



wwPDB EM Validation Summary Report ⓘ

Jan 20, 2026 – 01:40 PM EST

PDB ID : 9YND / pdb_00009ynd
EMDB ID : EMD-73174
Title : Motor domain of human dynein-1 in pre-power stroke bound to dynactin-p15
0glued-CC1B and LIS1
Authors : Yang, J.; Rao, Q.; Chai, P.; Zhang, K.
Deposited on : 2025-10-10
Resolution : 4.26 Å(reported)

This is a wwPDB EM Validation Summary 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:

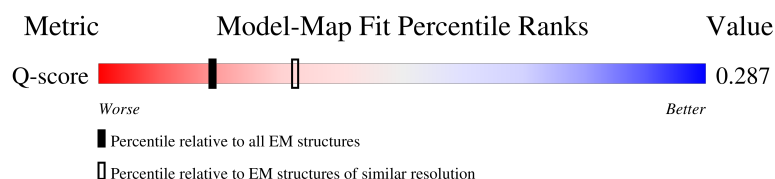
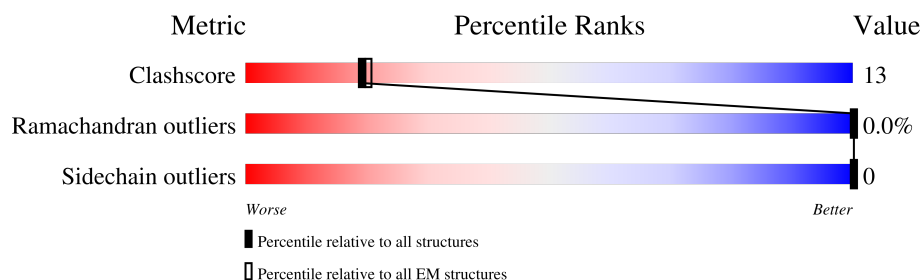
EMDB validation analysis : 0.0.1.dev129
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

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 4.26 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.



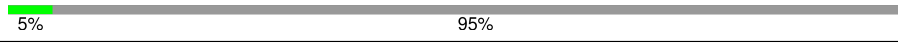
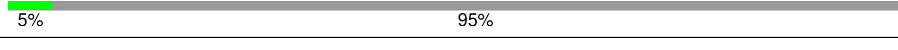
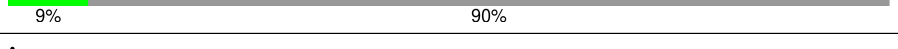
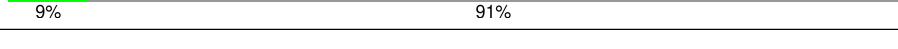
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	4601 (3.76 - 4.76)

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	4646	
2	B	410	
2	C	410	
2	D	410	

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Mol	Chain	Length	Quality of chain
2	E	410	 18%82%
3	F	638	 5%95%
3	G	638	 5%95%
4	H	1281	 9%90%
4	I	1281	 9%91%

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
5	ADP	A	4701	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 32118 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 Cytoplasmic dynein 1 heavy chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	3065	Total	C	N	O	S	0	0
			24658	15711	4260	4566	121		

- Molecule 2 is a protein called Platelet-activating factor acetylhydrolase IB subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	322	Total	C	N	O	S	0	0
			2557	1608	452	477	20		
2	C	313	Total	C	N	O	S	0	0
			2494	1571	440	463	20		
2	D	75	Total	C	N	O		0	0
			373	223	75	75			
2	E	75	Total	C	N	O		0	0
			373	223	75	75			

- Molecule 3 is a protein called Cytoplasmic dynein 1 intermediate chain 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	F	34	Total	C	N	O	0	0
			170	102	34	34		
3	G	34	Total	C	N	O	0	0
			170	102	34	34		

- Molecule 4 is a protein called Dynactin subunit 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	H	122	Total	C	N	O	0	0
			607	363	122	122		
4	I	120	Total	C	N	O	1	0
			602	360	121	121		

There are 56 discrepancies between the modelled and reference sequences:

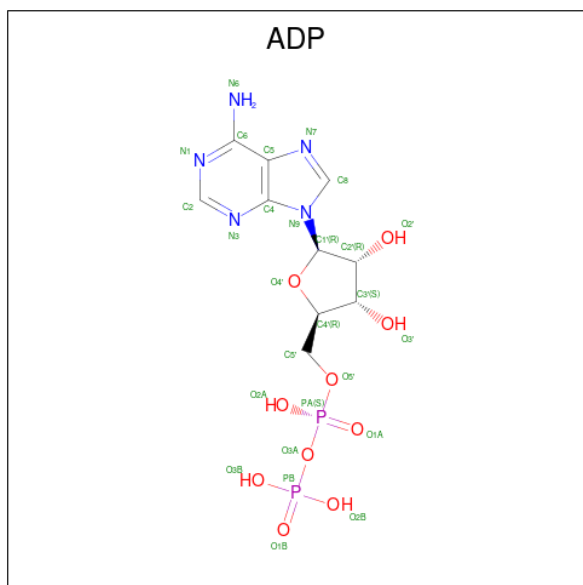
Chain	Residue	Modelled	Actual	Comment	Reference
H	118	ARG	LYS	conflict	UNP Q14203
H	124	SER	THR	conflict	UNP Q14203
H	125	ASN	THR	conflict	UNP Q14203
H	134	PRO	LEU	conflict	UNP Q14203
H	200	ALA	VAL	conflict	UNP Q14203
H	207	ALA	VAL	conflict	UNP Q14203
H	631	ASP	GLU	conflict	UNP Q14203
H	742	SER	CYS	conflict	UNP Q14203
H	778	SER	THR	conflict	UNP Q14203
H	821	ALA	PRO	conflict	UNP Q14203
H	862	PRO	LEU	conflict	UNP Q14203
H	1048	ILE	LEU	conflict	UNP Q14203
H	1072	GLY	ALA	conflict	UNP Q14203
H	1073	ALA	ILE	conflict	UNP Q14203
H	1080	ILE	SER	conflict	UNP Q14203
H	1113	VAL	ILE	conflict	UNP Q14203
H	1125	ALA	SER	conflict	UNP Q14203
H	1136	LEU	-	insertion	UNP Q14203
H	1137	PRO	-	insertion	UNP Q14203
H	1138	PRO	-	insertion	UNP Q14203
H	1147	ALA	PRO	conflict	UNP Q14203
H	1156	ASN	SER	conflict	UNP Q14203
H	1177	SER	THR	conflict	UNP Q14203
H	1189	LEU	MET	conflict	UNP Q14203
H	1193	THR	ALA	conflict	UNP Q14203
H	1202	ILE	VAL	conflict	UNP Q14203
H	1259	LEU	PHE	conflict	UNP Q14203
H	1277	ASP	SER	conflict	UNP Q14203
I	118	ARG	LYS	conflict	UNP Q14203
I	124	SER	THR	conflict	UNP Q14203
I	125	ASN	THR	conflict	UNP Q14203
I	134	PRO	LEU	conflict	UNP Q14203
I	200	ALA	VAL	conflict	UNP Q14203
I	207	ALA	VAL	conflict	UNP Q14203
I	631	ASP	GLU	conflict	UNP Q14203
I	742	SER	CYS	conflict	UNP Q14203
I	778	SER	THR	conflict	UNP Q14203
I	821	ALA	PRO	conflict	UNP Q14203
I	862	PRO	LEU	conflict	UNP Q14203
I	1048	ILE	LEU	conflict	UNP Q14203
I	1072	GLY	ALA	conflict	UNP Q14203
I	1073	ALA	ILE	conflict	UNP Q14203
I	1080	ILE	SER	conflict	UNP Q14203

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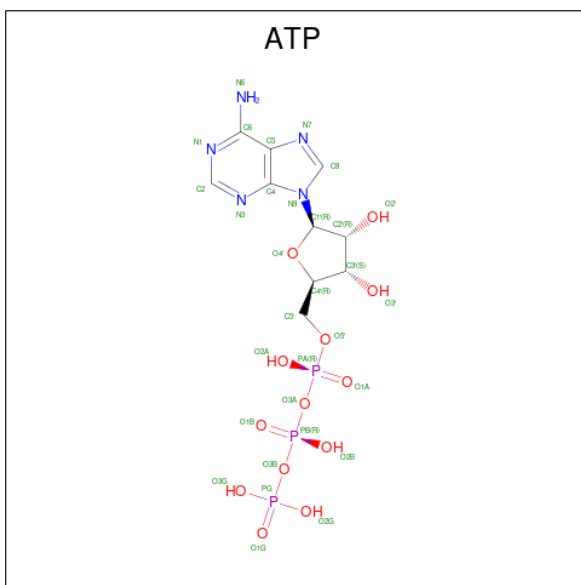
Chain	Residue	Modelled	Actual	Comment	Reference
I	1113	VAL	ILE	conflict	UNP Q14203
I	1125	ALA	SER	conflict	UNP Q14203
I	1136	LEU	-	insertion	UNP Q14203
I	1137	PRO	-	insertion	UNP Q14203
I	1138	PRO	-	insertion	UNP Q14203
I	1147	ALA	PRO	conflict	UNP Q14203
I	1156	ASN	SER	conflict	UNP Q14203
I	1177	SER	THR	conflict	UNP Q14203
I	1189	LEU	MET	conflict	UNP Q14203
I	1193	THR	ALA	conflict	UNP Q14203
I	1202	ILE	VAL	conflict	UNP Q14203
I	1259	LEU	PHE	conflict	UNP Q14203
I	1277	ASP	SER	conflict	UNP Q14203

- Molecule 5 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
5	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
5	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
5	A	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 6 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



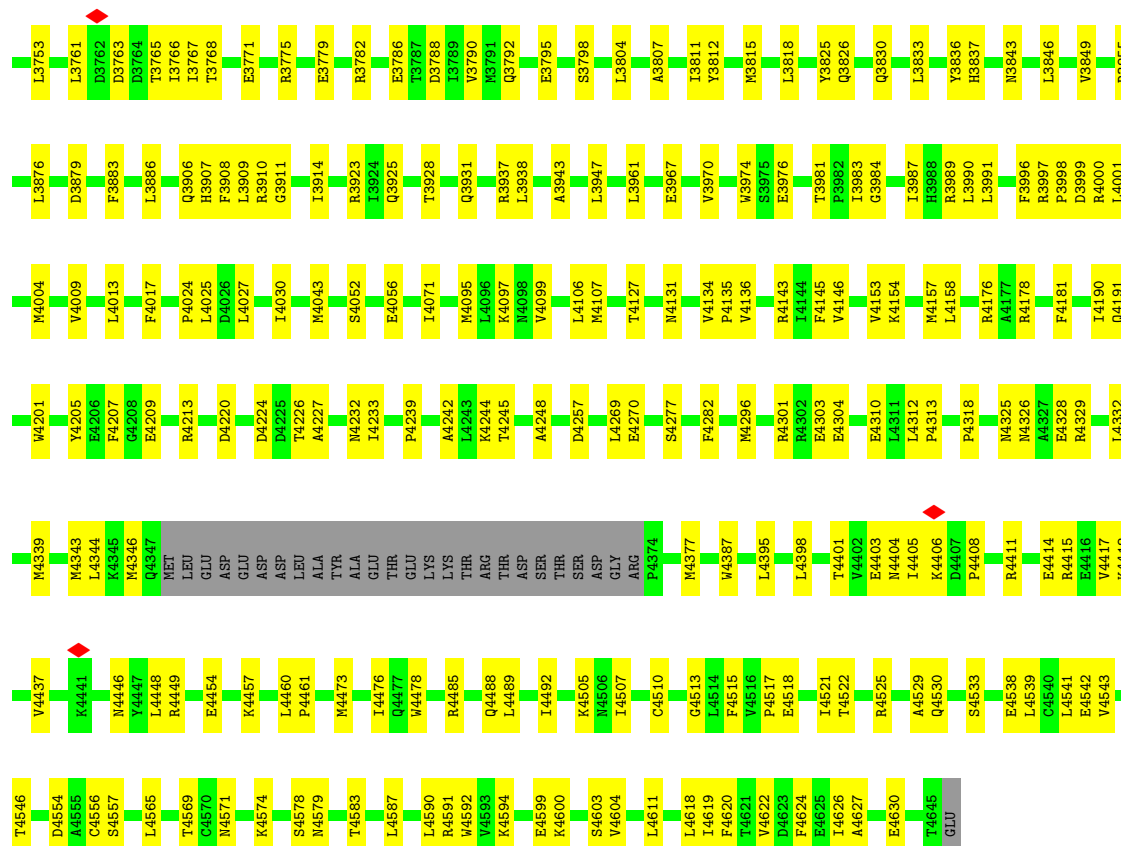
Mol	Chain	Residues	Atoms					AltConf
6	A	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 7 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

