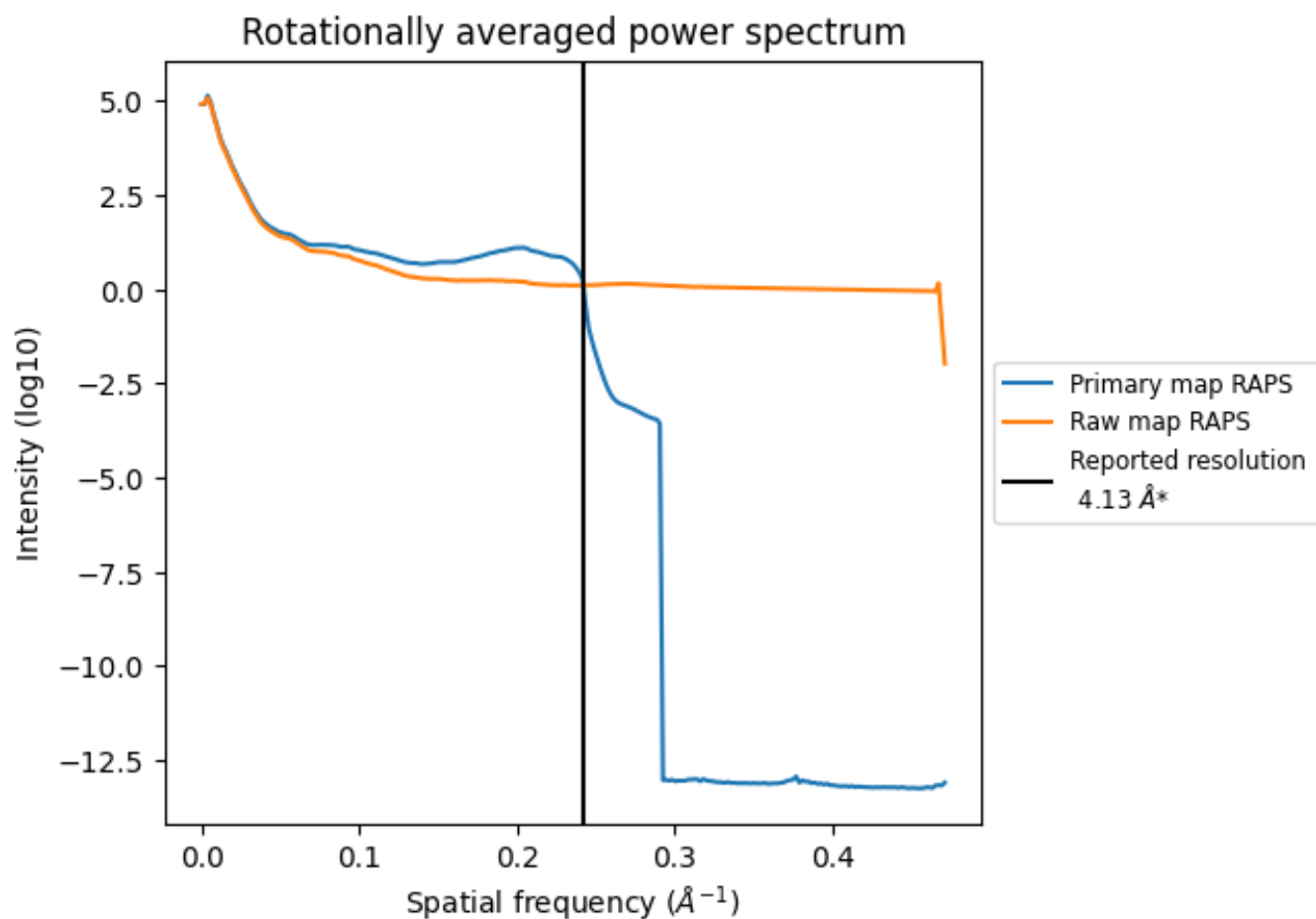
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 135 nm<sup>3</sup>; this corresponds to an approximate mass of 122 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](#)



