Full wwPDB EM Validation Report ⓘ

Sep 17, 2025 – 07:34 am BST

PDB ID	:	9I2B / pdb_00009i2b
EMDB ID	:	EMD-52580
Title	:	SPIN90-Arp2/3 nucleated bidirectional actin filaments
Authors	:	Liu, T.; Moores, C.A.
Deposited on	:	2025-01-20
Resolution	:	3.00 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:

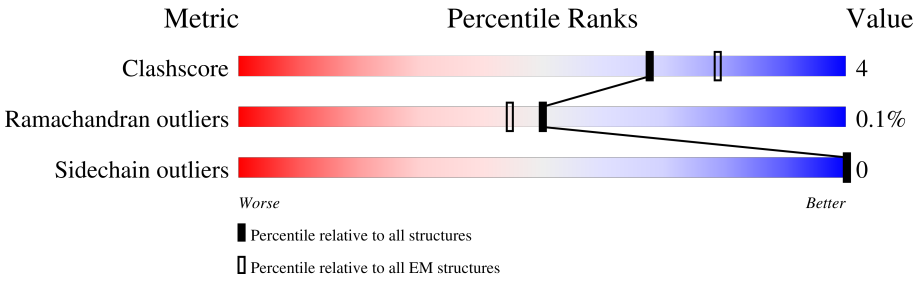
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 Å.

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



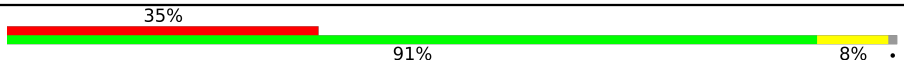
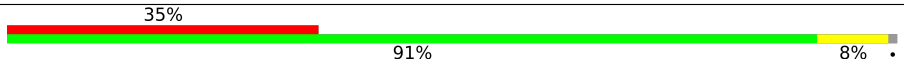
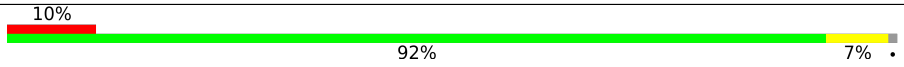
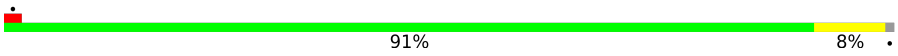
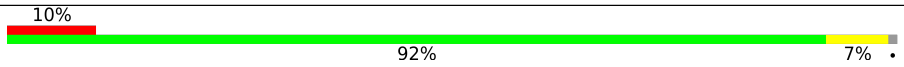
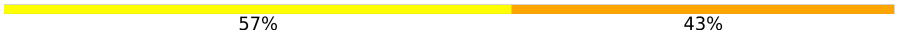
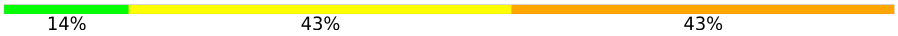
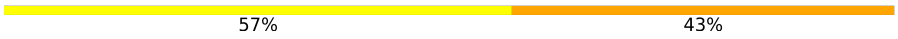
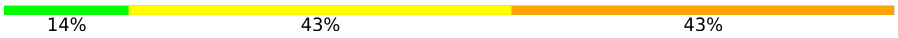
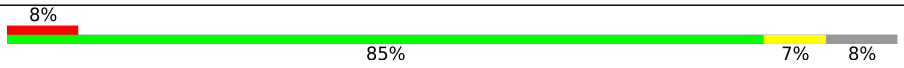
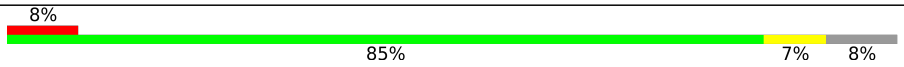
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	B	394	93% 7%
1	L	394	94% 6%
2	D	300	87% 7% 6%
2	N	300	88% 6% 6%
3	E	178	94%
3	O	178	94%
4	F	168	90% 10%
4	P	168	90% 9%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	G	153	
5	Q	153	
6	I	375	
6	J	375	
6	S	375	
6	T	375	
7	U	7	
7	V	7	
7	c	7	
7	d	7	
8	H	722	
8	R	722	
9	C	372	
9	M	372	
10	A	418	
10	K	418	

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
7	DTH	U	4	-	-	X	-
7	DTH	c	4	-	-	X	-
7	DTH	d	4	-	-	X	-

2 Entry composition (i)

There are 12 unique types of molecules in this entry. The entry contains 97342 atoms, of which 48480 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 Actin-related protein 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	B	394	Total	C	H	N	O	S	0	0
			6317	2009	3175	538	578	17		
1	L	394	Total	C	H	N	O	S	0	0
			6317	2009	3175	538	578	17		

- Molecule 2 is a protein called Actin-related protein 2/3 complex subunit 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	D	282	Total	C	H	N	O	S	0	0
			4456	1431	2201	391	425	8		
2	N	282	Total	C	H	N	O	S	0	0
			4456	1431	2201	391	425	8		

- Molecule 3 is a protein called Actin-related protein 2/3 complex subunit 3.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	E	174	Total	C	H	N	O	S	0	0
			2835	909	1420	236	260	10		
3	O	174	Total	C	H	N	O	S	0	0
			2835	909	1420	236	260	10		

- Molecule 4 is a protein called Actin-related protein 2/3 complex subunit 4.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	F	167	Total	C	H	N	O	S	0	0
			2759	872	1394	236	248	9		
4	P	167	Total	C	H	N	O	S	0	0
			2759	872	1394	236	248	9		

- Molecule 5 is a protein called Actin-related protein 2/3 complex subunit 5-like protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	G	152	Total	C	H	N	O	S	0	0
			2356	734	1178	212	230	2		
5	Q	152	Total	C	H	N	O	S	0	0
			2356	734	1178	212	230	2		

- Molecule 6 is a protein called Actin, cytoplasmic 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	I	372	Total	C	H	N	O	S	0	0
			5754	1833	2861	487	551	22		
6	J	372	Total	C	H	N	O	S	0	0
			5772	1837	2871	488	554	22		
6	S	372	Total	C	H	N	O	S	0	0
			5754	1833	2861	487	551	22		
6	T	372	Total	C	H	N	O	S	0	0
			5772	1837	2871	488	554	22		

- Molecule 7 is a protein called Phalloidin.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	c	7	Total	C	H	N	O	S	0	0
			103	35	48	8	11	1		
7	d	7	Total	C	H	N	O	S	0	0
			103	35	48	8	11	1		
7	U	7	Total	C	H	N	O	S	0	0
			103	35	48	8	11	1		
7	V	7	Total	C	H	N	O	S	0	0
			103	35	48	8	11	1		

- Molecule 8 is a protein called NCK-interacting protein with SH3 domain.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	H	407	Total	C	H	N	O	S	0	0
			6456	2035	3252	553	589	27		
8	R	407	Total	C	H	N	O	S	0	0
			6456	2035	3252	553	589	27		

- Molecule 9 is a protein called Actin-related protein 2/3 complex subunit 1B.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	C	343	Total	C	H	N	O	S	0	0
			5241	1682	2592	462	485	20		

Continued on next page...

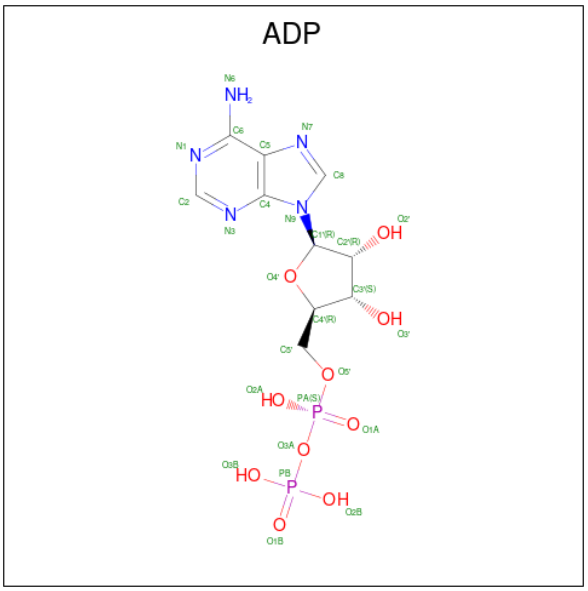
Continued from previous page...

Mol	Chain	Residues	Atoms						AltConf	Trace
9	M	343	Total	C	H	N	O	S	0	0
			5241	1682	2592	462	485	20		

- Molecule 10 is a protein called Actin-related protein 3.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	A	401	Total	C	H	N	O	S	0	0
			6359	2058	3152	538	597	14		
10	K	401	Total	C	H	N	O	S	0	0
			6359	2058	3152	538	597	14		

- Molecule 11 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
11	B	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	I	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	J	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	A	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	L	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	S	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms						AltConf
11	T	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	
11	K	1	Total	C	H	N	O	P	0
			39	10	12	5	10	2	

- Molecule 12 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

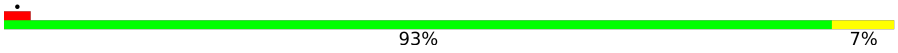
Mol	Chain	Residues	Atoms		AltConf
12	B	1	Total	Mg	0
			1	1	
12	I	1	Total	Mg	0
			1	1	
12	J	1	Total	Mg	0
			1	1	
12	A	1	Total	Mg	0
			1	1	
12	L	1	Total	Mg	0
			1	1	
12	S	1	Total	Mg	0
			1	1	
12	T	1	Total	Mg	0
			1	1	
12	K	1	Total	Mg	0
			1	1	

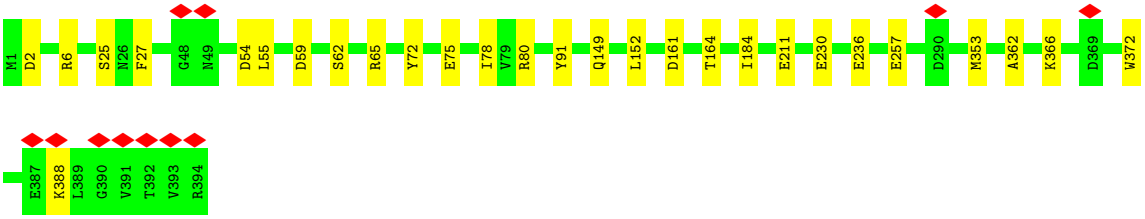
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Actin-related protein 2

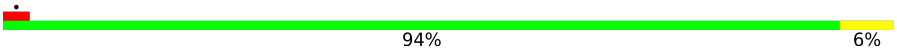
Chain B:

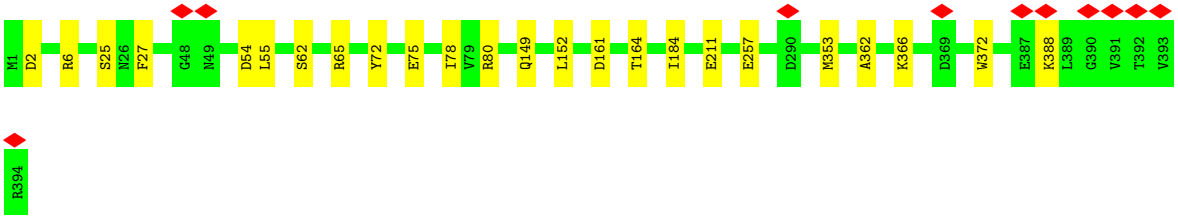




• Molecule 1: Actin-related protein 2

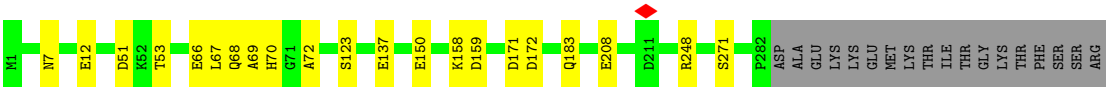
Chain L:





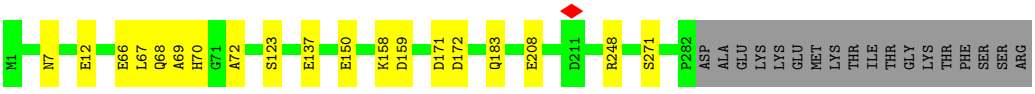
• Molecule 2: Actin-related protein 2/3 complex subunit 2