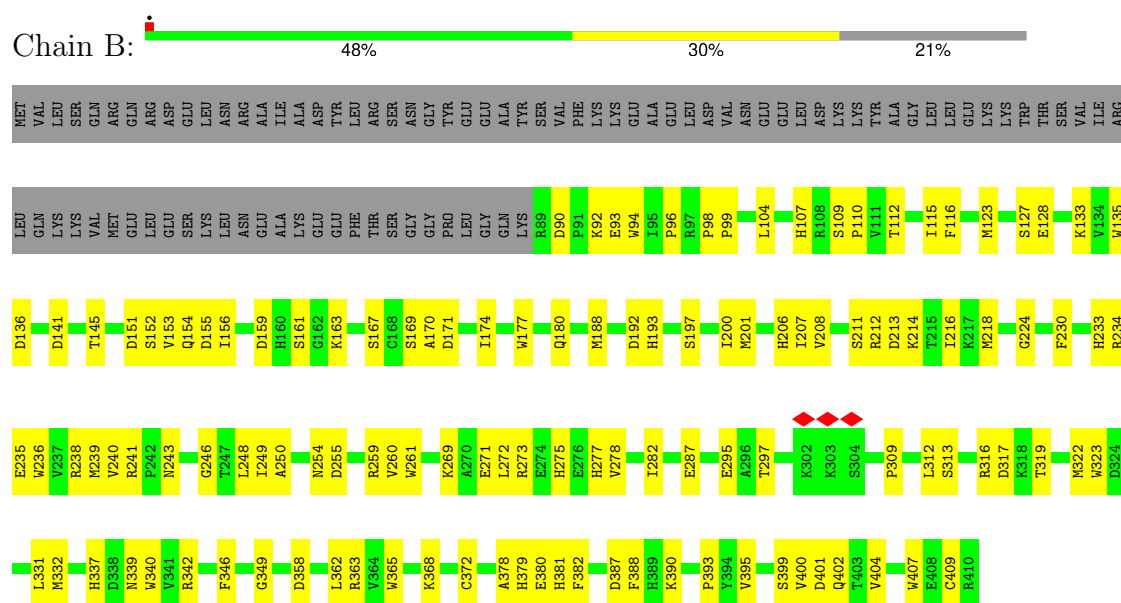
Mol	Chain	Residues	Atoms	AltConf
7	A	2	Total Mg 2 2	0

F2072	R1962	M1867	E1700	N1593	C1484	K1395	VAL	TRP	ARG	GLU	ALA	ASN	GLU	ASN	PHE
F2073	L1963	Y1868	W1701	I1594	R1485	I1396	ALA	GLU	PHE	PHE	LEU	LEU	LEU	LYS	ASN
R2074	E1964	L1873	E1708	I1594	L1486	L1399	LEU	THR	THR	THR	THR	THR	THR	GLN	PHE
L2075	E1965	L1873	E1708	I1594	L1486	L1399	GLU	LYS	LYS	GLN	GLN	MET	GLY	LYS	GLY
R2077	L1968	Y1880	K1715	V1597	D1491	L1403	LEU	PRO	PRO	ILE	ILE	MET	PRO	ASN	LYS
E2078	Q1974	Q1881	E1723	L1601	D1492	K1404	GLN	VAL	TRP	SER	VAL	GLN	VAL	ILE	VAL
Q2079	P1883	T1882	E1723	E1620	L1493	S1405	ASP	THR	TRP	LYS	LYS	ASP	ASP	GLY	ASP
L2080	C1977	P1883	I1739	E1620	F1494	E1406	LEU	THR	LYS	SER	ALA	GLY	GLY	ILE	ASP
S2081	I1978	D1886	T1740	R1623	N1495	A1407	LYS	ASN	TYR	GLN	ARG	VAL	VAL	LEU	LEU
R2091	L1982	Y1889	W1741	R1623	K1498	L1408	VAL	ARG	ASP	GLU	THR	ALA	ASN	GLY	ILE
E2092	L1982	Y1889	I1742	P1627	E1499	K1409	TRP	PRO	ASN	LEU	ASP	PHE	VAL	VAL	ILE
L2093	D1991	M1892	Q1746	R1628	H1500	D1410	SER	GLU	ILE	GLU	ASP	GLU	PRO	ARG	GLU
K2094	K1992	H1892	A1747	F1629	V1504	R1411	GLU	GLU	GLY	GLN	ASN	GLU	ILE	LEU	LYS
S2095	T1993	R1899	Q1748	D1634	W1413	H1412	LEU	ALA	GLY	HIS	ALA	SER	GLY	GLY	LYS
L2097	S1994	P1904	L1749	E1635	M1507	K1414	LYS	GLN	ASP	THR	THR	GLY	GLY	ALA	ILE
W2098	F1905	F1905	L1782	D1636	K1508	Q1415	VAL	VAL	GLY	ASP	LYS	ALA	LEU	LEU	ASP
S2099	L2001	F1905	L1782	D1636	K1508	Q1415	TRP	THR	ALA	THR	LYS	VAL	ARG	LEU	GLY
N2102	L2002	A1908	E1763	E1639	Y1512	M1417	GLU	THR	PHE	ALA	LYS	VAL	VAL	ARG	VAL
R2105	N2003	G1911	S1767	I1650	Y1513	K1418	GLN	ILE	ASN	THR	PHE	GLY	GLY	ALA	GLU
E2106	K2004	T1913	A1776	H1653	R1523	R1419	MET	LYS	ARG	ALA	ILE	VAL	VAL	THR	ARG
R2107	D2011	E1914	H1779	M1657	R1529	V1426	LYS	PHE	ARG	VAL	ILE	GLY	GLY	GLY	THR
E2120	L2016	K1917	H1779	M1657	R1529	V1426	GLY	THR	LYS	VAL	ASP	THR	THR	ALA	GLY
D2123	T2017	A1918	M1798	V1661	A1532	S1427	LEU	ARG	ASP	PHE	ASP	GLN	TRP	ALA	ALA
E2126	M2018	L1919	E1798	E1668	L1533	E1428	THR	THR	LYS	ILE	GLY	LYS	TRP	LYS	GLY
L2127	P2020	G1920	Q1800	I1664	F1534	E1428	LYS	LYS	ALA	THR	VAL	VAL	MET	VAL	ASP
A2128	G2021	H1921	Q1800	I1664	F1534	E1428	ASP	ASP	ILE	THR	GLN	GLN	VAL	VAL	LYS
E2129	Y2022	H1921	Q1800	I1664	F1534	E1428	ASP	ASP	ILE	THR	GLN	GLN	VAL	VAL	LYS
Q2139	R2025	R1925	R1804	D1668	V1540	W1435	LEU	GLY	LYS	LEU	TRP	TRP	LEU	VAL	ALA
C2142	S2026	F1926	R1805	E1669	Q1541	W1435	GLN	GLN	LYS	SER	LEU	LEU	SER	GLY	GLY
V2146	N2027	V1927	E1809	D1669	Q1541	W1435	ASN	CYS	ASN	LYS	ASN	TYR	PRO	ASP	ILE
P2147	L2028	F1927	H1817	N1670	R1543	L1439	LEU	LYS	LEU	ILE	LEU	GLN	ARG	MET	LEU
K2148	N2031	N1931	S1824	V1672	Y1546	M1442	ALA	LYS	LYS	ILE	TYR	CTR	ILE	ASP	ASP
L2149	D1933	D1933	S1824	V1673	Y1546	M1442	ALA	LYS	LYS	ILE	TYR	CTR	ILE	ASP	ASP
D2153	N2034	F1936	K1827	I1676	S1554	V1446	VAL	ALA	LYS	PHE	TRP	MET	ARG	PRO	ALA
L2157	K2034	D1937	F1836	R1679	I1557	V1449	GLY	GLU	VAL	GLY	LYS	GLN	GLN	VAL	VAL
R2172	A2040	F1938	L1839	E1680	K1558	L1450	GLN	GLU	GLY	GLY	GLY	GLY	VAL	SER	ASP
G2173	L2048	Q1939	L1839	G1681	L1451	L1451	VAL	ASP	ASP	VAL	VAL	ASN	GLY	HIS	ASP
E2174	I2049	A1940	R1843	E1682	L1561	Y1452	GLY	ARG	ARG	GLY	LEU	ILE	VAL	LYS	LEU
R2172	M2053	M1941	R1843	F1686	E1564	Q1454	ALA	VAL	VAL	THR	LEU	TYR	HIS	PRO	ASN
G2173	L2054	G1942	Q1850	K1687	E1564	Q1454	VAL	GLY	VAL	ARG	THR	ASN	GLY	GLY	LEU
E2174	R1943	R1943	Q1850	T1688	L1576	E1456	GLY	LEU	GLY	ARG	THR	ARG	THR	GLY	HIS
Y2190	L1948	L1948	Q1856	S1691	M1579	T1466	SER	LEU	GLY	GLY	THR	GLY	GLY	GLY	GLY
E2197	C1949	C1949	L1857	S1691	M1579	T1466	THR	SER	THR	GLY	THR	GLY	GLY	GLY	GLY
Y2211	Q1950	Q1950	L1857	S1691	M1579	T1466	THR	SER	THR	GLY	THR	GLY	GLY	GLY	GLY
E2197	D1958	D1958	Q1860	E1694	K1580	R1467	ASP	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
Y2211	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY	THR	ARG	LEU	ASP	GLY	LEU	LEU
E2197	N2067	E1959	M1861	E1694	K1580	R1467	LEU	GLY							