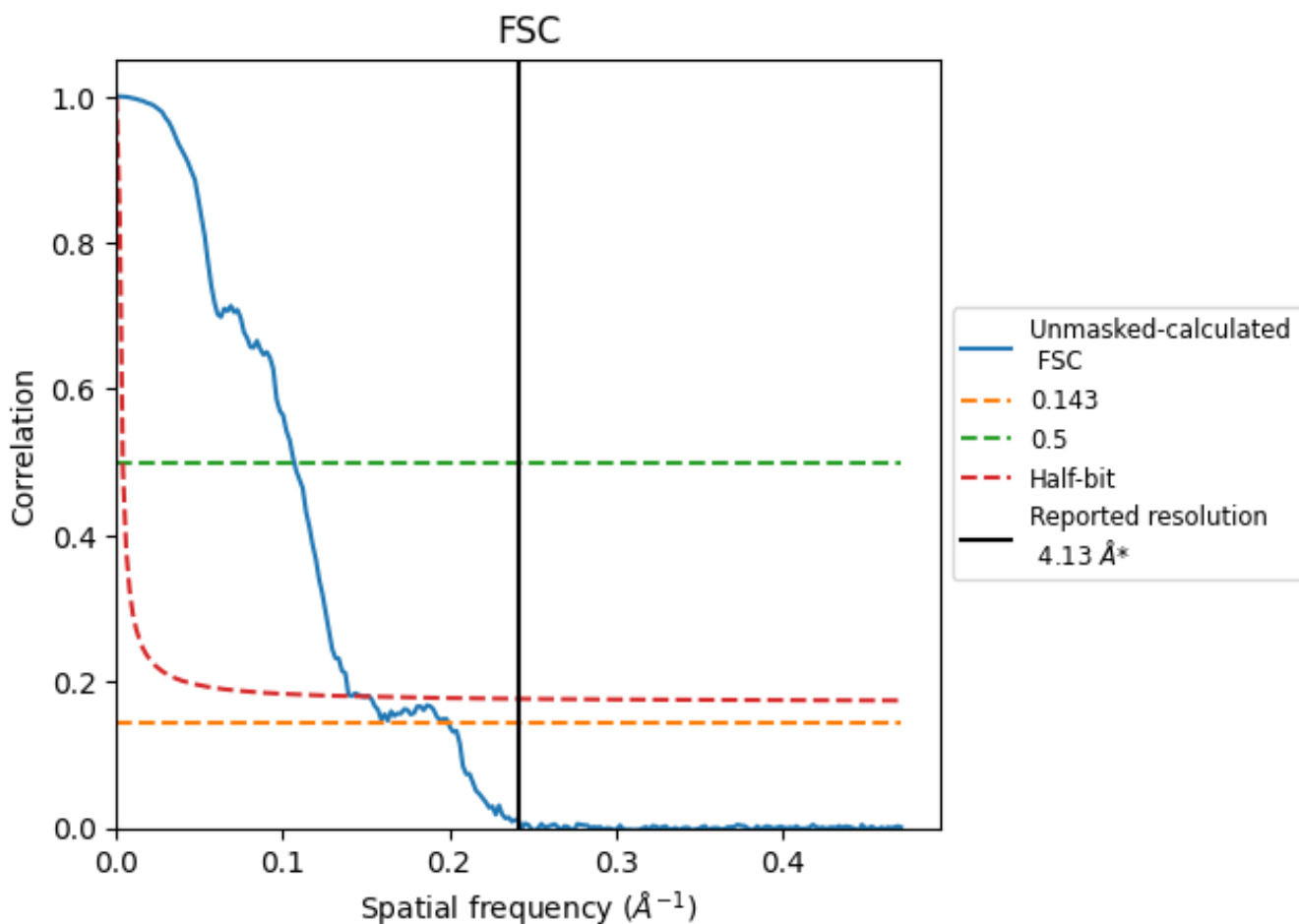
\*Reported resolution corresponds to spatial frequency of 0.242 Å<sup>-1</sup>