Chain D:



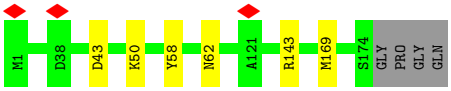
• Molecule 2: Actin-related protein 2/3 complex subunit 2

Chain N:



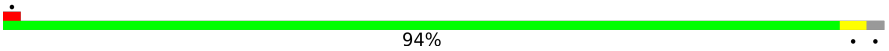
• Molecule 3: Actin-related protein 2/3 complex subunit 3

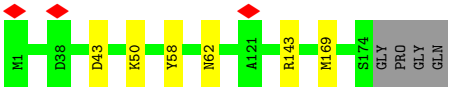
Chain E:



• Molecule 3: Actin-related protein 2/3 complex subunit 3

Chain O:



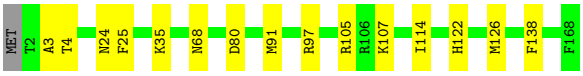


• Molecule 4: Actin-related protein 2/3 complex subunit 4

Chain F:

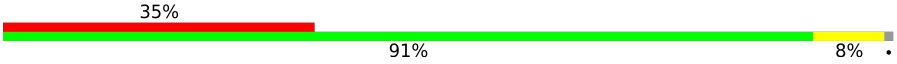
• Molecule 4: Actin-related protein 2/3 complex subunit 4

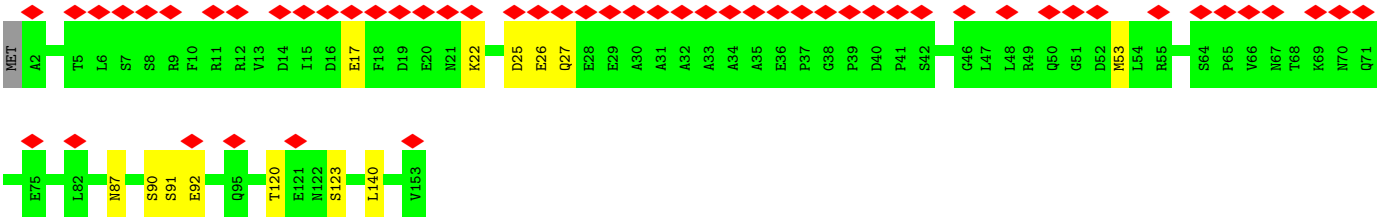
Chain P:



• Molecule 5: Actin-related protein 2/3 complex subunit 5-like protein

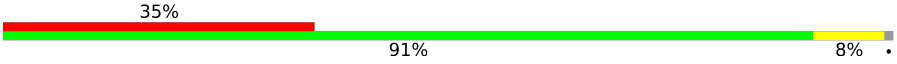
Chain G:

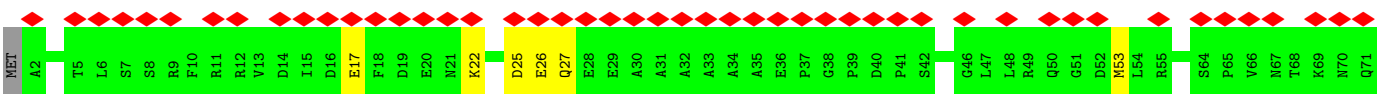


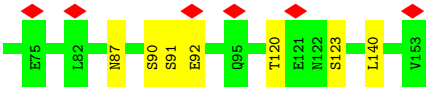


• Molecule 5: Actin-related protein 2/3 complex subunit 5-like protein

Chain Q:

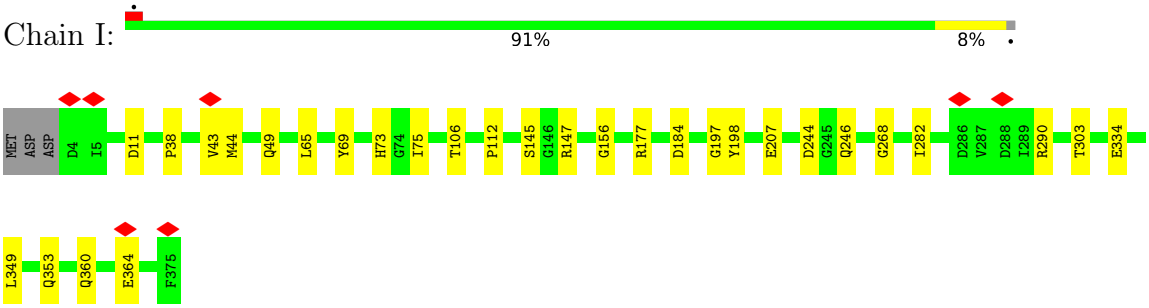






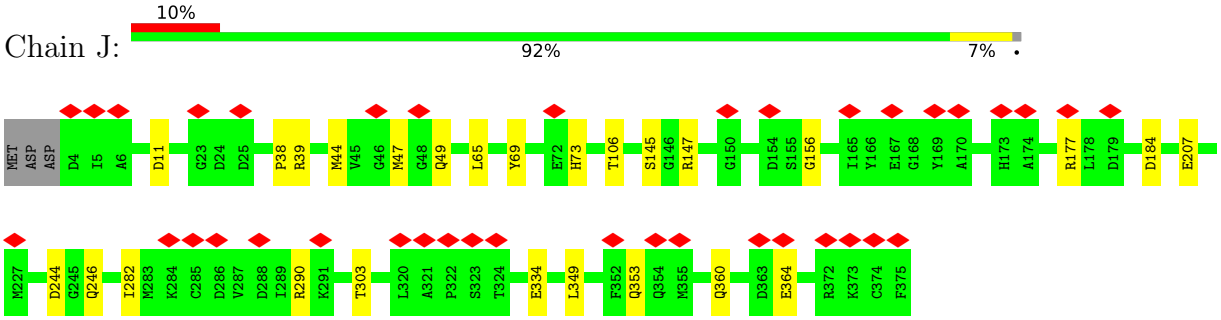
• Molecule 6: Actin, cytoplasmic 1

Chain I:



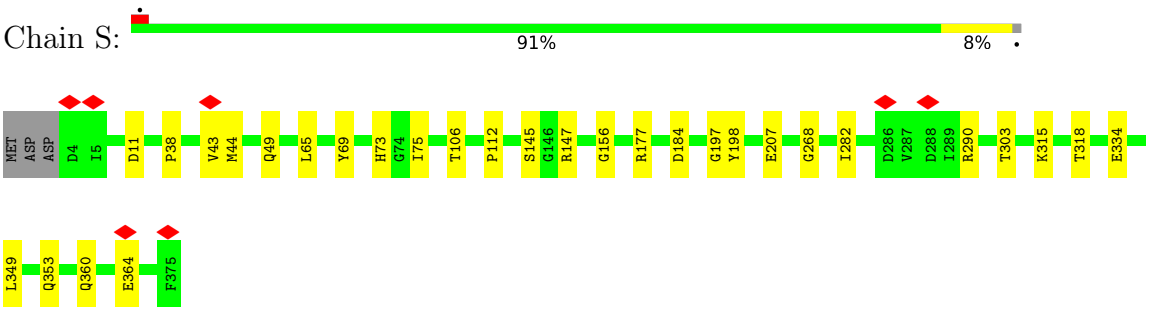
• Molecule 6: Actin, cytoplasmic 1

Chain J:



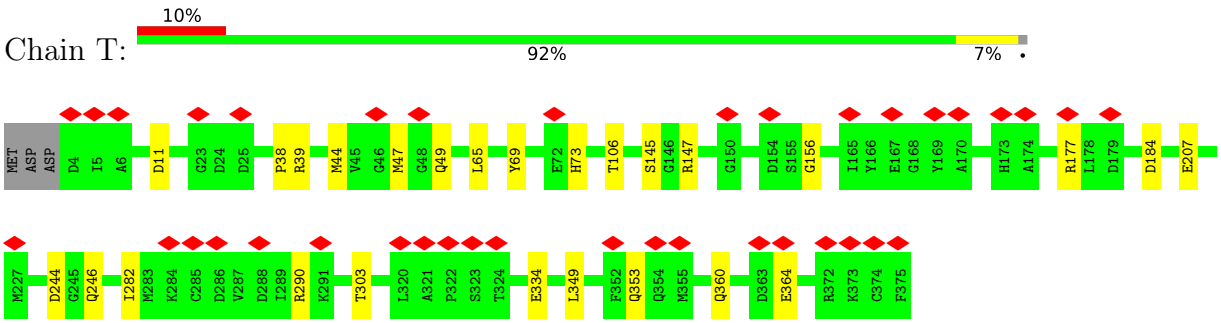
• Molecule 6: Actin, cytoplasmic 1

Chain S:



• Molecule 6: Actin, cytoplasmic 1

Chain T:

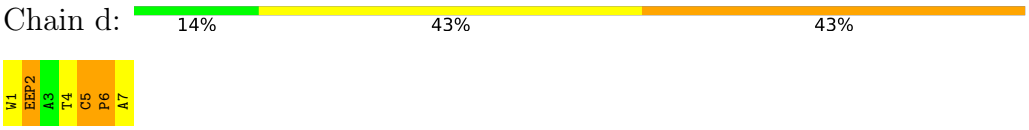


• Molecule 7: Phalloidin

Chain c:

• Molecule 7: Phalloidin

Chain d:

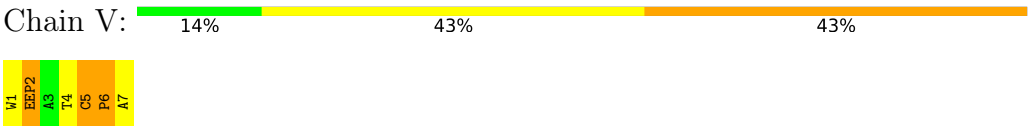


• Molecule 7: Phalloidin

Chain U:

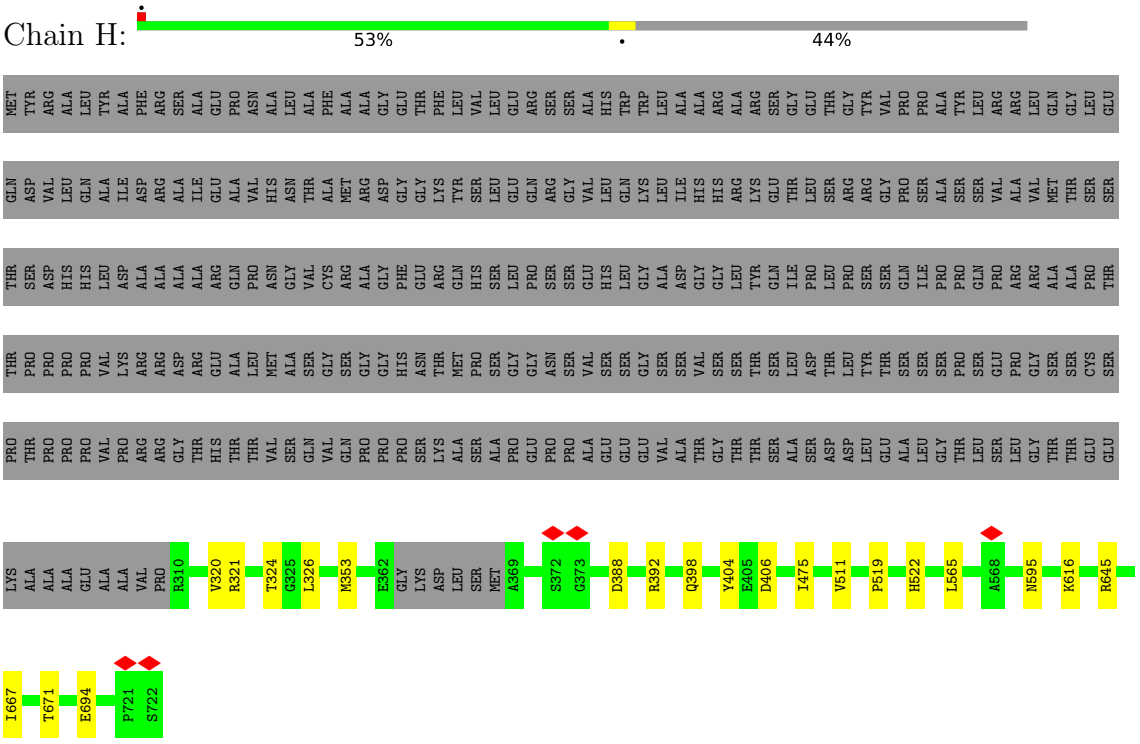
• Molecule 7: Phalloidin

Chain V:



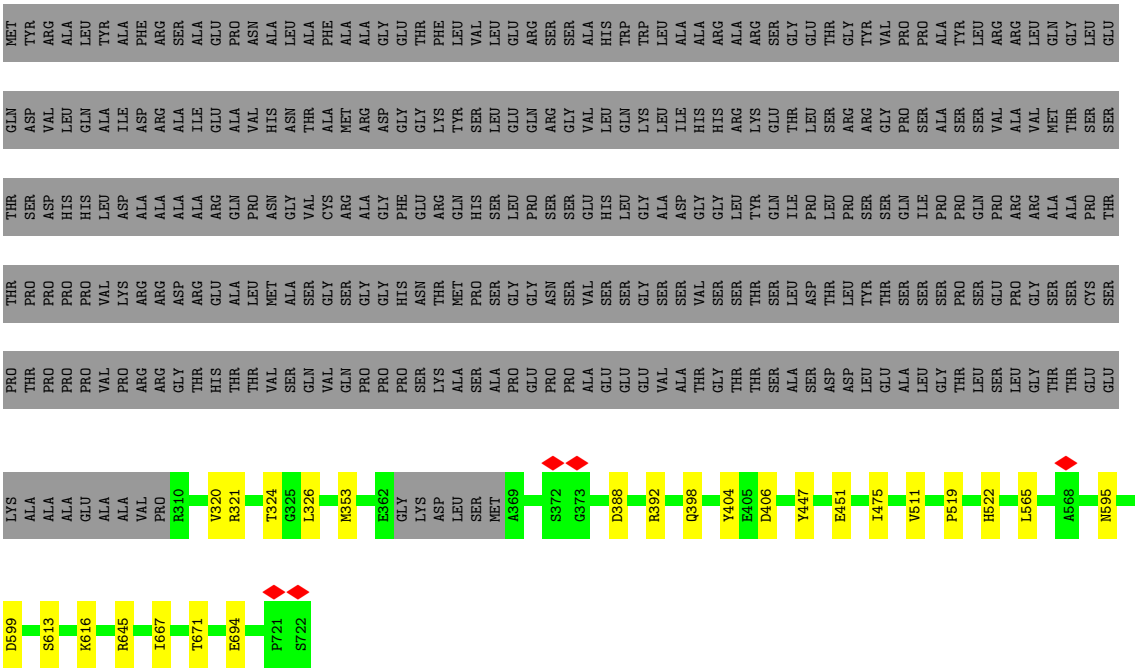
• Molecule 8: NCK-interacting protein with SH3 domain

Chain H:



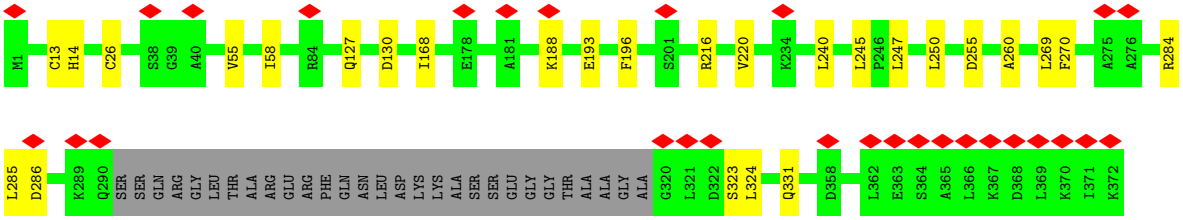
• Molecule 8: NCK-interacting protein with SH3 domain

Chain R:



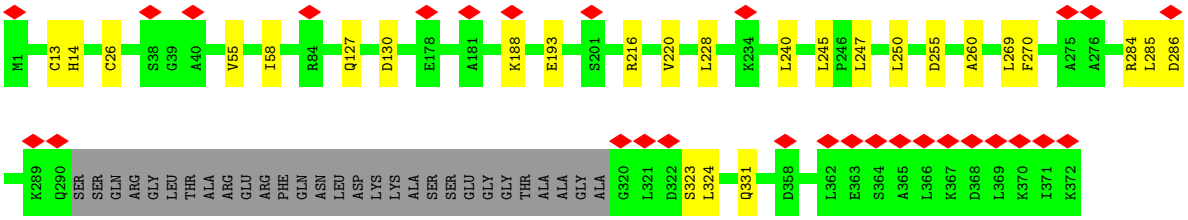
• Molecule 9: Actin-related protein 2/3 complex subunit 1B

Chain C:



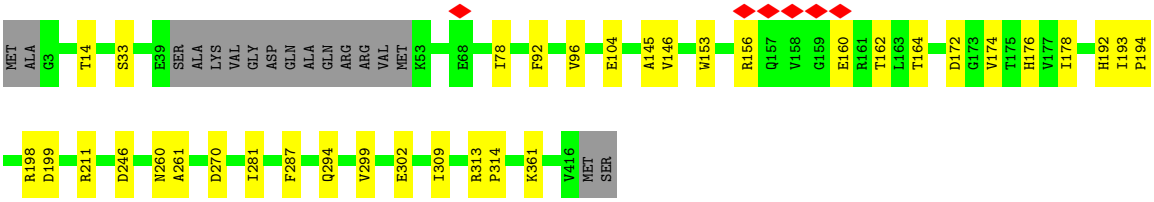
• Molecule 9: Actin-related protein 2/3 complex subunit 1B

Chain M:



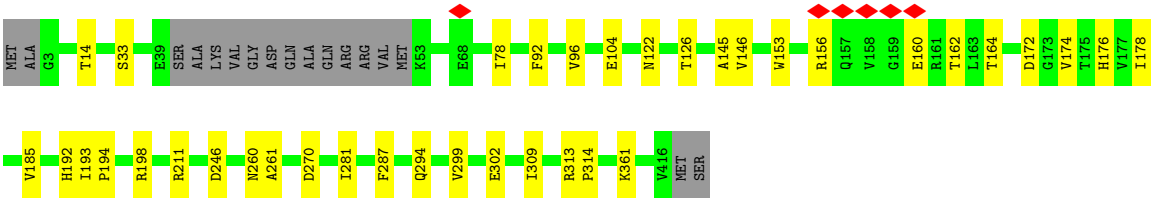
• Molecule 10: Actin-related protein 3

Chain A:



• Molecule 10: Actin-related protein 3

Chain K:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	39104	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	39.2	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.918	Depositor
Minimum map value	-0.338	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.028	Depositor
Recommended contour level	0.17	Depositor
Map size (Å)	390.08, 390.08, 390.08	wwPDB
Map dimensions	368, 368, 368	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.37	0/3204	0.38	0/4330
1	L	0.37	0/3204	0.38	0/4330
2	D	0.39	0/2303	0.47	1/3111 (0.0%)
2	N	0.39	0/2303	0.47	1/3111 (0.0%)
3	E	0.35	0/1449	0.38	0/1955
3	O	0.35	0/1449	0.38	0/1955
4	F	0.41	0/1387	0.41	0/1861
4	P	0.41	0/1387	0.41	0/1861
5	G	0.23	0/1194	0.32	0/1610
5	Q	0.23	0/1194	0.32	0/1610
6	I	0.23	0/2956	0.33	0/4003
6	J	0.23	0/2964	0.32	0/4013
6	S	0.23	0/2956	0.33	0/4003
6	T	0.23	0/2964	0.33	0/4013
7	U	1.01	0/28	1.35	0/33
7	V	1.02	0/28	1.34	0/33
7	c	1.01	0/28	1.35	0/33
7	d	1.02	0/28	1.34	0/33
8	H	0.40	0/3263	0.38	0/4424
8	R	0.40	0/3263	0.38	0/4424
9	C	0.25	0/2718	0.37	0/3689
9	M	0.25	0/2718	0.37	0/3689
10	A	0.43	0/3289	0.39	0/4464
10	K	0.43	0/3289	0.39	0/4464
All	All	0.35	0/49566	0.38	2/67052 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	68	GLN	N-CA-C	-7.72	102.83	111.71
2	N	68	GLN	N-CA-C	-7.72	102.83	111.71

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3142	3175	3175	19	0
1	L	3142	3175	3175	16	0
2	D	2255	2201	2201	15	0
2	N	2255	2201	2201	14	0
3	E	1415	1420	1420	4	0
3	O	1415	1420	1420	4	0
4	F	1365	1394	1399	11	0
4	P	1365	1394	1399	9	0
5	G	1178	1178	1178	9	0
5	Q	1178	1178	1178	9	0
6	I	2893	2861	2861	27	0
6	J	2901	2871	2871	16	0
6	S	2893	2861	2861	29	0
6	T	2901	2871	2871	16	0
7	U	55	48	38	21	0
7	V	55	48	38	15	0
7	c	55	48	38	21	0
7	d	55	48	38	16	0
8	H	3204	3252	3250	22	0
8	R	3204	3252	3250	24	0
9	C	2649	2592	2592	17	0
9	M	2649	2592	2592	17	0
10	A	3207	3152	3151	27	0
10	K	3207	3152	3151	29	0
11	A	27	12	12	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	B	27	12	12	1	0
11	I	27	12	12	0	0
11	J	27	12	12	0	0
11	K	27	12	12	2	0
11	L	27	12	12	1	0
11	S	27	12	12	0	0
11	T	27	12	12	0	0
12	A	1	0	0	0	0
12	B	1	0	0	0	0
12	I	1	0	0	0	0
12	J	1	0	0	0	0
12	K	1	0	0	0	0
12	L	1	0	0	0	0
12	S	1	0	0	0	0
12	T	1	0	0	0	0
All	All	48862	48480	48444	353	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 4.

All (353) 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)
8:H:519:PRO:HD2	8:H:522:HIS:NE2	1.76	1.00
8:H:519:PRO:HD2	8:H:522:HIS:CD2	1.97	0.99
8:R:519:PRO:HD2	8:R:522:HIS:NE2	1.76	0.99
8:R:519:PRO:HD2	8:R:522:HIS:CD2	1.97	0.98
6:I:198:TYR:CD1	7:c:3:ALA:HB3	2.03	0.94
6:S:198:TYR:CD1	7:U:3:ALA:HB3	2.03	0.93
6:I:198:TYR:CD1	7:c:3:ALA:CB	2.58	0.87
7:V:2:EEP:N	7:V:2:EEP:O1	2.07	0.87
8:H:519:PRO:HD2	8:H:522:HIS:HE2	1.40	0.87
7:d:2:EEP:O1	7:d:2:EEP:N	2.07	0.86
6:S:198:TYR:CD1	7:U:3:ALA:CB	2.58	0.86
7:U:2:EEP:N	7:U:2:EEP:O1	2.07	0.85
7:c:2:EEP:N	7:c:2:EEP:O1	2.07	0.84
8:R:519:PRO:HD2	8:R:522:HIS:HE2	1.40	0.83
6:I:198:TYR:HD1	7:c:3:ALA:HB3	1.41	0.82
7:V:6:HYP:O	7:V:7:ALA:C	2.23	0.82
7:c:6:HYP:O	7:c:7:ALA:C	2.22	0.82
7:d:6:HYP:O	7:d:7:ALA:C	2.23	0.81