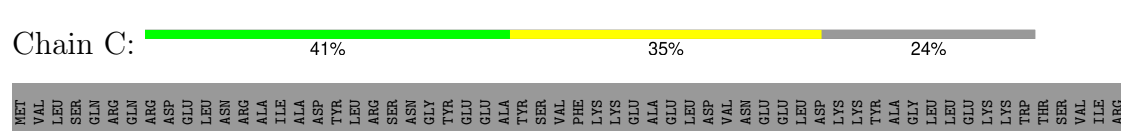
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V3638	T3502	LYS	GLU	L3233	M3126	M3127	R3007	E2903	R2797	L2659	W2548	ARG	E2310	W2222
E3639	GLU	ILE	SER	M3233	P3127	P3128	M3008	E2903	M2799	V2660	W2548	ARG	W2311	W2223
S3510	ASP	LYS	ASP	K3239	V3129	V3130	L3012	V2910	T2800	D2664	E2556	LYS	E2313	S2228
Y3641	ASP	GLN	ALA	L3240	V3131	V3132	A3013	V2915	R2804	W2667	E2557	GLY	W2314	G2229
D3642	ASP	ILE	ILE	M3243	K3131	L3133	V3017	L2922	G2805	L2668	V2561	LYS	L2315	K2230
L3645	ASP	ARG	ARG	D3246	K3132	L3133	L3020	R2927	L2806	P2669	H2560	ASP	L2319	K2232
L3649	ASP	LYS	VAL	Q3247	L3134	L3135	L3020	R2927	L2813	V2679	K2561	GLY	N2322	R2235
L3653	LYS	LYS	VAL	Q3248	Q3135	Q3136	E3035	L2933	L2816	T2683	E2562	GLY	T2326	V2236
R3654	SER	SER	SER	Q3249	P3137	P3137	A3037	L2934	P2817	R2684	E2563	GLU	L2327	L2237
R3655	MET	MET	MET	A3250	R3140	R3140	K3038	T2944	G2820	E2688	V2568	ALA	E2242	E2242
R3656	ASN	ASN	ASN	E3251	L3143	L3143	K3039	T2945	R2823	R2694	V2569	ALA	E2248	E2248
G3657	PRO	PRO	PRO	K3252	V3144	V3145	L3042	L2946	L2824	R2694	D2573	ALA	T2254	T2254
V3660	ALA	ALA	ALA	L3253	M3145	M3145	M3043	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3661	ILE	ILE	ILE	L3254	V3146	V3146	L3044	L2946	L2824	R2694	D2573	ALA	T2254	T2254
G3665	ARG	ARG	ARG	L3255	V3147	V3147	L3044	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3679	LYS	LYS	LYS	L3256	V3148	V3148	E3049	L2946	L2824	R2694	D2573	ALA	T2254	T2254
S3680	GLU	GLU	GLU	L3257	V3149	V3149	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
T3681	ILE	ILE	ILE	L3258	V3150	V3150	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
E3687	ASN	ASN	ASN	L3259	V3151	V3151	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
S3694	LYS	LYS	LYS	L3260	V3152	V3152	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
N3700	GLU	GLU	GLU	L3261	V3153	V3153	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
E3715	LYS	LYS	LYS	L3262	V3154	V3154	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
V3716	GLU	GLU	GLU	L3263	V3155	V3155	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3717	ILE	ILE	ILE	L3264	V3156	V3156	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
K3718	LYS	LYS	LYS	L3265	V3157	V3157	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
A3719	ASP	ASP	ASP	L3266	V3158	V3158	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
D3723	TRP	TRP	TRP	L3267	V3159	V3159	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
V3724	ALA	ALA	ALA	L3268	V3160	V3160	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
R3725	ILE	ILE	ILE	L3269	V3161	V3161	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
E3726	GLN	GLN	GLN	L3270	V3162	V3162	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
K3727	LEU	LEU	LEU	L3271	V3163	V3163	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3731	ASN	ASN	ASN	L3272	V3164	V3164	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3732	TYR	TYR	TYR	L3273	V3165	V3165	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
K3733	ALA	ALA	ALA	L3274	V3166	V3166	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3734	GLN	GLN	GLN	L3275	V3167	V3167	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
Q3735	SER	SER	SER	L3276	V3168	V3168	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
G3736	ILE	ILE	ILE	L3277	V3169	V3169	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
E3737	LEU	LEU	LEU	L3278	V3170	V3170	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
A3740	ASN	ASN	ASN	L3279	V3171	V3171	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
R3741	GLU	GLU	GLU	L3280	V3172	V3172	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3742	VAL	VAL	VAL	L3281	V3173	V3173	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
G3743	THR	THR	THR	L3282	V3174	V3174	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
Q3744	ILE	ILE	ILE	L3283	V3175	V3175	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
L3745	VAL	VAL	VAL	L3284	V3176	V3176	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3285	V3177	V3177	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3286	V3178	V3178	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3287	V3179	V3179	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3288	V3180	V3180	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3289	V3181	V3181	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3290	V3182	V3182	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3291	V3183	V3183	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3292	V3184	V3184	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3293	V3185	V3185	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3294	V3186	V3186	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3295	V3187	V3187	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3296	V3188	V3188	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3297	V3189	V3189	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3298	V3190	V3190	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3299	V3191	V3191	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3300	V3192	V3192	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3301	V3193	V3193	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3302	V3194	V3194	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3303	V3195	V3195	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3304	V3196	V3196	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3305	V3197	V3197	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3306	V3198	V3198	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3307	V3199	V3199	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3308	V3200	V3200	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3309	V3201	V3201	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3310	V3202	V3202	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3311	V3203	V3203	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3312	V3204	V3204	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3313	V3205	V3205	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3314	V3206	V3206	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3315	V3207	V3207	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3316	V3208	V3208	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3317	V3209	V3209	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3318	V3210	V3210	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3319	V3211	V3211	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3320	V3212	V3212	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3321	V3213	V3213	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3322	V3214	V3214	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3323	V3215	V3215	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3324	V3216	V3216	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3325	V3217	V3217	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3326	V3218	V3218	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3327	V3219	V3219	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3328	V3220	V3220	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3329	V3221	V3221	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3330	V3222	V3222	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
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				L3335	V3227	V3227	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3336	V3228	V3228	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3337	V3229	V3229	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3338	V3230	V3230	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3339	V3231	V3231	L3050	L2946	L2824	R2694	D2573	ALA	T2254	T2254
				L3340	V3232	V3232	L3050	L2946	L2824					

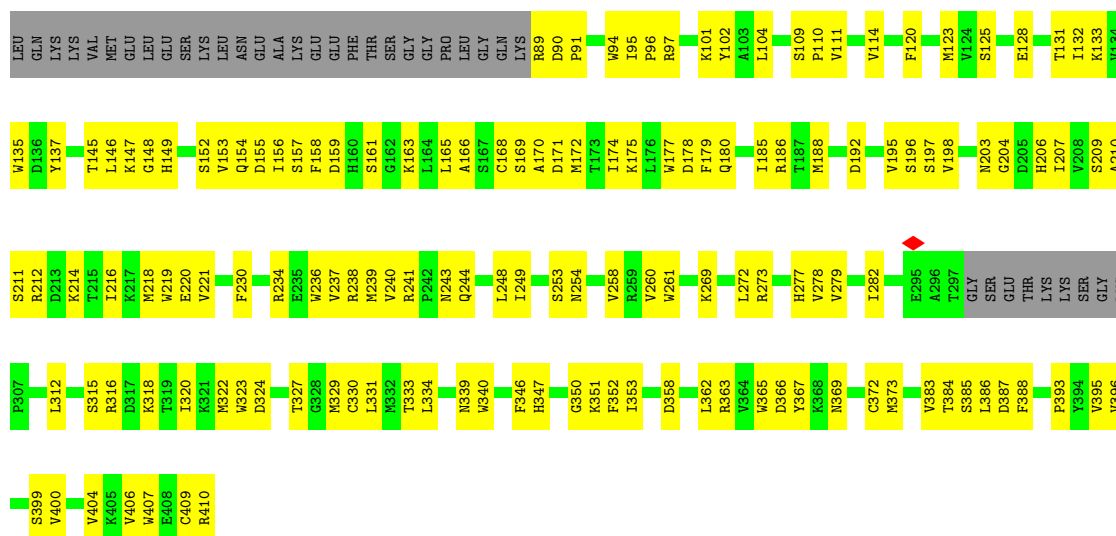


• Molecule 2: Platelet-activating factor acetylhydrolase IB subunit beta

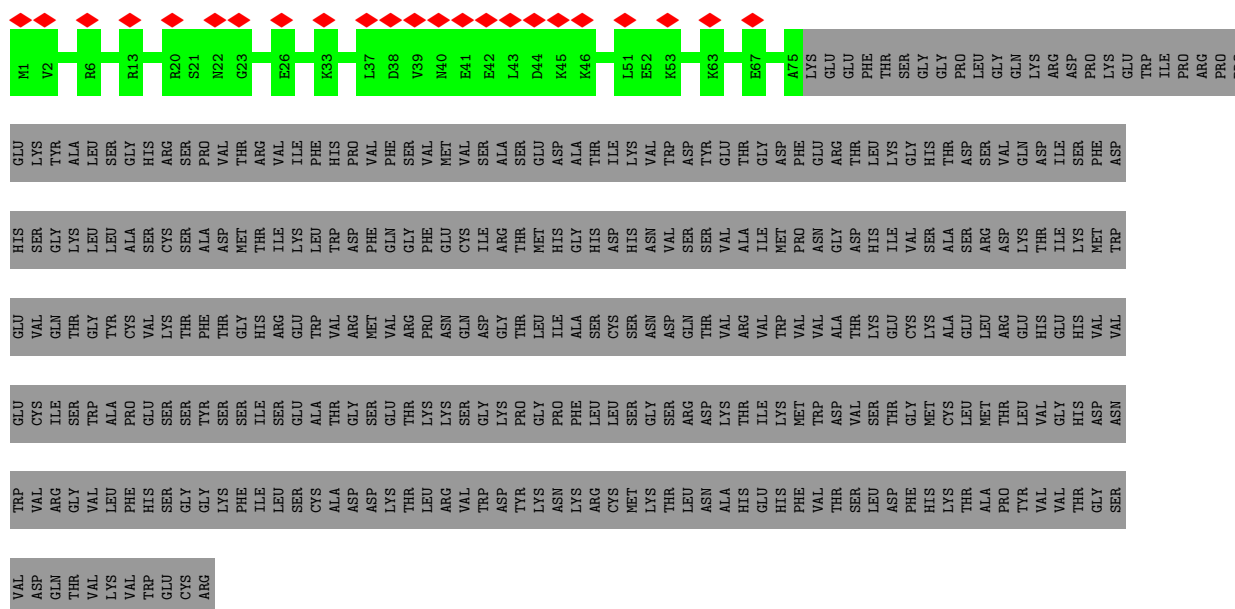


• Molecule 2: Platelet-activating factor acetylhydrolase IB subunit beta

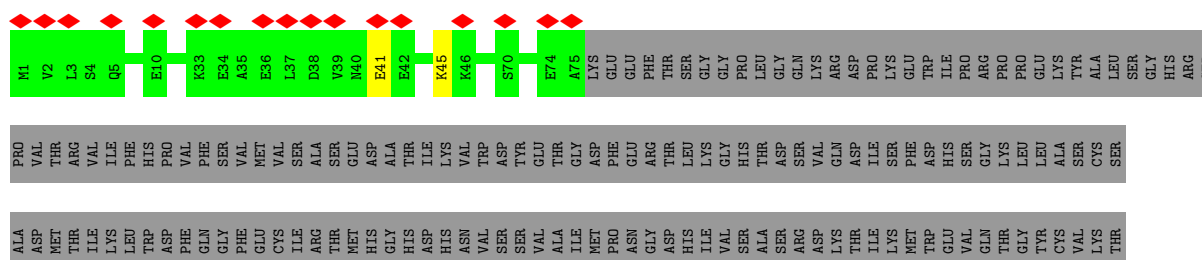




• Molecule 2: Platelet-activating factor acetylhydrolase IB subunit beta

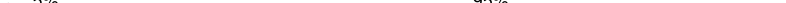


• Molecule 2: Platelet-activating factor acetylhydrolase IB subunit beta



ARG	GLY	THR	PHE
THR	GLY	THR	PHE
GLY	PHE	GLY	THR
ILE	ILE	ILE	ILE
LEU	LEU	GLU	GLU
SER	SER	ALA	TRP
CYS	CYS	VAL	VAL
ASP	ASP	GLY	ARG
ASP	ASP	MET	MET
LYS	LYS	GLU	VAL
THR	THR	THR	ARG
LEU	LEU	LYS	PRO
ARG	ARG	LYS	ASN
VAL	VAL	SER	GLN
TRP	TRP	GLY	ASP
ASP	ASP	LYS	THR
THR	THR	PRO	THR
LYS	LYS	GLY	LEU
ASN	ASN	PRO	ILE
ARG	ARG	PHE	ALA
CYS	CYS	LEU	CYS
MET	MET	SER	SER
LYS	LYS	GLY	ASN
THR	THR	SER	ASP
LEU	LEU	ARG	GLN
ASN	ASN	ASP	THR
ALA	ALA	LYS	VAL
HIS	HIS	THR	ARG
GLU	GLU	ILE	VAL
PHE	PHE	LYS	TRP
VAL	VAL	TRP	VAL
THR	THR	ASP	ALA
SER	SER	VAL	THR
LEU	LEU	SER	LYS
ASP	ASP	THR	GLU
PHE	PHE	GLY	CYS
HIS	HIS	MET	LYS
LYS	LYS	CYS	ALA
THR	THR	LEU	GLU
ALA	ALA	MET	LEU
PRO	PRO	THR	ARG
TVR	TVR	LEU	GLU
VAL	VAL	VAL	HIS
VAL	VAL	GLY	GLU
THR	THR	HIS	HIS
GLY	GLY	ASP	VAL
VAL	VAL	ASN	VAL
VAL	VAL	TRP	GLU
GLN	GLN	ARG	CYS
THR	THR	GLY	ILE
VAL	VAL	VAL	SER
LYS	LYS	LEU	TRP
VAL	VAL	PHE	ALA
TRP	TRP	HIS	PRO
GLU	GLU	SER	GLU
CYS	CYS	THR	SER