## 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 0.242 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

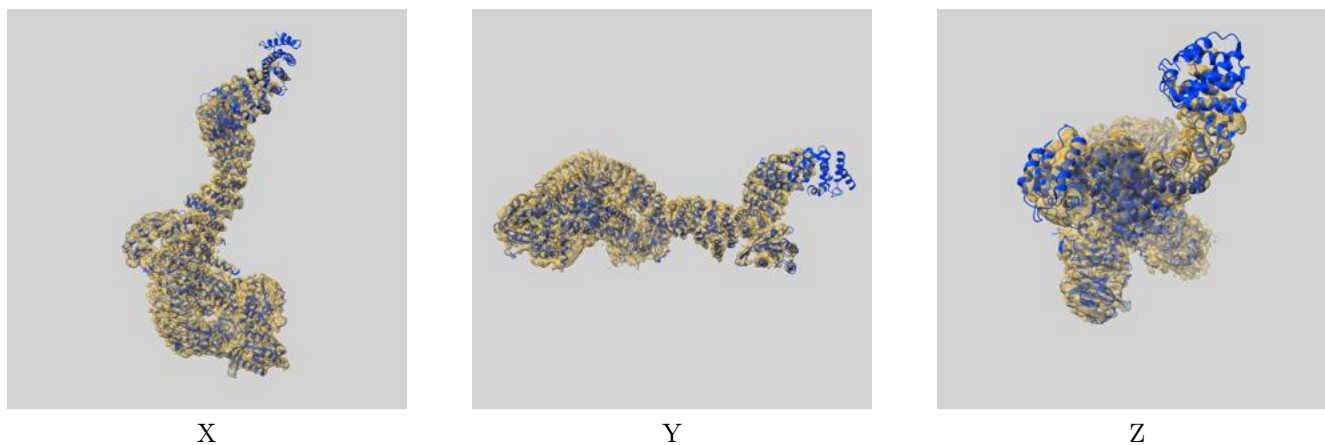
Resolution estimate (Å)	Estimation criterion (FSC cut-off)			
	0.143	0.5	Half-bit	Other
Reported by author	-	-	-	4.13
Author-provided FSC curve	-	-	-	-
Unmasked-calculated*	5.01	9.36	6.73	-

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

## 9 Map-model fit [i](#)

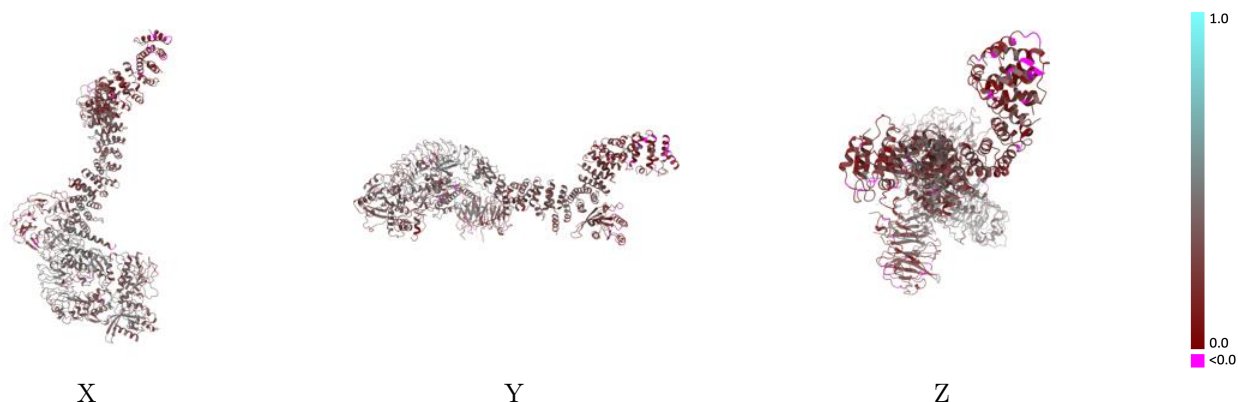
This section contains information regarding the fit between EMDB map EMD-29339 and PDB model 8FO2. Per-residue inclusion information can be found in section [3](#) on page [6](#).

### 9.1 Map-model overlay [i](#)



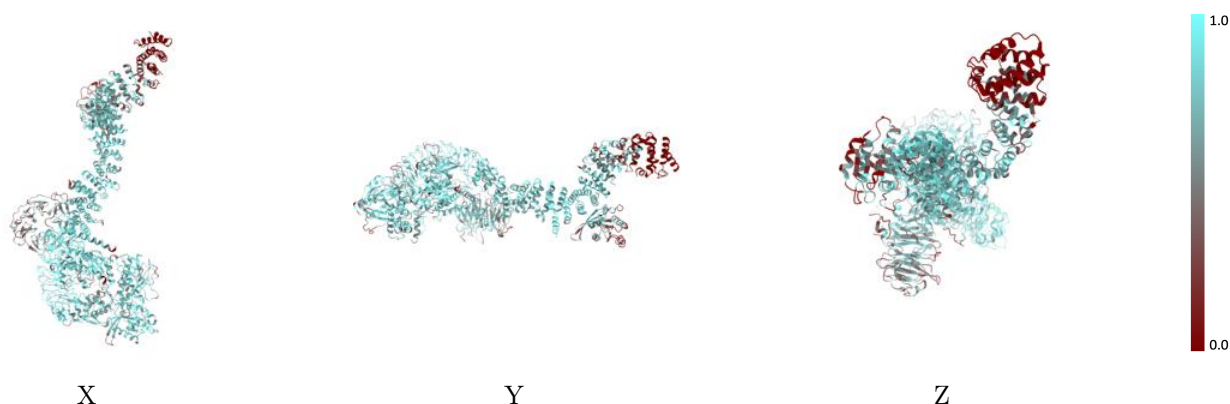
The images above show the 3D surface view of the map at the recommended contour level 0.55 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