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:198:TYR:HD1	7:c:3:ALA:CB	1.92	0.81
7:U:6:HYP:O	7:U:7:ALA:C	2.22	0.81
1:L:78:ILE:HB	7:U:7:ALA:HB1	1.64	0.80
6:S:198:TYR:HD1	7:U:3:ALA:HB3	1.41	0.79
6:S:198:TYR:HD1	7:U:3:ALA:CB	1.92	0.78
7:c:1:TRP:CD1	7:c:5:CYS:HB2	2.18	0.78
7:U:1:TRP:CD1	7:U:5:CYS:HB2	2.18	0.78
7:V:1:TRP:CD1	7:V:5:CYS:HB2	2.19	0.78
1:B:78:ILE:HB	7:c:7:ALA:HB1	1.64	0.77
7:d:1:TRP:CD1	7:d:5:CYS:HB2	2.19	0.77
8:R:519:PRO:CD	8:R:522:HIS:CD2	2.67	0.77
6:I:268:GLY:O	6:J:39:ARG:NH1	2.18	0.76
8:H:519:PRO:CD	8:H:522:HIS:CD2	2.67	0.76
6:S:268:GLY:O	6:T:39:ARG:NH1	2.18	0.75
8:H:392:ARG:NH1	8:H:406:ASP:OD2	2.20	0.74
6:S:112:PRO:HD3	7:V:1:TRP:CZ3	2.23	0.74
8:R:519:PRO:CD	8:R:522:HIS:HE2	2.00	0.74
8:H:519:PRO:CD	8:H:522:HIS:HE2	2.00	0.74
10:A:172:ASP:OD1	11:A:501:ADP:O3'	2.04	0.73
8:R:392:ARG:NH1	8:R:406:ASP:OD2	2.20	0.73
6:I:112:PRO:HD3	7:d:1:TRP:CZ3	2.23	0.73
10:K:172:ASP:OD1	11:K:501:ADP:O3'	2.04	0.73
8:H:519:PRO:CD	8:H:522:HIS:NE2	2.52	0.72
8:R:519:PRO:CD	8:R:522:HIS:NE2	2.52	0.71
4:F:105:ARG:NH1	4:F:107:LYS:O	2.24	0.71
4:P:105:ARG:NH1	4:P:107:LYS:O	2.24	0.71
7:c:4:DTH:O	7:c:5:CYS:O	2.09	0.71
7:U:4:DTH:O	7:U:5:CYS:O	2.09	0.71
2:N:248:ARG:NH1	10:K:104:GLU:OE2	2.24	0.71
2:D:248:ARG:NH1	10:A:104:GLU:OE2	2.24	0.70
8:R:595:ASN:OD1	8:R:645:ARG:NH2	2.25	0.70
7:d:4:DTH:O	7:d:5:CYS:O	2.09	0.69
7:V:4:DTH:O	7:V:5:CYS:O	2.09	0.69
8:H:595:ASN:OD1	8:H:645:ARG:NH2	2.25	0.69
9:C:216:ARG:NH1	9:C:255:ASP:O	2.26	0.69
9:M:216:ARG:NH1	9:M:255:ASP:O	2.26	0.68
5:G:120:THR:OG1	5:G:123:SER:OG	2.07	0.68
6:J:11:ASP:O	6:J:106:THR:OG1	2.12	0.67
5:Q:120:THR:OG1	5:Q:123:SER:OG	2.07	0.67
6:I:75:ILE:HD11	7:d:1:TRP:CZ2	2.29	0.67
9:M:220:VAL:HG23	9:M:250:LEU:HD23	1.77	0.67