- Molecule 3: Cytoplasmic dynein 1 intermediate chain 2

Chain F:  5% 95%

[illegible]

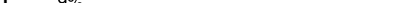
- Molecule 3: Cytoplasmic dynein 1 intermediate chain 2

Chain G: 5% 95%

MET	S2	K35	GLU	THR	ASP	ASP	GLN	LYS	LYS	GLU	ALA	VAL	ALA	ALA	VAL	GLN	GLU	GLU	SER	ASP	LEU	GLU	LYS	LYS	ARG	ARG	GLU	ALA	ALA	ALA	LEU	LEU	GLN	SER	SER	MET	GLY	THR	PRO	GLU	SER	SER	PRO	ILE	VAL	PHE	SER	GLU	TYR	TRP	VAL	PRO	PRO	PRO	MET	SER	PRO	SER	SER
-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

[illegible]

- Molecule 4: Dynactin subunit 1

Chain H:  9% 90%

[illegible]

[illegible]

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	37109	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	45000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.853	Depositor
Minimum map value	-0.366	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.031	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	444.416, 444.416, 444.416	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.736, 1.736, 1.736	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.10	0/25177	0.28	0/34112
2	B	0.12	0/2624	0.36	0/3555
2	C	0.11	0/2560	0.31	0/3470
2	D	0.06	0/372	0.19	0/518
2	E	0.07	0/372	0.17	0/518
3	F	0.04	0/169	0.13	0/235
3	G	0.05	0/169	0.13	0/235
4	H	0.19	0/606	0.29	0/845
4	I	0.40	0/601	0.54	0/838
All	All	0.12	0/32650	0.30	0/44326

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
4	I	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	I	533[A]	GLU	Mainchain
4	I	533[B]	GLU	Mainchain

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	24658	0	24763	598	0
2	B	2557	0	2487	90	0
2	C	2494	0	2419	102	0
2	D	373	0	172	0	0
2	E	373	0	172	1	0
3	F	170	0	73	0	0
3	G	170	0	73	0	0
4	H	607	0	285	1	0
4	I	602	0	282	3	0
5	A	81	0	36	14	0
6	A	31	0	12	2	0
7	A	2	0	0	0	0
All	All	32118	0	30774	788	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 13.

The worst 5 of 788 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2965:ARG:NH2	1:A:3640:SER:O	2.00	0.94
2:C:174:ILE:HB	2:C:188:MET:HB3	1.60	0.82
1:A:2503:SER:HB3	1:A:2511:ARG:HG2	1.60	0.81
2:C:207:ILE:HB	2:C:219:TRP:HB2	1.64	0.79
1:A:3039:LYS:O	2:B:273:ARG:NH2	2.16	0.79

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	3057/4646 (66%)	2977 (97%)	79 (3%)	1 (0%)	100	100
2	B	320/410 (78%)	306 (96%)	14 (4%)	0	100	100
2	C	309/410 (75%)	289 (94%)	20 (6%)	0	100	100
2	D	73/410 (18%)	73 (100%)	0	0	100	100
2	E	73/410 (18%)	72 (99%)	1 (1%)	0	100	100
3	F	32/638 (5%)	32 (100%)	0	0	100	100
3	G	32/638 (5%)	32 (100%)	0	0	100	100
4	H	120/1281 (9%)	119 (99%)	1 (1%)	0	100	100
4	I	119/1281 (9%)	119 (100%)	0	0	100	100
All	All	4135/10124 (41%)	4019 (97%)	115 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1374	PRO

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	2721/4125 (66%)	2721 (100%)	0	100	100
2	B	287/364 (79%)	287 (100%)	0	100	100
2	C	280/364 (77%)	280 (100%)	0	100	100
All	All	3288/4853 (68%)	3288 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 28 such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3069	ASN
2	C	277	HIS
1	A	3535	HIS
1	A	4530	GLN
1	A	3522	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 6 ligands modelled in this entry, 2 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	$\# Z > 2$
5	ADP	A	4703	-	24,29,29	0.90	1 (4%)	29,45,45	1.20	2 (6%)
5	ADP	A	4704	-	24,29,29	0.87	0	29,45,45	1.18	2 (6%)
5	ADP	A	4701	7	24,29,29	0.95	1 (4%)	29,45,45	1.24	3 (10%)
6	ATP	A	4702	7	28,33,33	0.66	0	34,52,52	0.59	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
5	ADP	A	4703	-	-	0/12/32/32	0/3/3/3
5	ADP	A	4704	-	-	2/12/32/32	0/3/3/3
5	ADP	A	4701	7	-	4/12/32/32	0/3/3/3
6	ATP	A	4702	7	-	0/18/38/38	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	4701	ADP	PA-O3A	2.25	1.61	1.59
5	A	4703	ADP	O4'-C1'	2.03	1.43	1.40

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	4703	ADP	N3-C2-N1	-3.70	123.65	128.67
5	A	4704	ADP	N3-C2-N1	-3.61	123.77	128.67
5	A	4701	ADP	N3-C2-N1	-3.61	123.78	128.67
5	A	4704	ADP	C4-C5-N7	-2.63	106.56	109.34
5	A	4701	ADP	C4-C5-N7	-2.52	106.67	109.34

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	4701	ADP	PA-O3A-PB-O2B
5	A	4701	ADP	PA-O3A-PB-O3B
5	A	4701	ADP	O4'-C4'-C5'-O5'
5	A	4701	ADP	C3'-C4'-C5'-O5'
5	A	4704	ADP	C3'-C4'-C5'-O5'

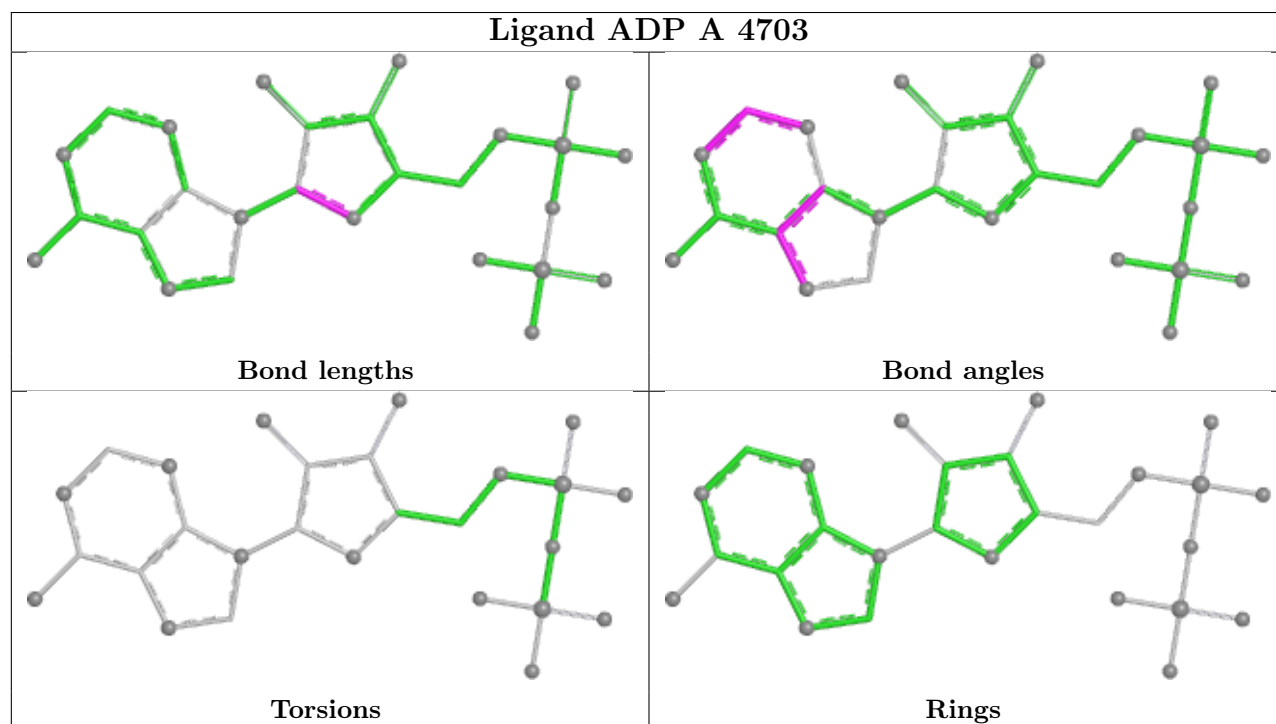
There are no ring outliers.

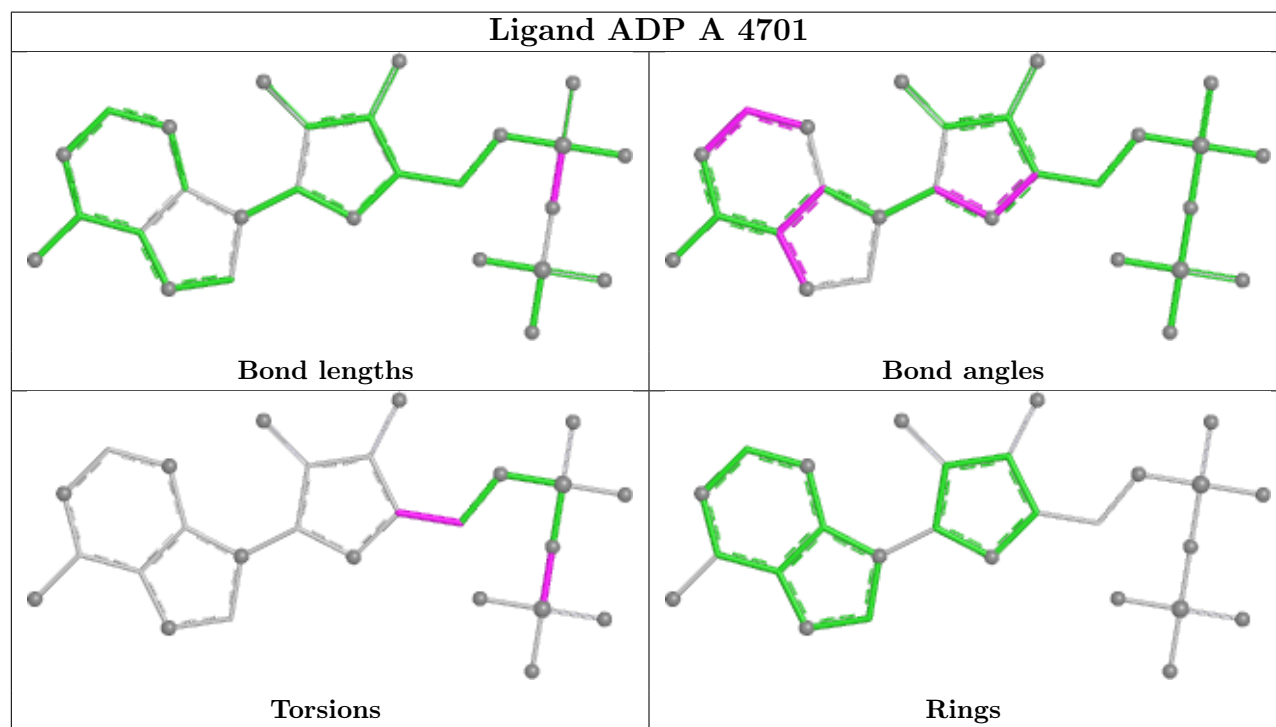
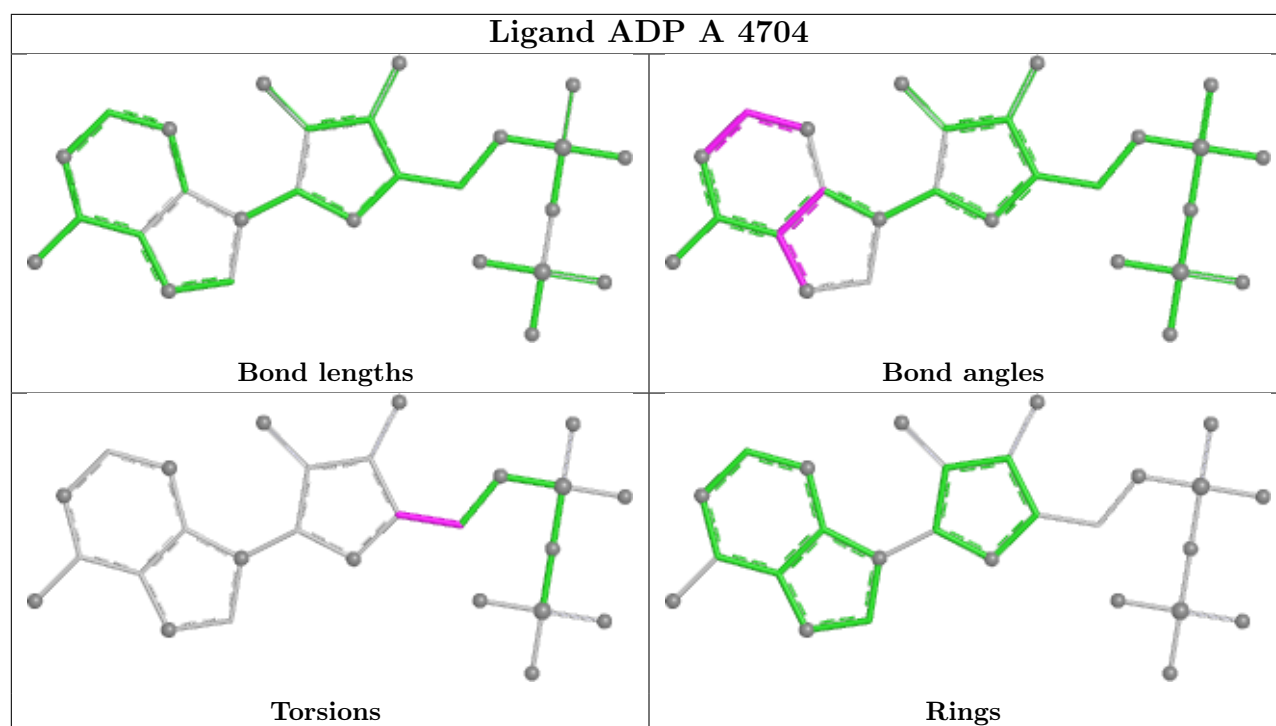
4 monomers are involved in 16 short contacts:

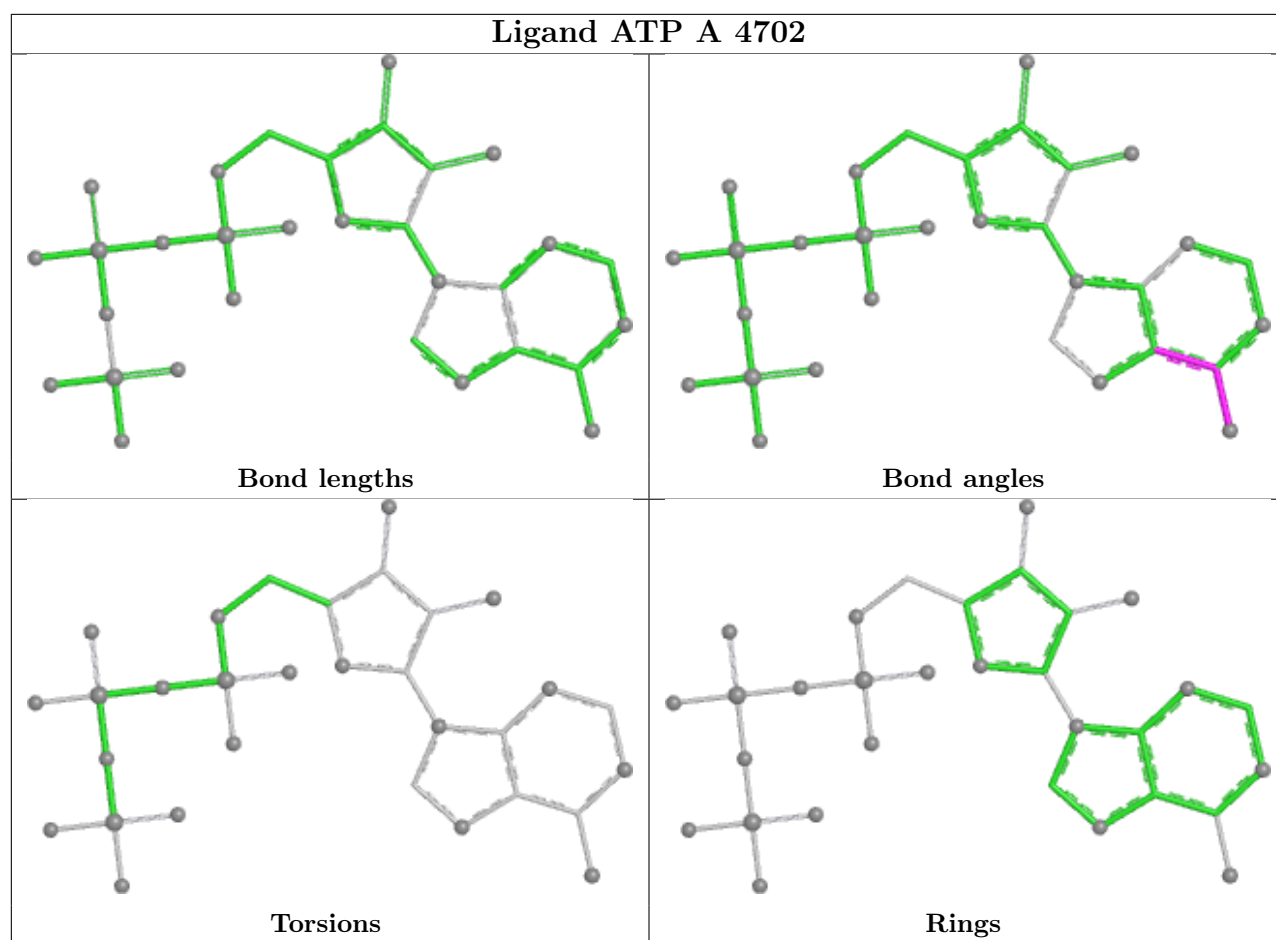
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	4703	ADP	2	0
5	A	4704	ADP	3	0
5	A	4701	ADP	9	0
6	A	4702	ATP	2	0

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.

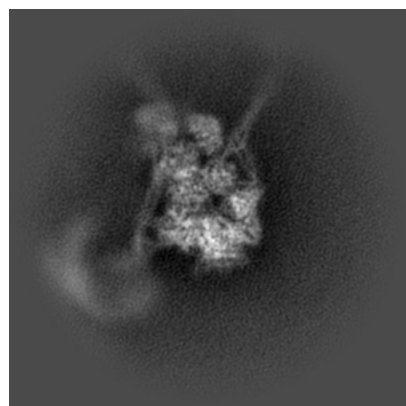
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-73174. These allow visual inspection of the internal detail of the map and identification of artifacts.

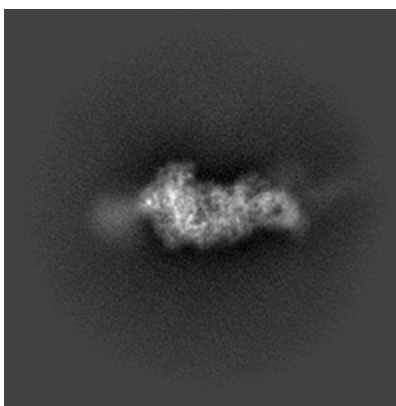
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

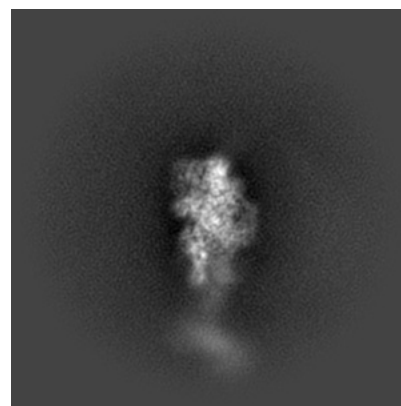
6.1.1 Primary map



X

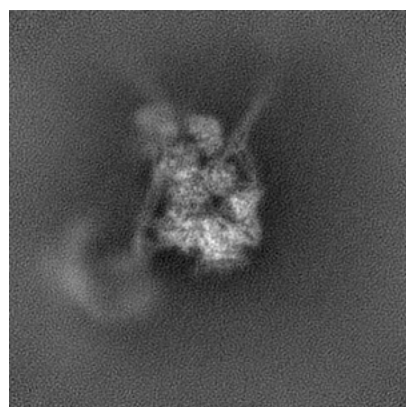


Y

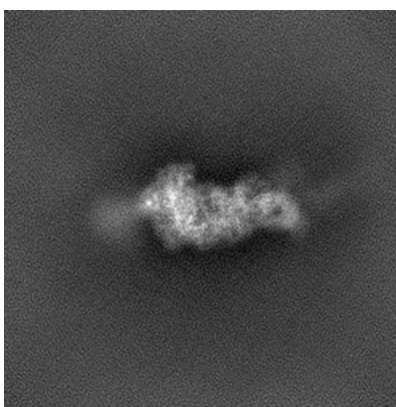


Z

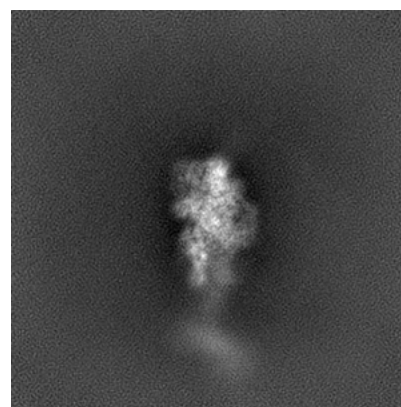
6.1.2 Raw map



X



Y

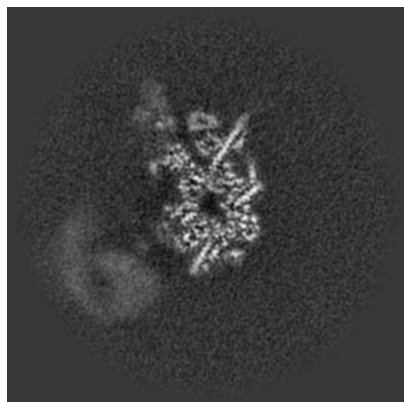


Z

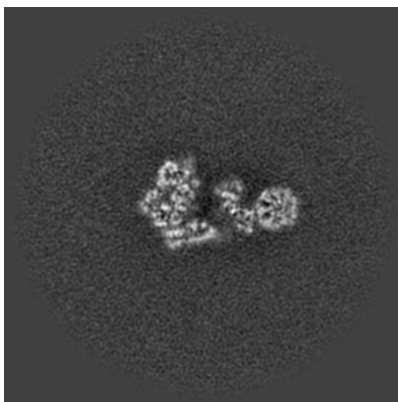
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