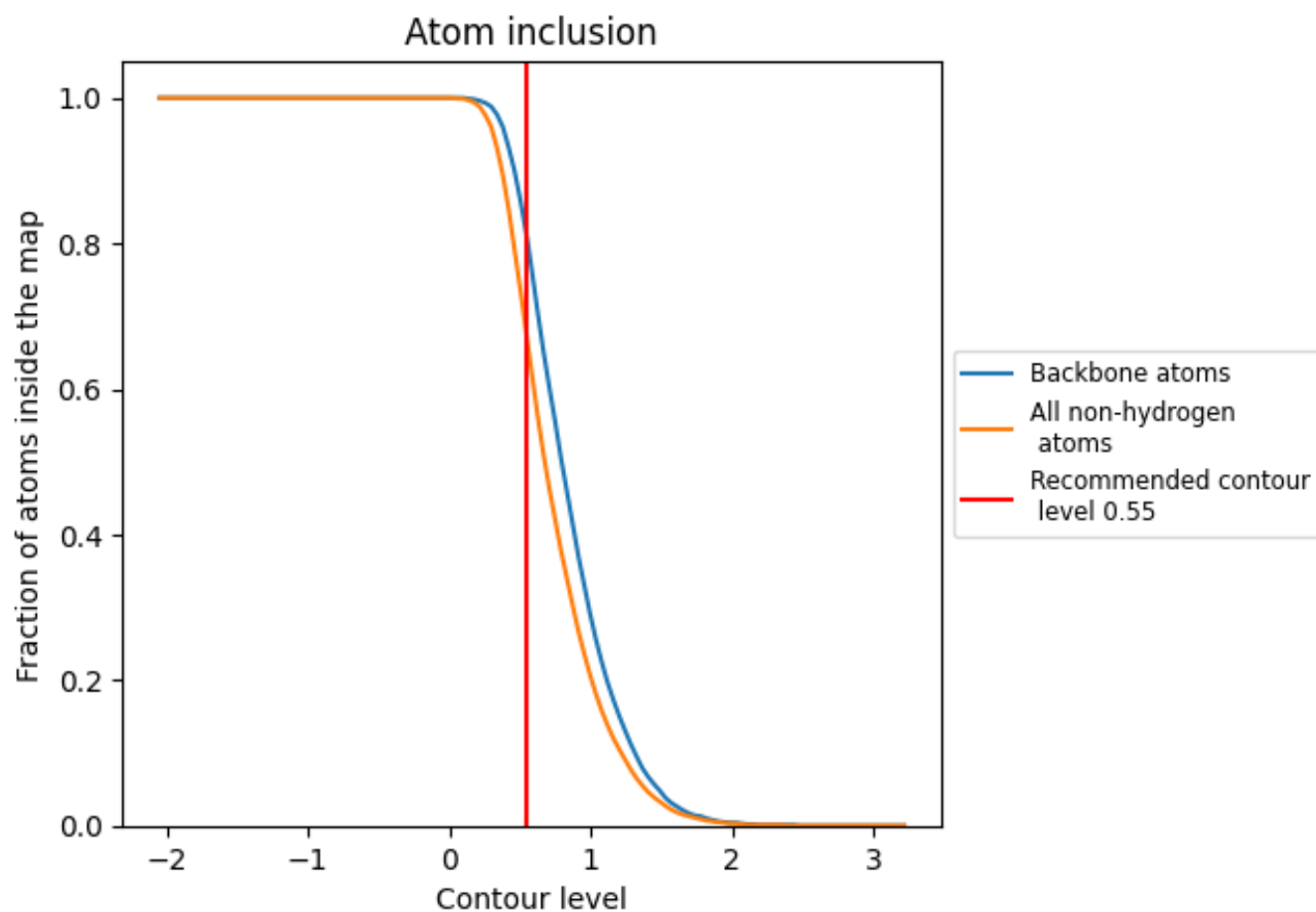
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.55).







## 9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 67% 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 (0.55) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6690	 0.3330
B	 0.4650	 0.2330
E	 0.6830	 0.3390