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:T:11:ASP:O	6:T:106:THR:OG1	2.12	0.67
6:S:75:ILE:HD11	7:V:1:TRP:CZ2	2.29	0.67
6:S:11:ASP:O	6:S:106:THR:OG1	2.12	0.67
6:J:156:GLY:O	6:J:303:THR:OG1	2.14	0.66
6:I:156:GLY:O	6:I:303:THR:OG1	2.14	0.66
9:C:220:VAL:HG23	9:C:250:LEU:HD23	1.77	0.66
2:N:137:GLU:OE2	2:N:158:LYS:N	2.29	0.66
6:S:349:LEU:O	6:S:353:GLN:NE2	2.29	0.66
6:I:11:ASP:O	6:I:106:THR:OG1	2.12	0.65
6:T:349:LEU:O	6:T:353:GLN:NE2	2.29	0.65
6:I:334:GLU:N	6:I:334:GLU:OE2	2.30	0.65
6:I:349:LEU:O	6:I:353:GLN:NE2	2.29	0.65
6:S:156:GLY:O	6:S:303:THR:OG1	2.14	0.65
2:D:137:GLU:OE2	2:D:158:LYS:N	2.29	0.65
6:J:349:LEU:O	6:J:353:GLN:NE2	2.29	0.65
6:S:334:GLU:N	6:S:334:GLU:OE2	2.30	0.65
6:T:156:GLY:O	6:T:303:THR:OG1	2.14	0.65
6:T:334:GLU:OE2	6:T:334:GLU:N	2.30	0.65
7:V:1:TRP:N	7:V:6:HYP:O	2.30	0.65
6:J:334:GLU:OE2	6:J:334:GLU:N	2.30	0.64
7:U:1:TRP:N	7:U:6:HYP:O	2.31	0.64
5:G:91:SER:OG	5:G:92:GLU:OE1	2.16	0.64
7:c:1:TRP:N	7:c:6:HYP:O	2.31	0.64
7:d:1:TRP:N	7:d:6:HYP:O	2.31	0.64
6:S:197:GLY:O	7:U:1:TRP:HB3	1.98	0.64
1:B:72:TYR:OH	1:B:211:GLU:OE2	2.15	0.63
8:R:519:PRO:HG2	8:R:522:HIS:HE2	1.64	0.63
6:J:44:MET:O	6:J:49:GLN:NE2	2.32	0.63
6:J:69:TYR:OH	6:J:207:GLU:OE2	2.16	0.63
6:T:44:MET:O	6:T:49:GLN:NE2	2.32	0.63
8:R:519:PRO:CG	8:R:522:HIS:HE2	2.12	0.63
2:D:208:GLU:OE1	2:D:208:GLU:N	2.31	0.63
6:I:198:TYR:CD1	7:c:3:ALA:HB2	2.33	0.63
2:N:208:GLU:OE1	2:N:208:GLU:N	2.31	0.62
6:I:44:MET:O	6:I:49:GLN:NE2	2.32	0.62
8:H:519:PRO:CG	8:H:522:HIS:HE2	2.12	0.62
6:I:197:GLY:O	7:c:1:TRP:HB3	1.98	0.62
6:S:198:TYR:CD1	7:U:3:ALA:HB2	2.33	0.62
5:Q:91:SER:OG	5:Q:92:GLU:OE1	2.16	0.62
4:F:3:ALA:O	4:F:4:THR:OG1	2.17	0.62
9:C:26:CYS:SG	9:C:55:VAL:HB	2.41	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:M:26:CYS:SG	9:M:55:VAL:HB	2.40	0.61
8:H:519:PRO:HG2	8:H:522:HIS:HE2	1.64	0.61
6:S:44:MET:O	6:S:49:GLN:NE2	2.32	0.61
7:V:1:TRP:HD1	7:V:5:CYS:HB2	1.68	0.59
9:C:13:CYS:SG	9:C:58:ILE:N	2.76	0.58
8:H:565:LEU:O	8:H:616:LYS:NZ	2.37	0.58
2:N:72:ALA:HB2	2:N:123:SER:OG	2.03	0.58
8:R:565:LEU:O	8:R:616:LYS:NZ	2.37	0.58
7:d:1:TRP:HD1	7:d:5:CYS:HB2	1.68	0.58
2:D:72:ALA:HB2	2:D:123:SER:OG	2.03	0.58
5:G:17:GLU:O	5:G:22:LYS:NZ	2.37	0.58
5:Q:17:GLU:O	5:Q:22:LYS:NZ	2.37	0.57
6:I:69:TYR:OH	6:I:207:GLU:OE2	2.16	0.57
7:c:1:TRP:CD1	7:c:5:CYS:CB	2.87	0.57
1:L:164:THR:OG1	1:L:184:ILE:O	2.22	0.57
9:M:13:CYS:SG	9:M:58:ILE:N	2.76	0.57
1:L:2:ASP:OD1	1:L:6:ARG:N	2.38	0.57
9:C:127:GLN:OE1	9:C:130:ASP:OD1	2.22	0.57
1:B:2:ASP:OD1	1:B:6:ARG:N	2.38	0.56
7:d:1:TRP:CD1	7:d:5:CYS:CB	2.88	0.56
9:M:127:GLN:OE1	9:M:130:ASP:OD1	2.22	0.56
7:U:1:TRP:CD1	7:U:5:CYS:CB	2.87	0.56
4:F:35:LYS:O	4:F:68:ASN:ND2	2.38	0.56
8:H:326:LEU:HD11	8:R:326:LEU:HD11	1.87	0.56
6:I:43:VAL:HG23	10:A:146:VAL:HG11	1.88	0.56
7:V:1:TRP:CD1	7:V:5:CYS:CB	2.88	0.56
10:K:14:THR:CG2	10:K:198:ARG:CZ	2.84	0.56
6:S:75:ILE:HD11	7:V:1:TRP:CE2	2.41	0.55
2:D:66:GLU:OE1	2:D:66:GLU:N	2.40	0.55
7:c:1:TRP:HD1	7:c:5:CYS:CB	2.19	0.55
10:A:14:THR:CG2	10:A:198:ARG:CZ	2.84	0.55
1:L:372:TRP:O	1:L:388:LYS:NZ	2.32	0.55
9:M:188:LYS:NZ	9:M:193:GLU:OE2	2.38	0.55
9:C:188:LYS:NZ	9:C:193:GLU:OE2	2.38	0.55
2:N:66:GLU:OE1	2:N:66:GLU:N	2.40	0.55
7:c:1:TRP:HD1	7:c:5:CYS:HB2	1.67	0.55
4:P:35:LYS:O	4:P:68:ASN:ND2	2.38	0.55
6:S:69:TYR:OH	6:S:207:GLU:OE2	2.16	0.55
6:S:43:VAL:HG23	10:K:146:VAL:HG11	1.88	0.55
7:V:1:TRP:HD1	7:V:5:CYS:CB	2.20	0.55
3:E:43:ASP:OD1	3:E:143:ARG:NH1	2.39	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:269:LEU:HB2	9:C:285:LEU:HD21	1.89	0.54
1:B:164:THR:OG1	1:B:184:ILE:O	2.22	0.54
6:I:75:ILE:HD11	7:d:1:TRP:CE2	2.41	0.54
7:d:1:TRP:HD1	7:d:5:CYS:CB	2.20	0.54
1:L:25:SER:OG	1:L:27:PHE:O	2.24	0.54
5:Q:92:GLU:OE1	5:Q:92:GLU:N	2.41	0.54
8:H:519:PRO:CG	8:H:522:HIS:NE2	2.71	0.54
7:U:1:TRP:HD1	7:U:5:CYS:CB	2.19	0.53
7:U:4:DTH:C	7:U:5:CYS:O	2.56	0.53
9:M:269:LEU:HB2	9:M:285:LEU:HD21	1.89	0.53
7:d:4:DTH:C	7:d:5:CYS:O	2.56	0.53
8:R:519:PRO:CG	8:R:522:HIS:NE2	2.71	0.53
2:N:171:ASP:OD1	2:N:172:ASP:N	2.41	0.53
5:G:27:GLN:N	5:G:27:GLN:OE1	2.42	0.53
7:V:4:DTH:C	7:V:5:CYS:O	2.56	0.53
7:c:4:DTH:C	7:c:5:CYS:O	2.56	0.53
5:G:92:GLU:OE1	5:G:92:GLU:N	2.41	0.53
3:O:43:ASP:OD1	3:O:143:ARG:NH1	2.39	0.52
4:P:3:ALA:O	4:P:4:THR:OG1	2.17	0.52
2:D:171:ASP:OD1	2:D:172:ASP:N	2.41	0.52
6:T:69:TYR:OH	6:T:207:GLU:OE2	2.16	0.52
5:G:90:SER:N	8:H:694:GLU:OE1	2.42	0.52
5:Q:27:GLN:N	5:Q:27:GLN:OE1	2.42	0.52
10:A:211:ARG:NH2	10:A:270:ASP:O	2.43	0.52
3:O:58:TYR:HB2	3:O:169:MET:HE3	1.91	0.52
1:B:152:LEU:HD23	6:J:44:MET:HE3	1.91	0.52
4:F:24:ASN:OD1	4:F:25:PHE:N	2.43	0.52
6:J:145:SER:OG	6:J:147:ARG:NH1	2.43	0.52
9:C:323:SER:OG	9:C:324:LEU:N	2.43	0.52
4:P:24:ASN:OD1	4:P:25:PHE:N	2.43	0.52
3:E:58:TYR:HB2	3:E:169:MET:HE3	1.91	0.52
4:P:91:MET:SD	4:P:114:ILE:HD12	2.50	0.52
4:F:91:MET:SD	4:F:114:ILE:HD12	2.50	0.51
1:B:372:TRP:O	1:B:388:LYS:NZ	2.32	0.51
1:L:152:LEU:HD23	6:T:44:MET:HE3	1.91	0.51
10:K:211:ARG:NH2	10:K:270:ASP:O	2.43	0.51
1:B:161:ASP:N	11:B:501:ADP:O1B	2.44	0.51
6:T:145:SER:OG	6:T:147:ARG:NH1	2.43	0.51
6:I:145:SER:OG	6:I:147:ARG:NH1	2.43	0.51
8:R:388:ASP:OD1	8:R:392:ARG:NE	2.44	0.51
9:M:323:SER:OG	9:M:324:LEU:N	2.43	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:S:145:SER:OG	6:S:147:ARG:NH1	2.43	0.51
4:F:80:ASP:OD1	4:F:80:ASP:N	2.44	0.51
1:L:161:ASP:N	11:L:501:ADP:O1B	2.44	0.51
2:N:7:ASN:ND2	2:N:12:GLU:OE2	2.44	0.51
8:H:388:ASP:OD1	8:H:392:ARG:NE	2.44	0.50
1:B:75:GLU:OE1	1:B:80:ARG:NH1	2.45	0.50
7:d:1:TRP:O	7:d:6:HYP:O	2.30	0.50
1:L:75:GLU:OE1	1:L:80:ARG:NH1	2.45	0.50
6:S:73:HIS:O	6:S:177:ARG:NH2	2.45	0.50
6:I:73:HIS:O	6:I:177:ARG:NH2	2.45	0.50
10:A:156:ARG:NE	10:A:160:GLU:O	2.45	0.50
2:D:7:ASN:ND2	2:D:12:GLU:OE2	2.44	0.50
8:H:519:PRO:HG2	8:H:522:HIS:NE2	2.27	0.50
7:V:1:TRP:O	7:V:6:HYP:O	2.30	0.49
6:J:73:HIS:O	6:J:177:ARG:NH2	2.45	0.49
7:c:1:TRP:O	7:c:6:HYP:O	2.30	0.49
9:C:247:LEU:HD13	9:C:260:ALA:CB	2.41	0.49
9:M:247:LEU:HD13	9:M:260:ALA:CB	2.41	0.49
10:K:193:ILE:HD11	10:K:299:VAL:HG11	1.94	0.49
10:A:193:ILE:HD11	10:A:299:VAL:HG11	1.94	0.49
1:L:257:GLU:OE1	1:L:257:GLU:N	2.44	0.49
7:U:1:TRP:HD1	7:U:5:CYS:HB2	1.67	0.49
10:K:156:ARG:NE	10:K:160:GLU:O	2.45	0.49
6:T:73:HIS:O	6:T:177:ARG:NH2	2.45	0.49
2:D:72:ALA:HA	2:D:123:SER:HB3	1.95	0.49
2:N:72:ALA:HA	2:N:123:SER:HB3	1.95	0.49
1:B:257:GLU:OE1	1:B:257:GLU:N	2.44	0.48
10:A:281:ILE:HG22	10:A:287:PHE:HB2	1.95	0.48
1:B:75:GLU:O	7:c:7:ALA:HB2	2.14	0.48
6:T:38:PRO:HA	6:T:65:LEU:HD23	1.96	0.48
7:U:1:TRP:O	7:U:6:HYP:O	2.30	0.48
4:P:80:ASP:OD1	4:P:80:ASP:N	2.44	0.48
1:L:75:GLU:O	7:U:7:ALA:HB2	2.14	0.48
10:K:281:ILE:HG22	10:K:287:PHE:HB2	1.95	0.48
10:A:164:THR:HG21	10:A:314:PRO:HB2	1.96	0.48
1:B:25:SER:OG	1:B:27:PHE:O	2.24	0.47
10:K:145:ALA:HB3	10:K:178:ILE:HD12	1.96	0.47
9:M:247:LEU:HD13	9:M:260:ALA:HB1	1.97	0.47
6:I:38:PRO:HA	6:I:65:LEU:HD23	1.96	0.47
6:J:38:PRO:HA	6:J:65:LEU:HD23	1.96	0.47
10:A:145:ALA:HB3	10:A:178:ILE:HD12	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:62:SER:O	1:L:65:ARG:NH1	2.45	0.47
3:O:62:ASN:OD1	3:O:62:ASN:N	2.47	0.47
6:S:38:PRO:HA	6:S:65:LEU:HD23	1.96	0.47
5:Q:90:SER:N	8:R:694:GLU:OE1	2.42	0.47
8:R:519:PRO:HG2	8:R:522:HIS:NE2	2.27	0.47
2:D:183:GLN:O	2:D:183:GLN:NE2	2.46	0.47
9:C:247:LEU:HD13	9:C:260:ALA:HB1	1.97	0.46
2:D:67:LEU:O	2:D:72:ALA:HB3	2.16	0.46
10:K:164:THR:HG21	10:K:314:PRO:HB2	1.96	0.46
1:L:362:ALA:O	1:L:366:LYS:N	2.48	0.46
8:R:475:ILE:HG23	8:R:511:VAL:HA	1.97	0.46
8:R:667:ILE:O	8:R:671:THR:OG1	2.32	0.46
3:E:62:ASN:OD1	3:E:62:ASN:N	2.47	0.46
3:O:50:LYS:NZ	10:K:246:ASP:OD2	2.48	0.46
8:H:475:ILE:HG23	8:H:511:VAL:HA	1.97	0.46
1:L:72:TYR:OH	1:L:211:GLU:OE2	2.15	0.46
1:B:362:ALA:O	1:B:366:LYS:N	2.48	0.46
8:H:321:ARG:NH1	8:H:326:LEU:O	2.46	0.46
2:N:183:GLN:O	2:N:183:GLN:NE2	2.46	0.46
10:K:156:ARG:HE	10:K:162:THR:HG23	1.81	0.46
10:A:156:ARG:HE	10:A:162:THR:HG23	1.81	0.45
2:D:271:SER:OG	4:F:97:ARG:NH1	2.50	0.45
3:E:50:LYS:NZ	10:A:246:ASP:OD2	2.48	0.45
10:K:174:VAL:HG13	10:K:176:HIS:CE1	2.52	0.45
10:A:174:VAL:HG13	10:A:176:HIS:CE1	2.52	0.45
10:A:172:ASP:N	11:A:501:ADP:O3B	2.49	0.45
1:B:54:ASP:O	1:B:55:LEU:HD22	2.16	0.45
6:I:112:PRO:HD3	7:d:1:TRP:CH2	2.52	0.45
10:A:14:THR:HG22	10:A:198:ARG:NH2	2.31	0.45
2:N:271:SER:OG	4:P:97:ARG:NH1	2.50	0.45
8:H:320:VAL:O	8:H:324:THR:OG1	2.27	0.45
2:N:67:LEU:O	2:N:72:ALA:HB3	2.16	0.45
8:R:398:GLN:NE2	8:R:404:TYR:O	2.50	0.45
1:B:62:SER:O	1:B:65:ARG:NH1	2.45	0.45
2:N:150:GLU:OE2	2:N:248:ARG:NH2	2.50	0.45
8:H:667:ILE:O	8:H:671:THR:OG1	2.32	0.45
1:L:152:LEU:HD21	6:T:47:MET:SD	2.57	0.45
7:U:1:TRP:HB2	7:U:4:DTH:O	2.17	0.45
7:V:1:TRP:HB2	7:V:4:DTH:O	2.17	0.45
10:K:14:THR:HG22	10:K:198:ARG:NH2	2.31	0.45
2:D:69:ALA:O	2:D:70:HIS:HB2	2.17	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:69:ALA:O	2:N:70:HIS:HB2	2.17	0.44
1:B:152:LEU:HD21	6:J:47:MET:SD	2.57	0.44
6:S:112:PRO:HD3	7:V:1:TRP:CH2	2.52	0.44
10:K:172:ASP:N	11:K:501:ADP:O3B	2.49	0.44
8:H:353:MET:HE1	8:R:353:MET:HE1	1.99	0.44
8:H:398:GLN:NE2	8:H:404:TYR:O	2.50	0.44
10:A:92:PHE:O	10:A:96:VAL:HG23	2.18	0.44
10:A:260:ASN:OD1	10:A:261:ALA:N	2.51	0.44
10:K:260:ASN:OD1	10:K:261:ALA:N	2.51	0.44
7:c:1:TRP:HB2	7:c:4:DTH:O	2.17	0.44
1:L:54:ASP:O	1:L:55:LEU:HD22	2.16	0.44
10:K:92:PHE:O	10:K:96:VAL:HG23	2.18	0.43
7:d:4:DTH:O	7:d:5:CYS:C	2.61	0.43
9:M:220:VAL:HG23	9:M:250:LEU:CD2	2.47	0.43
10:A:174:VAL:HG21	10:A:192:HIS:NE2	2.32	0.43
6:S:184:ASP:OD1	6:S:184:ASP:N	2.51	0.43
8:R:447:TYR:OH	8:R:451:GLU:OE1	2.31	0.43
9:M:240:LEU:HD23	9:M:270:PHE:CD1	2.53	0.43
10:K:33:SER:OG	10:K:78:ILE:HD12	2.18	0.43
10:K:174:VAL:HG21	10:K:192:HIS:NE2	2.32	0.43
7:d:1:TRP:HB2	7:d:4:DTH:O	2.17	0.43
5:Q:25:ASP:OD1	5:Q:26:GLU:N	2.51	0.43
8:R:320:VAL:O	8:R:324:THR:OG1	2.27	0.43
10:A:294:GLN:NE2	10:A:302:GLU:OE2	2.51	0.43
10:K:294:GLN:NE2	10:K:302:GLU:OE2	2.51	0.43
1:B:236:GLU:O	4:F:106:ARG:N	2.52	0.43
8:R:321:ARG:NH1	8:R:326:LEU:O	2.46	0.43
2:D:51:ASP:OD1	2:D:53:THR:OG1	2.37	0.43
6:I:360:GLN:NE2	6:I:364:GLU:OE1	2.52	0.43
9:C:240:LEU:HD23	9:C:270:PHE:CD1	2.53	0.43
5:G:25:ASP:OD1	5:G:26:GLU:N	2.51	0.43
7:c:4:DTH:HG21	10:A:309:ILE:HD12	2.01	0.43
6:T:360:GLN:NE2	6:T:364:GLU:OE1	2.52	0.43
9:C:13:CYS:SG	9:C:14:HIS:N	2.92	0.43
6:S:44:MET:HE3	10:K:153:TRP:CH2	2.54	0.43
10:A:33:SER:OG	10:A:78:ILE:HD12	2.18	0.42
1:B:230:GLU:OE2	4:F:35:LYS:NZ	2.44	0.42
4:P:122:HIS:O	4:P:126:MET:N	2.51	0.42
4:F:91:MET:HE1	4:F:138:PHE:HZ	1.84	0.42
6:T:184:ASP:N	6:T:184:ASP:OD1	2.51	0.42
2:D:150:GLU:OE2	2:D:248:ARG:NH2	2.50	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:198:TYR:HA	7:c:3:ALA:O	2.19	0.42
4:P:91:MET:HE1	4:P:138:PHE:HZ	1.84	0.42
6:J:184:ASP:OD1	6:J:184:ASP:N	2.51	0.42
6:J:360:GLN:NE2	6:J:364:GLU:OE1	2.52	0.42
9:C:14:HIS:O	9:C:331:GLN:NE2	2.51	0.42
2:N:159:ASP:OD1	2:N:159:ASP:N	2.53	0.42
5:Q:53:MET:HE1	5:Q:87:ASN:HB2	2.02	0.42
6:S:360:GLN:NE2	6:S:364:GLU:OE1	2.52	0.42
9:M:14:HIS:O	9:M:331:GLN:NE2	2.51	0.42
6:I:44:MET:HE3	10:A:153:TRP:CH2	2.54	0.42
6:S:198:TYR:HA	7:U:3:ALA:O	2.19	0.42
9:M:13:CYS:SG	9:M:14:HIS:N	2.92	0.42
10:K:14:THR:HG22	10:K:198:ARG:CZ	2.49	0.42
10:K:122:ASN:O	10:K:126:THR:OG1	2.35	0.42
6:I:184:ASP:OD1	6:I:184:ASP:N	2.51	0.42
6:J:282:ILE:HG22	6:J:290:ARG:HD3	2.02	0.41
1:L:149:GLN:OE1	1:L:353:MET:HE1	2.20	0.41
6:T:282:ILE:HG22	6:T:290:ARG:HD3	2.02	0.41
6:S:282:ILE:HG22	6:S:290:ARG:HD3	2.02	0.41
1:B:149:GLN:OE1	1:B:353:MET:HE1	2.20	0.41
10:A:14:THR:HG22	10:A:198:ARG:CZ	2.49	0.41
9:C:284:ARG:NE	9:C:286:ASP:OD1	2.50	0.41
9:M:216:ARG:HB3	9:M:228:LEU:HD21	2.03	0.41
1:B:59:ASP:OD1	1:B:91:TYR:OH	2.34	0.41
5:G:140:LEU:HD13	9:C:245:LEU:HD21	2.02	0.41
10:A:199:ASP:OD1	10:A:199:ASP:N	2.53	0.41
7:U:4:DTH:HG21	10:K:309:ILE:HD12	2.01	0.41
4:F:122:HIS:O	4:F:126:MET:N	2.51	0.41
10:A:313:ARG:NH2	10:A:361:LYS:O	2.54	0.41
10:K:14:THR:CG2	10:K:198:ARG:NH2	2.84	0.41
6:I:282:ILE:HG22	6:I:290:ARG:HD3	2.02	0.41
9:C:220:VAL:HG23	9:C:250:LEU:CD2	2.47	0.41
10:A:14:THR:CG2	10:A:198:ARG:NH2	2.84	0.41
10:A:174:VAL:HG23	10:A:194:PRO:HA	2.03	0.41
5:Q:140:LEU:HD13	9:M:245:LEU:HD21	2.02	0.41
6:S:43:VAL:HG22	10:K:185:VAL:HG21	2.02	0.41
8:R:599:ASP:OD1	8:R:613:SER:OG	2.29	0.41
10:K:174:VAL:HG23	10:K:194:PRO:HA	2.03	0.41
6:J:244:ASP:OD2	6:J:246:GLN:NE2	2.54	0.41
6:T:244:ASP:OD2	6:T:246:GLN:NE2	2.54	0.41
6:S:43:VAL:CG2	10:K:185:VAL:HG21	2.51	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:244:ASP:OD2	6:I:246:GLN:NE2	2.54	0.40
9:C:168:ILE:HD12	9:C:196:PHE:HD1	1.87	0.40
9:M:284:ARG:NE	9:M:286:ASP:OD1	2.50	0.40
2:D:159:ASP:OD1	2:D:159:ASP:N	2.53	0.40
5:G:53:MET:HE1	5:G:87:ASN:HB2	2.02	0.40
6:S:315:LYS:O	6:S:318:THR:OG1	2.38	0.40
10:K:313:ARG:NH2	10:K:361:LYS:O	2.54	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	392/394 (100%)	381 (97%)	11 (3%)	0	100	100
1	L	392/394 (100%)	381 (97%)	11 (3%)	0	100	100
2	D	280/300 (93%)	261 (93%)	19 (7%)	0	100	100
2	N	280/300 (93%)	261 (93%)	19 (7%)	0	100	100
3	E	172/178 (97%)	165 (96%)	7 (4%)	0	100	100
3	O	172/178 (97%)	165 (96%)	7 (4%)	0	100	100
4	F	165/168 (98%)	158 (96%)	7 (4%)	0	100	100
4	P	165/168 (98%)	158 (96%)	7 (4%)	0	100	100
5	G	150/153 (98%)	149 (99%)	1 (1%)	0	100	100
5	Q	150/153 (98%)	149 (99%)	1 (1%)	0	100	100
6	I	370/375 (99%)	365 (99%)	5 (1%)	0	100	100
6	J	370/375 (99%)	365 (99%)	5 (1%)	0	100	100
6	S	370/375 (99%)	365 (99%)	5 (1%)	0	100	100
6	T	370/375 (99%)	365 (99%)	5 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
7	U	2/7 (29%)	1 (50%)	0	1 (50%)	0 0
7	V	2/7 (29%)	1 (50%)	0	1 (50%)	0 0
7	c	2/7 (29%)	1 (50%)	0	1 (50%)	0 0
7	d	2/7 (29%)	1 (50%)	0	1 (50%)	0 0
8	H	403/722 (56%)	393 (98%)	10 (2%)	0	100 100
8	R	403/722 (56%)	393 (98%)	10 (2%)	0	100 100
9	C	339/372 (91%)	325 (96%)	14 (4%)	0	100 100
9	M	339/372 (91%)	325 (96%)	14 (4%)	0	100 100
10	A	397/418 (95%)	385 (97%)	12 (3%)	0	100 100
10	K	397/418 (95%)	385 (97%)	12 (3%)	0	100 100
All	All	6084/6938 (88%)	5898 (97%)	182 (3%)	4 (0%)	50 81