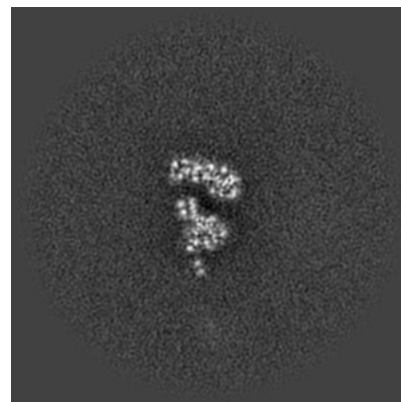
6.2.1 Primary map



X Index: 128

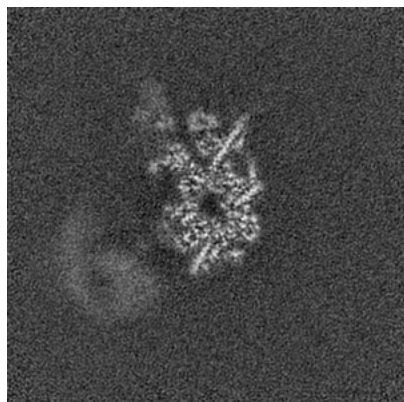


Y Index: 128

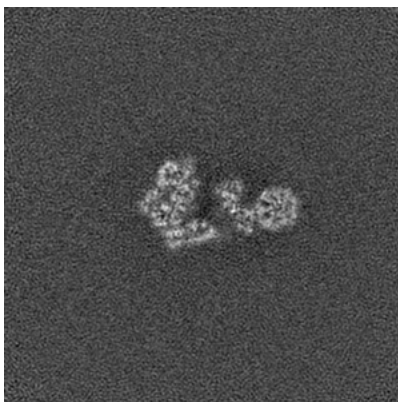


Z Index: 128

6.2.2 Raw map



X Index: 128



Y Index: 128

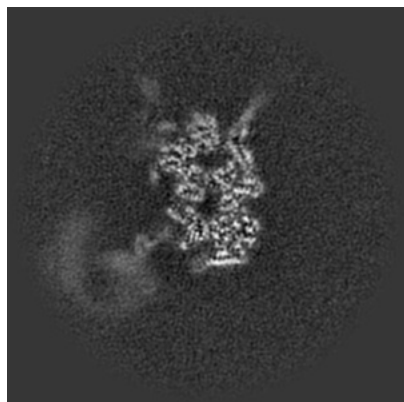


Z Index: 128

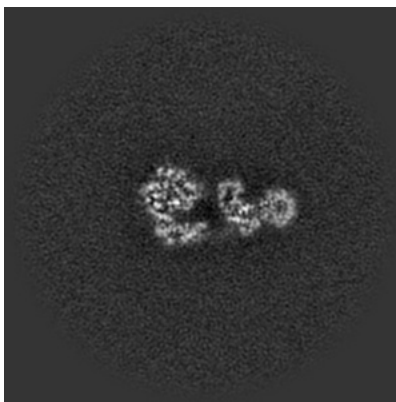
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

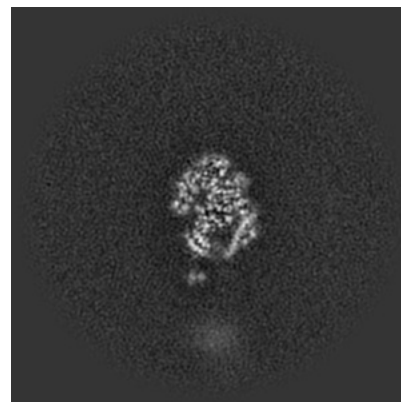
6.3.1 Primary map



X Index: 132

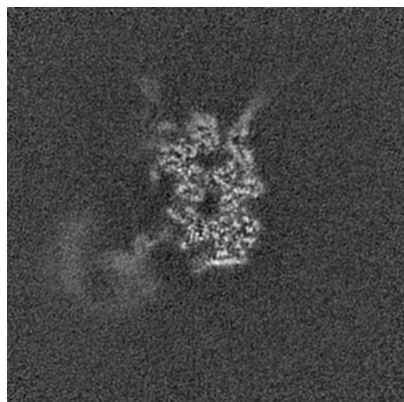


Y Index: 132

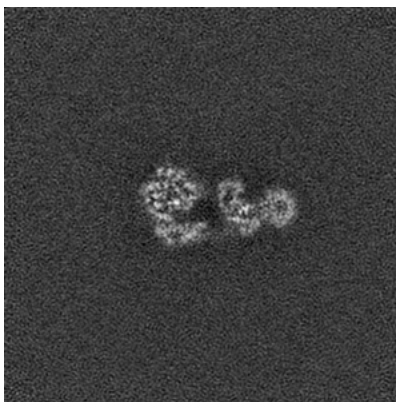


Z Index: 112

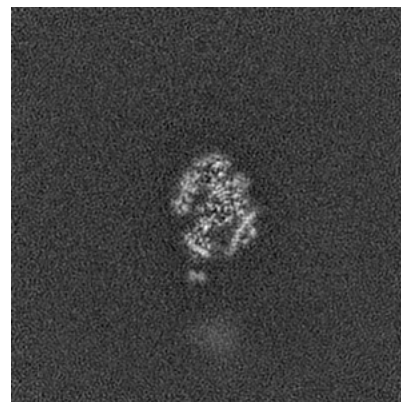
6.3.2 Raw map



X Index: 132



Y Index: 132

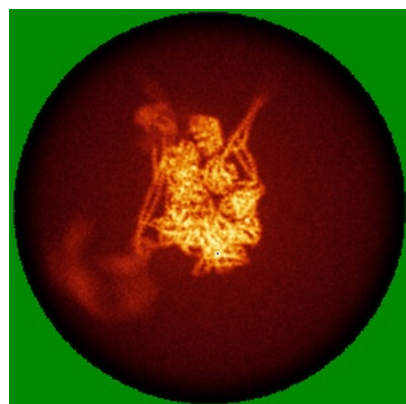


Z Index: 113

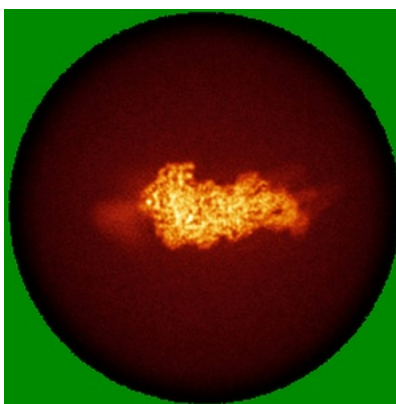
The images above show the largest variance slices of the map in three orthogonal directions.

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

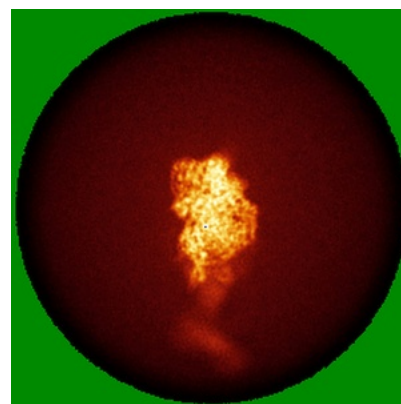
6.4.1 Primary map



X

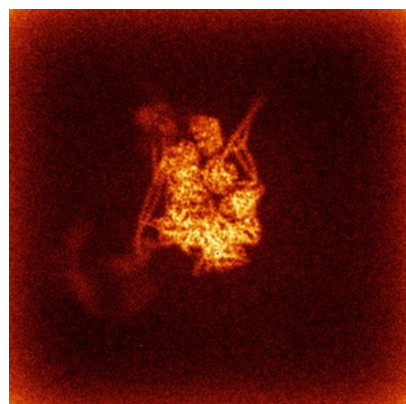


Y

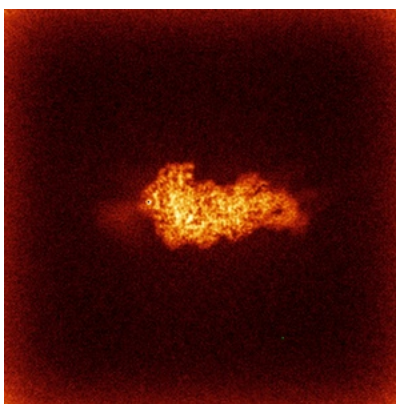


Z

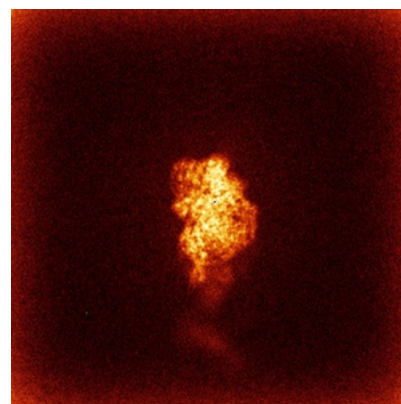
6.4.2 Raw map



X



Y



Z

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

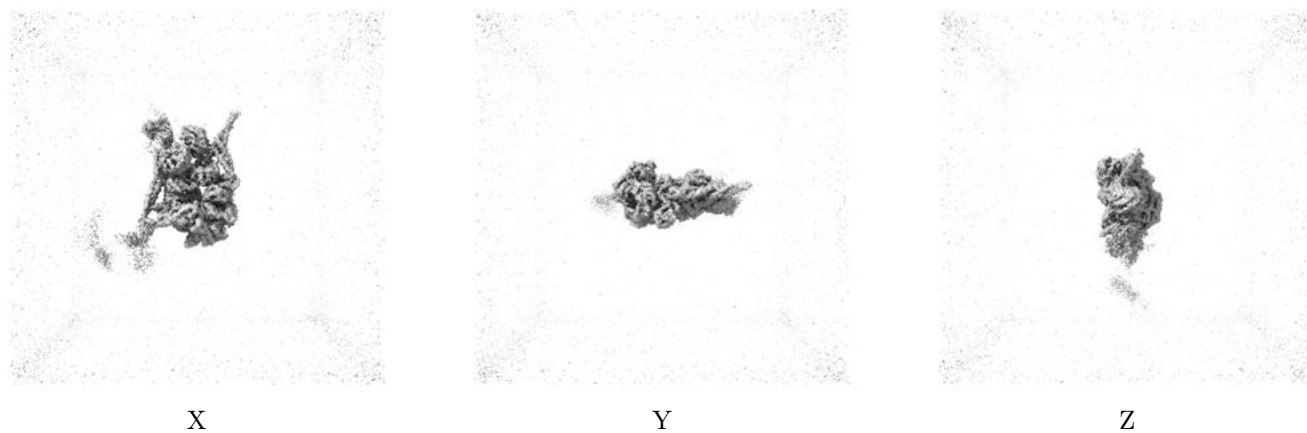
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

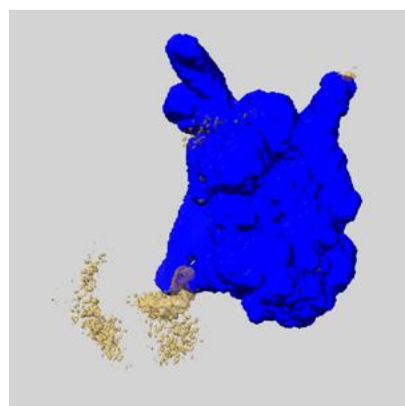
6.6 Mask visualisation [i](#)

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

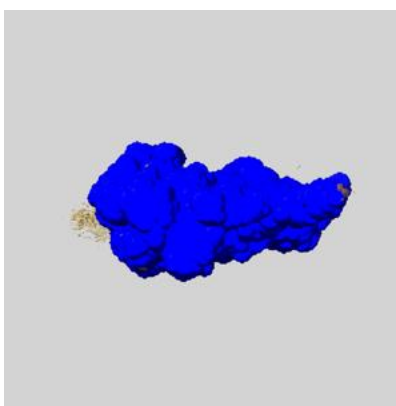
A mask typically either:

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

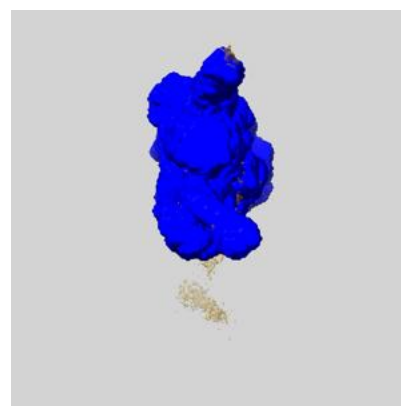
6.6.1 emd_73174_msk_1.map [i](#)