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	c	5	CYS
7	d	5	CYS
7	U	5	CYS
7	V	5	CYS

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	342/345 (99%)	342 (100%)	0	100 100
1	L	342/345 (99%)	342 (100%)	0	100 100
2	D	243/264 (92%)	243 (100%)	0	100 100
2	N	243/264 (92%)	243 (100%)	0	100 100
3	E	156/159 (98%)	156 (100%)	0	100 100
3	O	156/159 (98%)	156 (100%)	0	100 100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	F	153/155 (99%)	153 (100%)	0	100	100
4	P	153/155 (99%)	153 (100%)	0	100	100
5	G	125/127 (98%)	125 (100%)	0	100	100
5	Q	125/127 (98%)	125 (100%)	0	100	100
6	I	313/318 (98%)	313 (100%)	0	100	100
6	J	315/318 (99%)	315 (100%)	0	100	100
6	S	313/318 (98%)	313 (100%)	0	100	100
6	T	315/318 (99%)	315 (100%)	0	100	100
7	U	2/2 (100%)	2 (100%)	0	100	100
7	V	2/2 (100%)	2 (100%)	0	100	100
7	c	2/2 (100%)	2 (100%)	0	100	100
7	d	2/2 (100%)	2 (100%)	0	100	100
8	H	356/608 (59%)	356 (100%)	0	100	100
8	R	356/608 (59%)	356 (100%)	0	100	100
9	C	286/311 (92%)	286 (100%)	0	100	100
9	M	286/311 (92%)	286 (100%)	0	100	100
10	A	349/363 (96%)	349 (100%)	0	100	100
10	K	349/363 (96%)	349 (100%)	0	100	100
All	All	5284/5944 (89%)	5284 (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. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	71	ASN
3	E	86	ASN
3	E	152	GLN
5	G	98	GLN
6	I	40	HIS
6	I	115	ASN
6	I	246	GLN
6	J	115	ASN
6	J	246	GLN
8	H	612	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	O	86	ASN
3	O	152	GLN
5	Q	98	GLN
6	S	40	HIS
6	S	246	GLN
6	T	246	GLN
8	R	522	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

12 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	$\#\|Z\| > 2$
7	HYP	c	6	7	6,8,9	0.50	0	5,10,12	1.27	1 (20%)
7	EEP	c	2	7	8,9,10	1.42	2 (25%)	5,12,14	1.01	0
7	EEP	d	2	7	8,9,10	1.40	2 (25%)	5,12,14	0.98	0
7	HYP	V	6	7	6,8,9	0.50	0	5,10,12	1.24	1 (20%)
7	EEP	V	2	7	8,9,10	1.39	2 (25%)	5,12,14	0.98	0
7	HYP	d	6	7	6,8,9	0.50	0	5,10,12	1.24	1 (20%)
7	EEP	U	2	7	8,9,10	1.42	2 (25%)	5,12,14	1.00	0
7	HYP	U	6	7	6,8,9	0.50	0	5,10,12	1.27	1 (20%)

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
7	HYP	c	6	7	-	0/0/11/13	0/1/1/1
7	EEP	c	2	7	-	3/9/10/12	-
7	EEP	d	2	7	-	3/9/10/12	-
7	HYP	V	6	7	-	0/0/11/13	0/1/1/1
7	EEP	V	2	7	-	3/9/10/12	-
7	HYP	d	6	7	-	0/0/11/13	0/1/1/1
7	EEP	U	2	7	-	3/9/10/12	-
7	HYP	U	6	7	-	0/0/11/13	0/1/1/1

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	d	2	EEP	CB-CA	-2.72	1.50	1.54
7	c	2	EEP	CB-CA	-2.69	1.50	1.54
7	U	2	EEP	CB-CA	-2.69	1.50	1.54
7	V	2	EEP	CB-CA	-2.68	1.50	1.54
7	c	2	EEP	CB-CG	-2.42	1.50	1.53
7	U	2	EEP	CB-CG	-2.42	1.50	1.53
7	d	2	EEP	CB-CG	-2.31	1.50	1.53
7	V	2	EEP	CB-CG	-2.31	1.50	1.53

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	c	6	HYP	O-C-CA	-2.29	118.79	124.78
7	U	6	HYP	O-C-CA	-2.29	118.79	124.78
7	d	6	HYP	O-C-CA	-2.28	118.81	124.78
7	V	6	HYP	O-C-CA	-2.28	118.81	124.78

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	c	2	EEP	O2-CD1-CG-CB
7	c	2	EEP	O2-CD1-CG-O1
7	c	2	EEP	O2-CD1-CG-CD2
7	d	2	EEP	O2-CD1-CG-CB
7	d	2	EEP	O2-CD1-CG-O1
7	d	2	EEP	O2-CD1-CG-CD2
7	U	2	EEP	O2-CD1-CG-CB
7	U	2	EEP	O2-CD1-CG-O1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
7	U	2	EEP	O2-CD1-CG-CD2
7	V	2	EEP	O2-CD1-CG-CB
7	V	2	EEP	O2-CD1-CG-O1
7	V	2	EEP	O2-CD1-CG-CD2

There are no ring outliers.

8 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	c	6	HYP	3	0
7	c	2	EEP	1	0
7	d	2	EEP	1	0
7	V	6	HYP	3	0
7	V	2	EEP	1	0
7	d	6	HYP	3	0
7	U	2	EEP	1	0
7	U	6	HYP	3	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 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	$\#\|Z\| > 2$
11	ADP	I	401	12	24,29,29	0.91	1 (4%)	29,45,45	1.52	4 (13%)
11	ADP	L	501	12	24,29,29	0.95	1 (4%)	29,45,45	1.45	4 (13%)
11	ADP	S	401	12	24,29,29	0.91	1 (4%)	29,45,45	1.52	4 (13%)
11	ADP	T	401	12	24,29,29	0.91	1 (4%)	29,45,45	1.52	4 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
11	ADP	B	501	12	24,29,29	0.95	1 (4%)	29,45,45	1.44	4 (13%)
11	ADP	A	501	12	24,29,29	0.95	1 (4%)	29,45,45	1.47	3 (10%)
11	ADP	J	401	12	24,29,29	0.91	1 (4%)	29,45,45	1.52	4 (13%)
11	ADP	K	501	12	24,29,29	0.95	1 (4%)	29,45,45	1.47	3 (10%)

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
11	ADP	I	401	12	-	3/12/32/32	0/3/3/3
11	ADP	L	501	12	-	2/12/32/32	0/3/3/3
11	ADP	S	401	12	-	3/12/32/32	0/3/3/3
11	ADP	T	401	12	-	3/12/32/32	0/3/3/3
11	ADP	B	501	12	-	2/12/32/32	0/3/3/3
11	ADP	A	501	12	-	3/12/32/32	0/3/3/3
11	ADP	J	401	12	-	3/12/32/32	0/3/3/3
11	ADP	K	501	12	-	3/12/32/32	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	B	501	ADP	C5-C4	2.23	1.46	1.40
11	L	501	ADP	C5-C4	2.23	1.46	1.40
11	J	401	ADP	C5-C4	2.22	1.46	1.40
11	T	401	ADP	C5-C4	2.22	1.46	1.40
11	I	401	ADP	C5-C4	2.22	1.46	1.40
11	S	401	ADP	C5-C4	2.22	1.46	1.40
11	A	501	ADP	C5-C4	2.15	1.46	1.40
11	K	501	ADP	C5-C4	2.15	1.46	1.40

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	I	401	ADP	PA-O3A-PB	-3.98	119.16	132.83
11	S	401	ADP	PA-O3A-PB	-3.98	119.16	132.83
11	J	401	ADP	PA-O3A-PB	-3.97	119.19	132.83
11	T	401	ADP	PA-O3A-PB	-3.97	119.19	132.83

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	501	ADP	PA-O3A-PB	-3.72	120.05	132.83
11	K	501	ADP	PA-O3A-PB	-3.72	120.05	132.83
11	J	401	ADP	N3-C2-N1	-3.57	123.10	128.68
11	T	401	ADP	N3-C2-N1	-3.57	123.10	128.68
11	I	401	ADP	N3-C2-N1	-3.56	123.11	128.68
11	S	401	ADP	N3-C2-N1	-3.56	123.11	128.68
11	B	501	ADP	PA-O3A-PB	-3.28	121.56	132.83
11	L	501	ADP	PA-O3A-PB	-3.28	121.56	132.83
11	A	501	ADP	N3-C2-N1	-3.05	123.92	128.68
11	K	501	ADP	N3-C2-N1	-3.05	123.92	128.68
11	L	501	ADP	N3-C2-N1	-3.05	123.92	128.68
11	B	501	ADP	N3-C2-N1	-3.03	123.94	128.68
11	B	501	ADP	C4-C5-N7	-2.98	106.29	109.40
11	L	501	ADP	C4-C5-N7	-2.98	106.29	109.40
11	B	501	ADP	C3'-C2'-C1'	2.94	105.40	100.98
11	L	501	ADP	C3'-C2'-C1'	2.94	105.40	100.98
11	A	501	ADP	C4-C5-N7	-2.94	106.34	109.40
11	K	501	ADP	C4-C5-N7	-2.94	106.34	109.40
11	J	401	ADP	C3'-C2'-C1'	2.90	105.34	100.98
11	T	401	ADP	C3'-C2'-C1'	2.90	105.34	100.98
11	I	401	ADP	C3'-C2'-C1'	2.89	105.33	100.98
11	S	401	ADP	C3'-C2'-C1'	2.89	105.33	100.98
11	I	401	ADP	C4-C5-N7	-2.54	106.75	109.40
11	S	401	ADP	C4-C5-N7	-2.54	106.75	109.40
11	J	401	ADP	C4-C5-N7	-2.50	106.79	109.40
11	T	401	ADP	C4-C5-N7	-2.50	106.79	109.40

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	B	501	ADP	C5'-O5'-PA-O1A
11	B	501	ADP	C5'-O5'-PA-O3A
11	I	401	ADP	C5'-O5'-PA-O1A
11	J	401	ADP	C5'-O5'-PA-O1A
11	A	501	ADP	C5'-O5'-PA-O1A
11	L	501	ADP	C5'-O5'-PA-O1A
11	L	501	ADP	C5'-O5'-PA-O3A
11	S	401	ADP	C5'-O5'-PA-O1A
11	T	401	ADP	C5'-O5'-PA-O1A
11	K	501	ADP	C5'-O5'-PA-O1A
11	I	401	ADP	C5'-O5'-PA-O3A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
11	J	401	ADP	C5'-O5'-PA-O3A
11	A	501	ADP	C5'-O5'-PA-O3A
11	S	401	ADP	C5'-O5'-PA-O3A
11	T	401	ADP	C5'-O5'-PA-O3A
11	K	501	ADP	C5'-O5'-PA-O3A
11	I	401	ADP	C5'-O5'-PA-O2A
11	J	401	ADP	C5'-O5'-PA-O2A
11	A	501	ADP	C5'-O5'-PA-O2A
11	S	401	ADP	C5'-O5'-PA-O2A
11	T	401	ADP	C5'-O5'-PA-O2A
11	K	501	ADP	C5'-O5'-PA-O2A

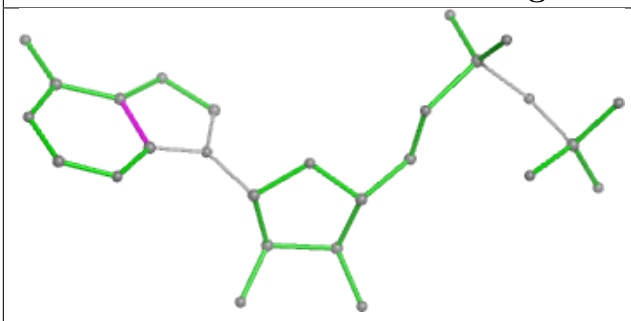
There are no ring outliers.

4 monomers are involved in 6 short contacts:

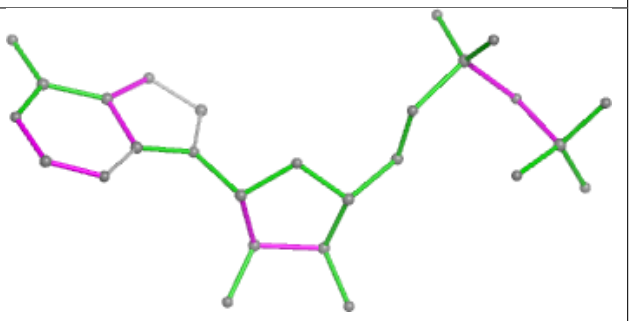
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	L	501	ADP	1	0
11	B	501	ADP	1	0
11	A	501	ADP	2	0
11	K	501	ADP	2	0

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 then 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.