X



Y

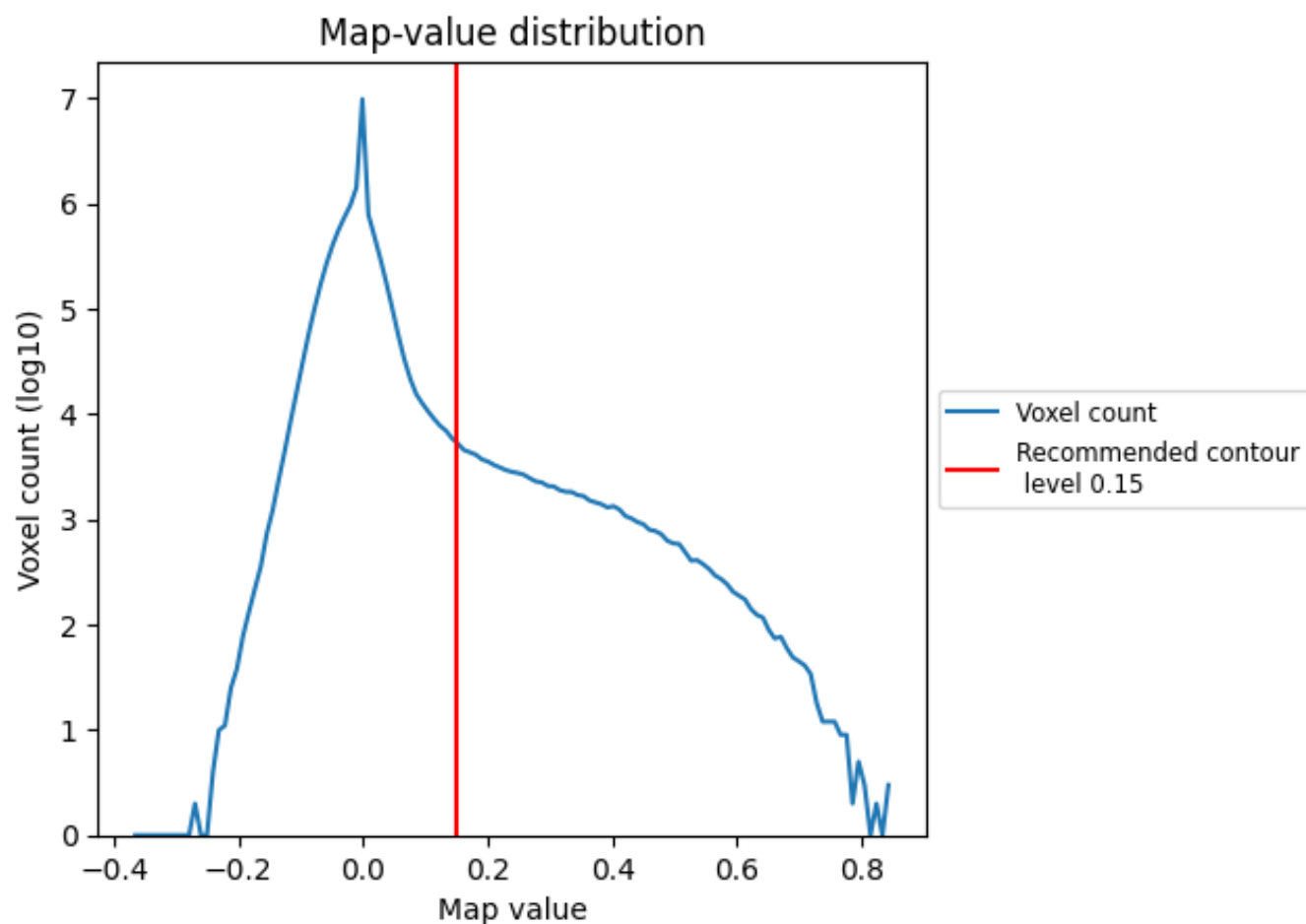


Z

7 Map analysis [i](#)

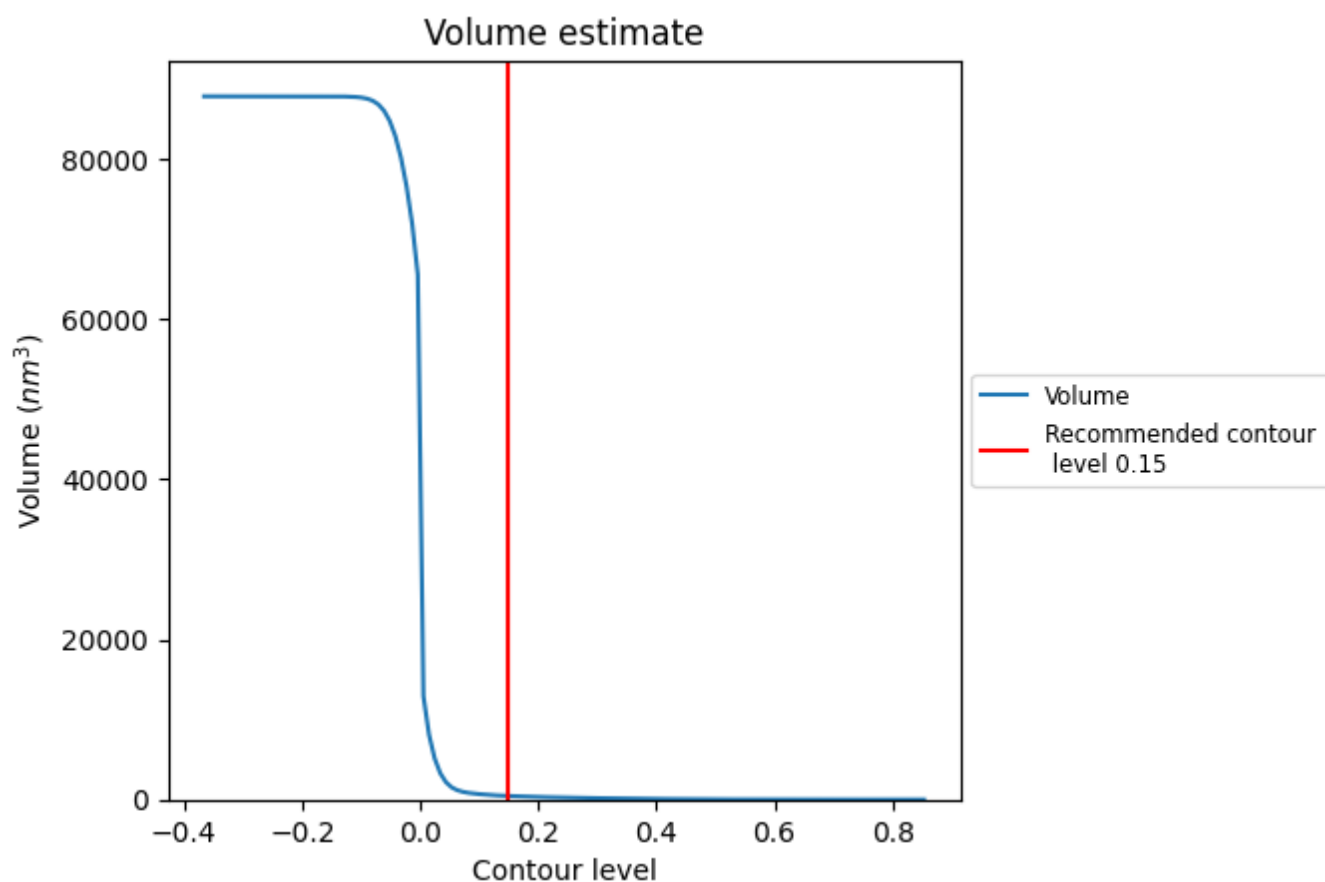
This section contains the results of statistical analysis of the map.

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.

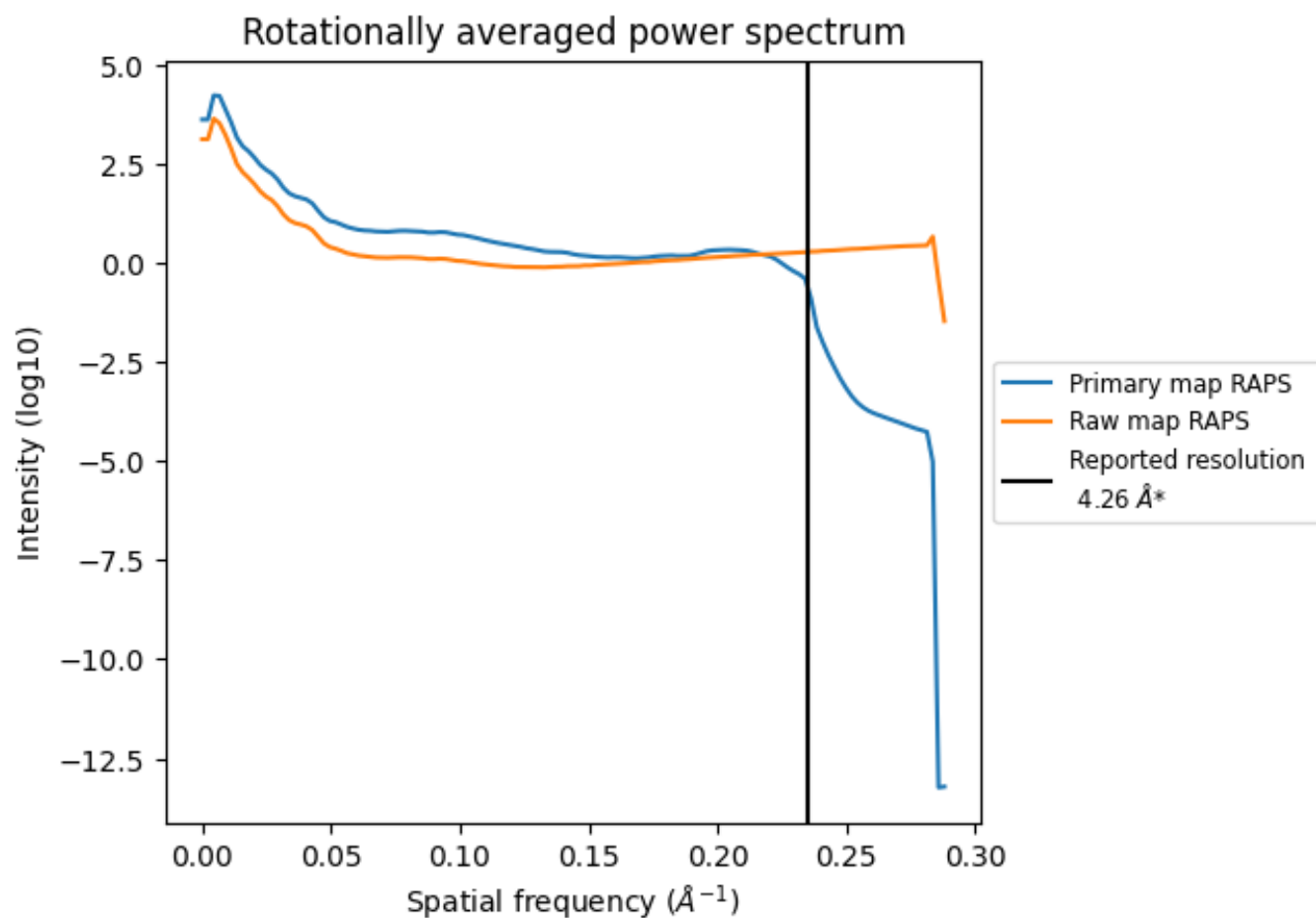
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 447 nm³; this corresponds to an approximate mass of 404 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 ⓘ

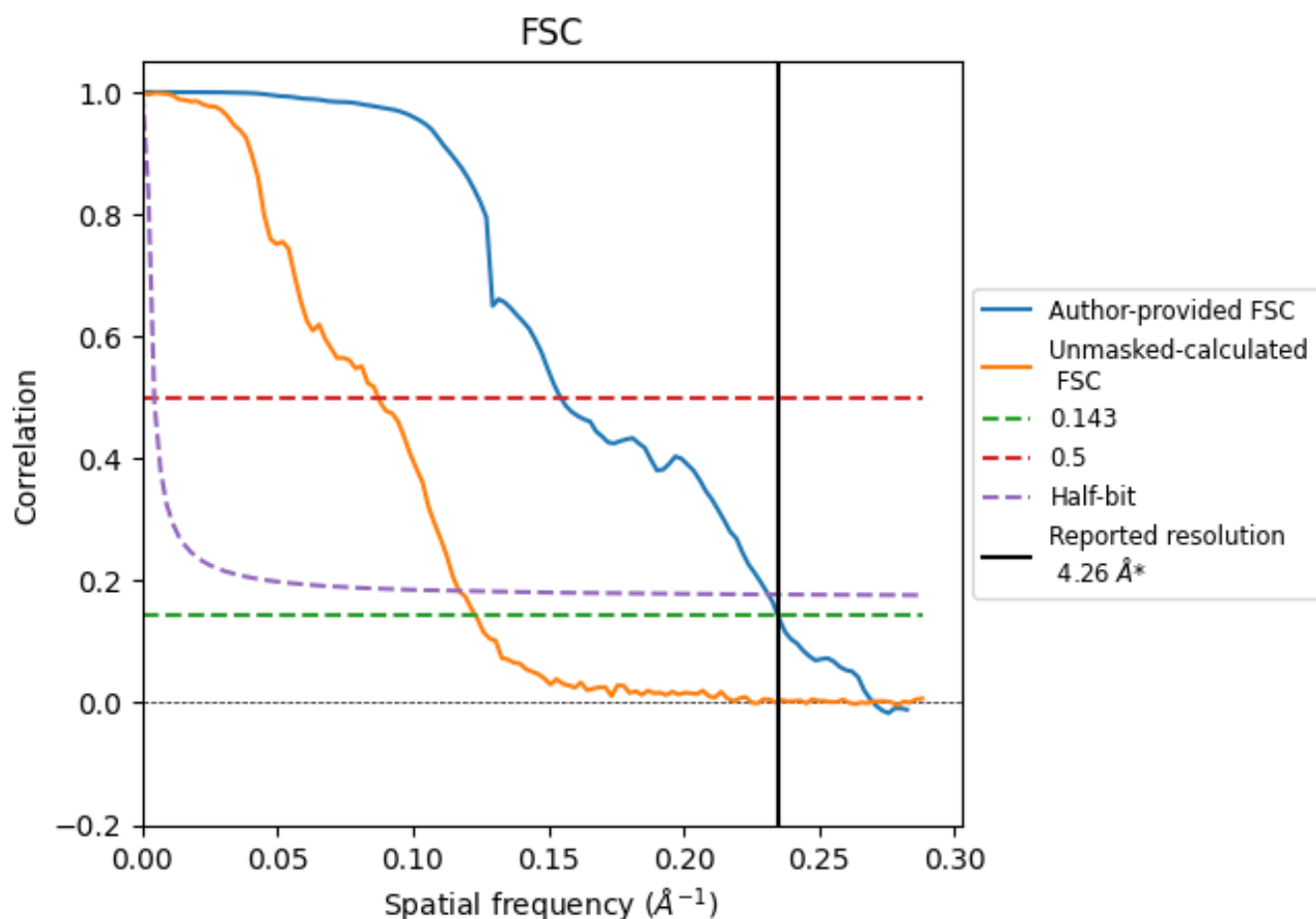


*Reported resolution corresponds to spatial frequency of 0.235 Å⁻¹

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 0.235 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

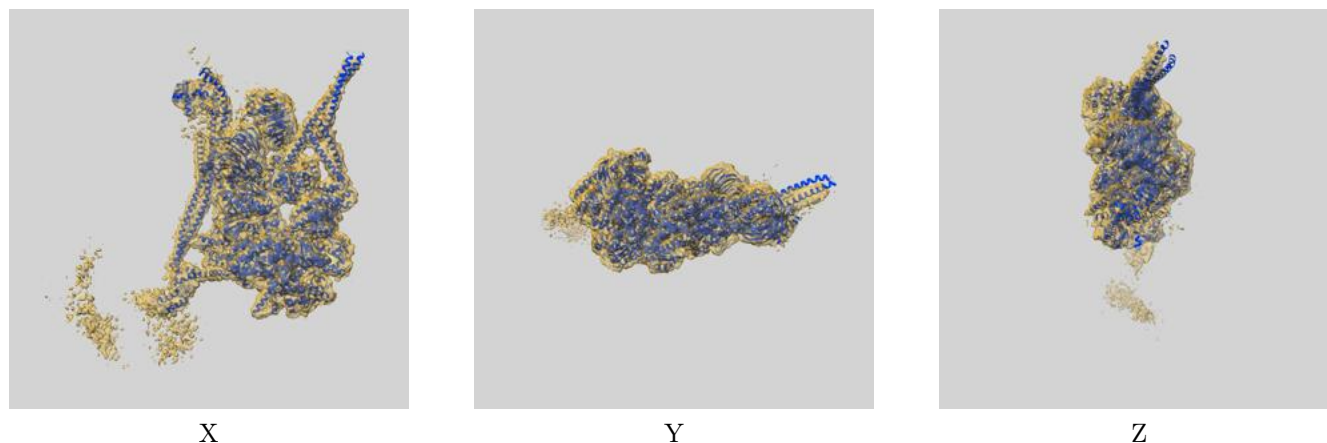
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.26	-	-
Author-provided FSC curve	4.26	6.47	4.33
Unmasked-calculated*	8.13	11.48	8.54

*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 8.13 differs from the reported value 4.26 by more than 10 %

9 Map-model fit [i](#)

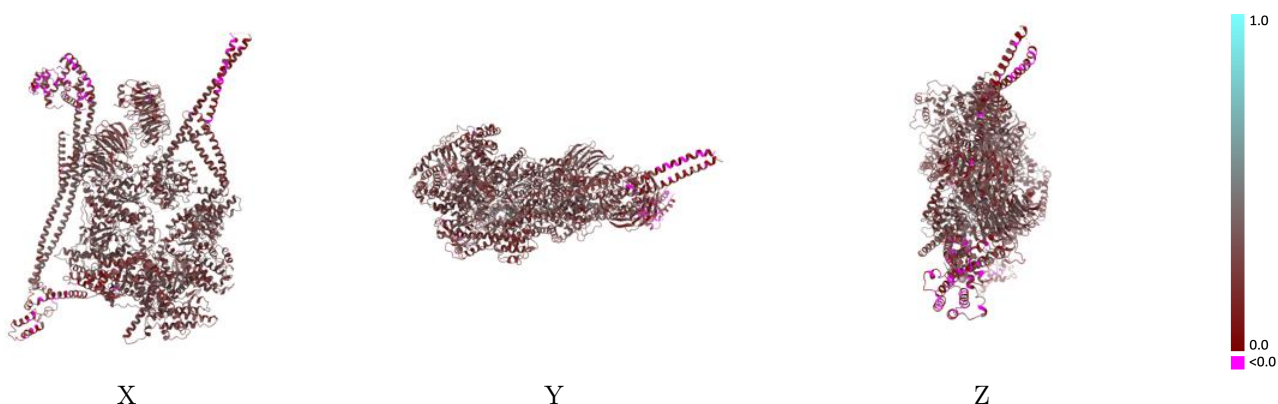
This section contains information regarding the fit between EMDB map EMD-73174 and PDB model 9YND. Per-residue inclusion information can be found in [section 3](#) on [page 8](#).

9.1 Map-model overlay [i](#)



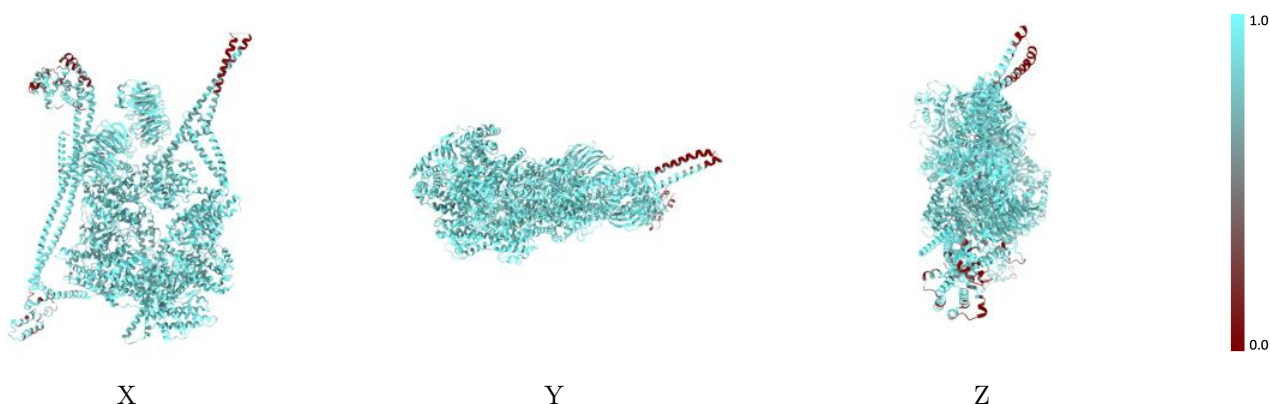
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



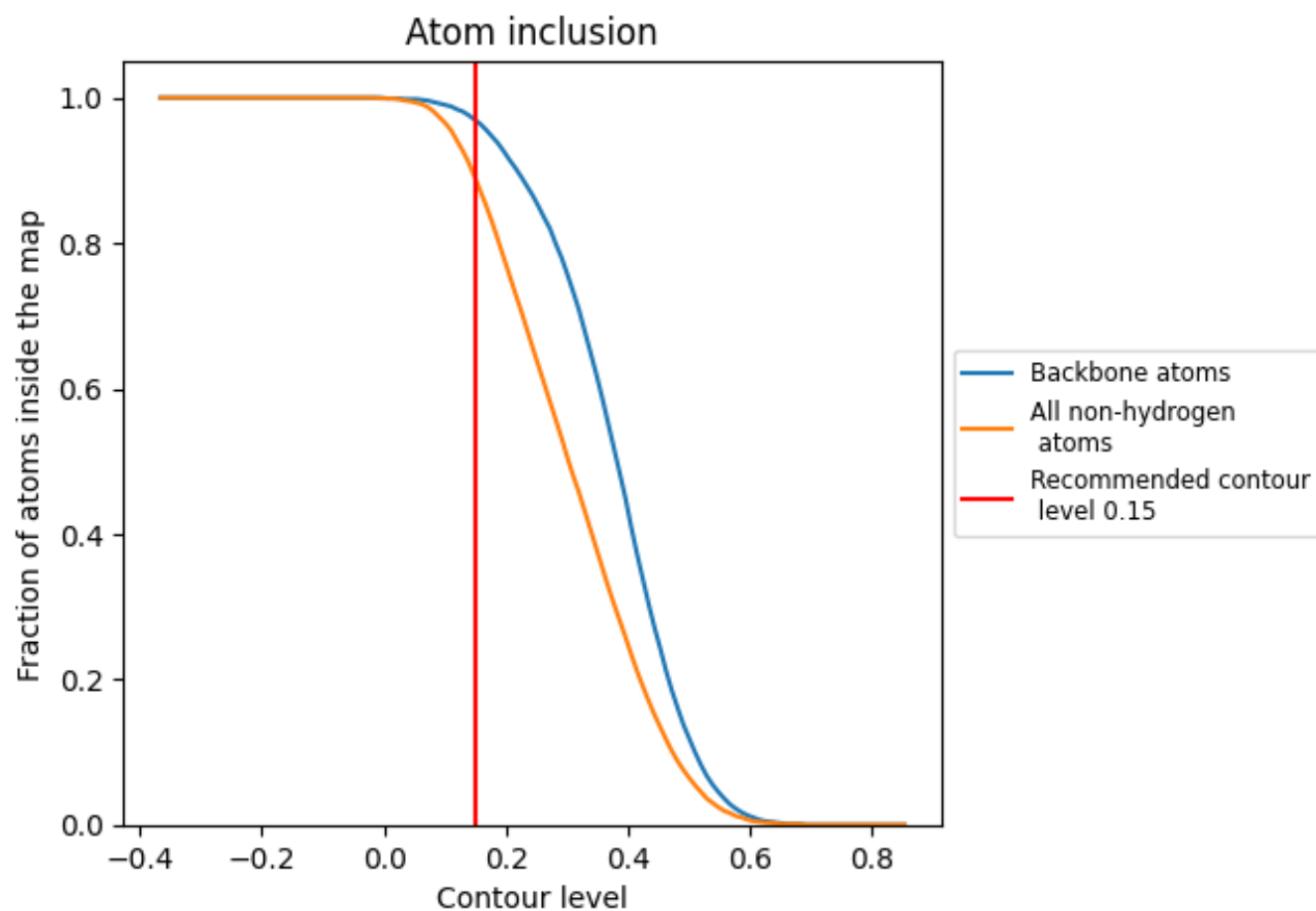
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.15).

9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 89% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8890	0.2870
A	0.8920	0.2930
B	0.8950	0.3020
C	0.9050	0.2610
D	0.6700	0.1660
E	0.7400	0.1450
F	0.9410	0.2990
G	0.9590	0.3040
H	0.8900	0.2630
I	0.8880	0.2740

1.0

0.0

<0.0