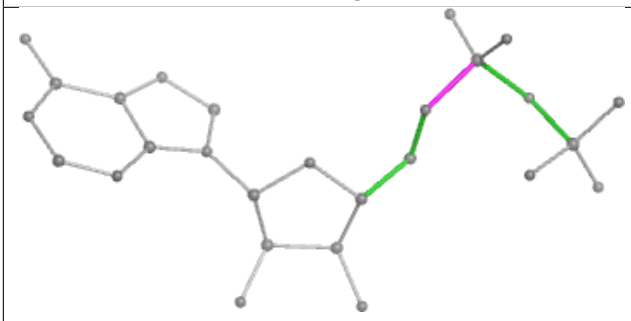
Ligand ADP I 401



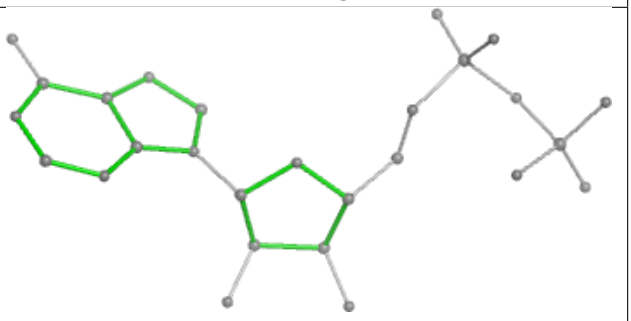
Bond lengths



Bond angles

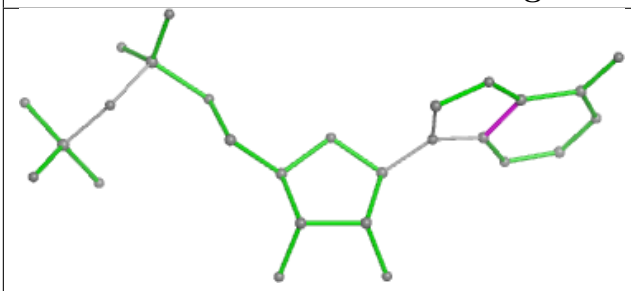


Torsions

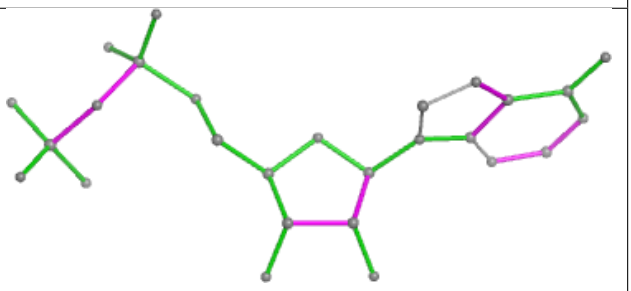


Rings

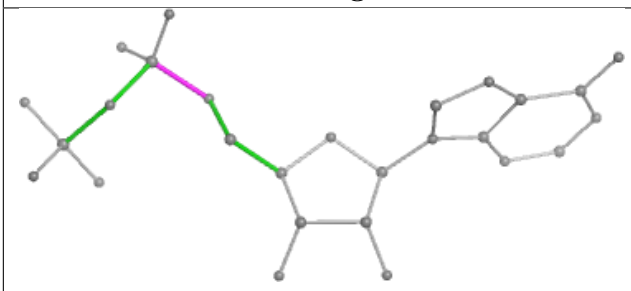
Ligand ADP L 501



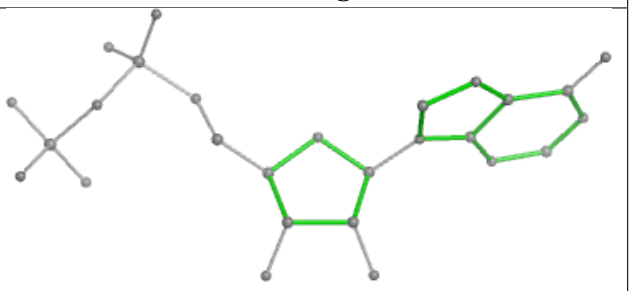
Bond lengths



Bond angles

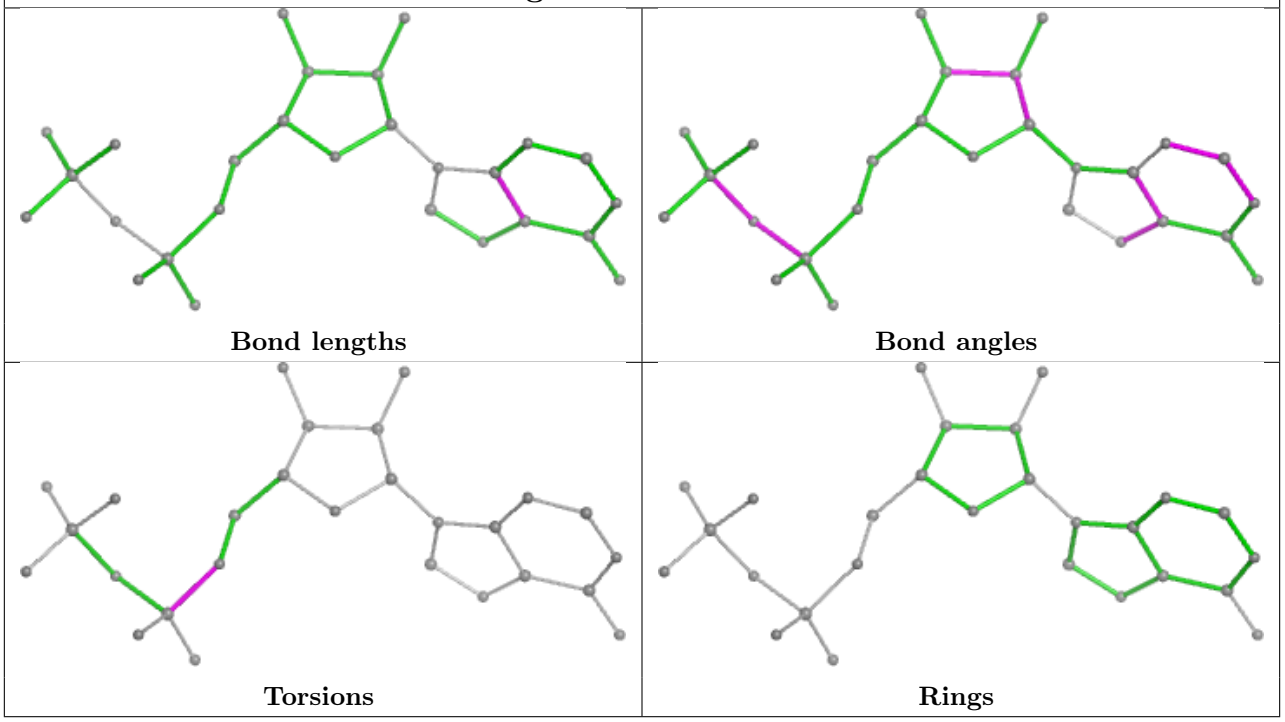


Torsions

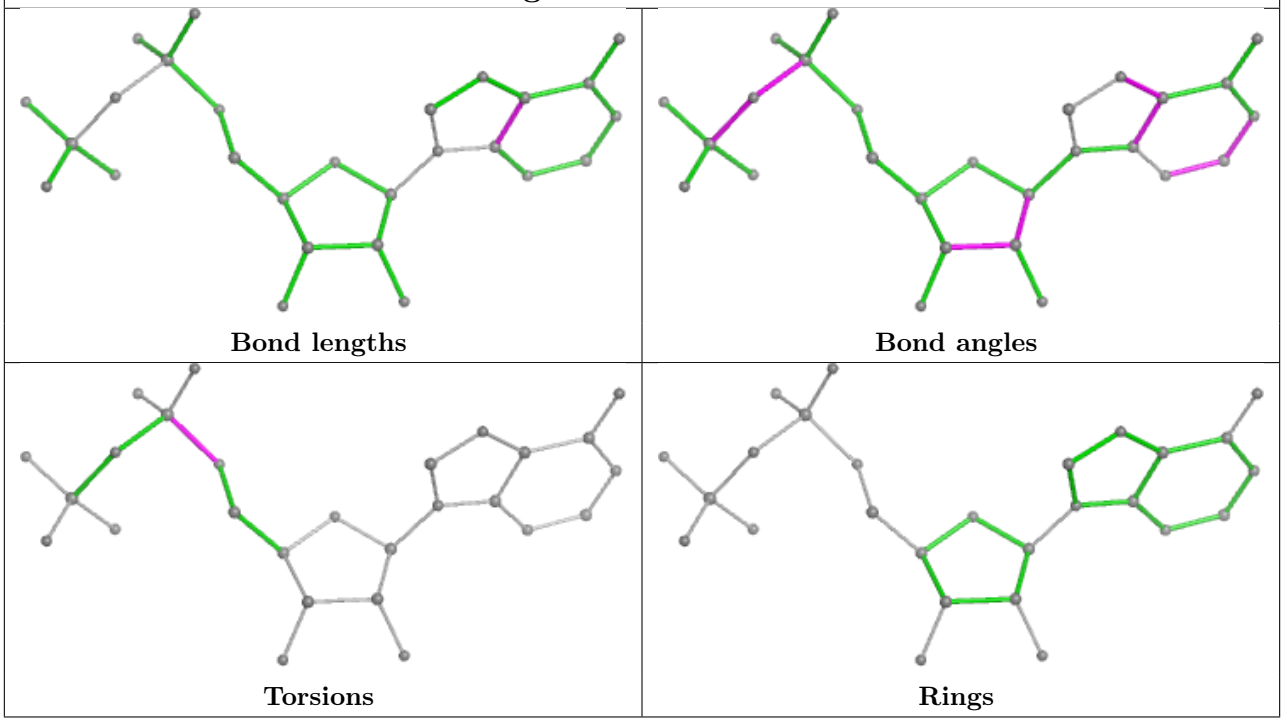


Rings

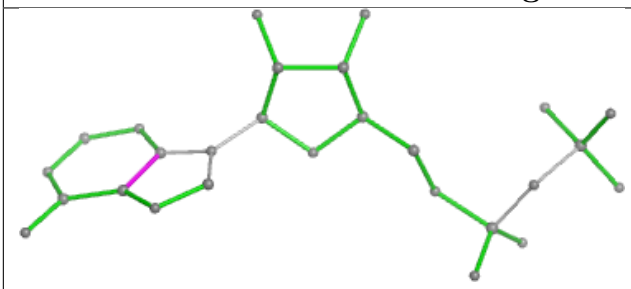
Ligand ADP S 401



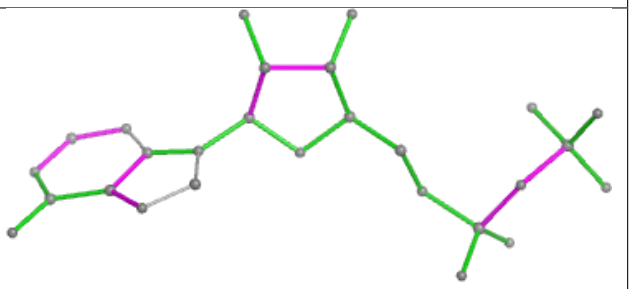
Ligand ADP T 401



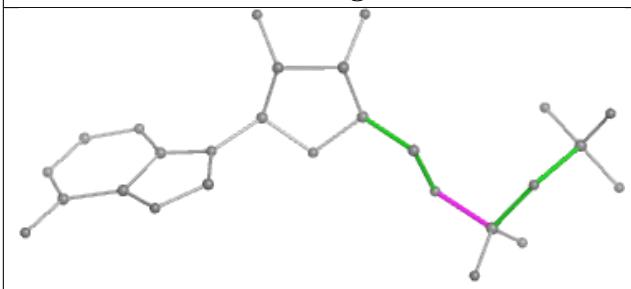
Ligand ADP B 501



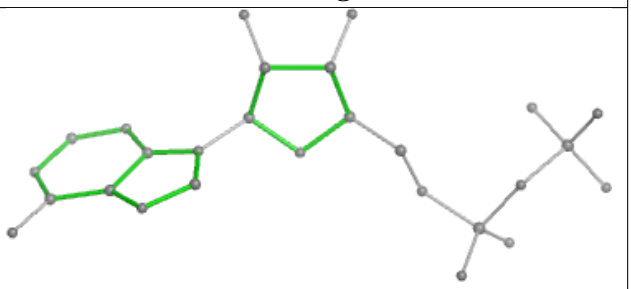
Bond lengths



Bond angles

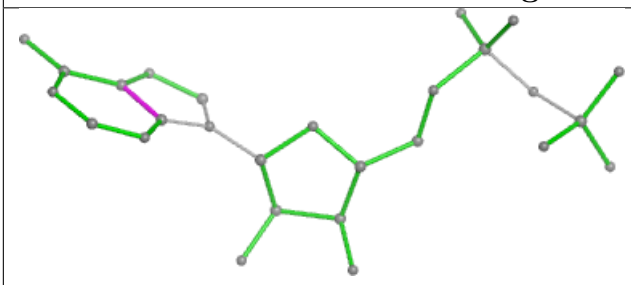


Torsions

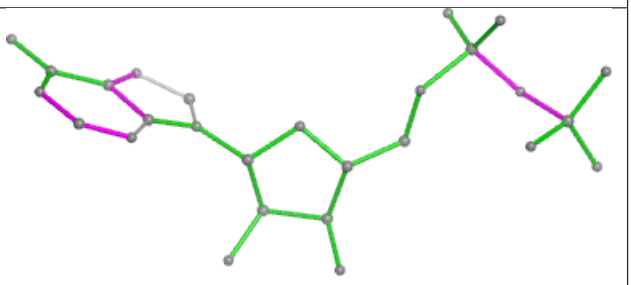


Rings

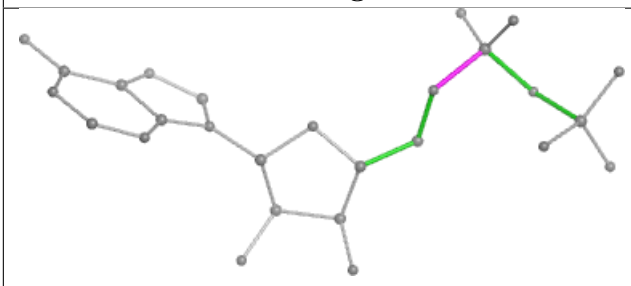
Ligand ADP A 501



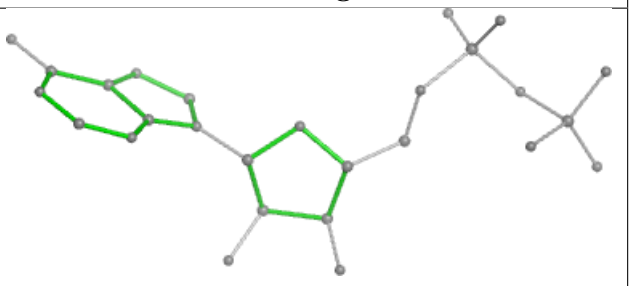
Bond lengths



Bond angles

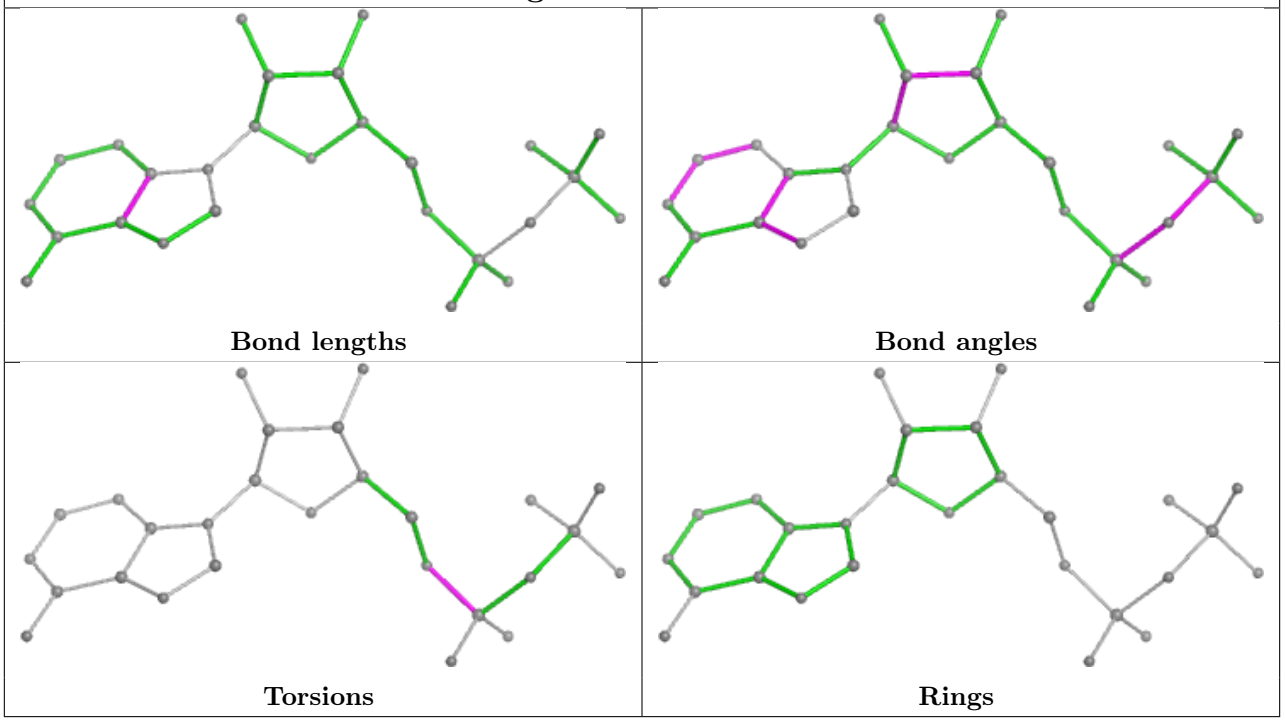


Torsions

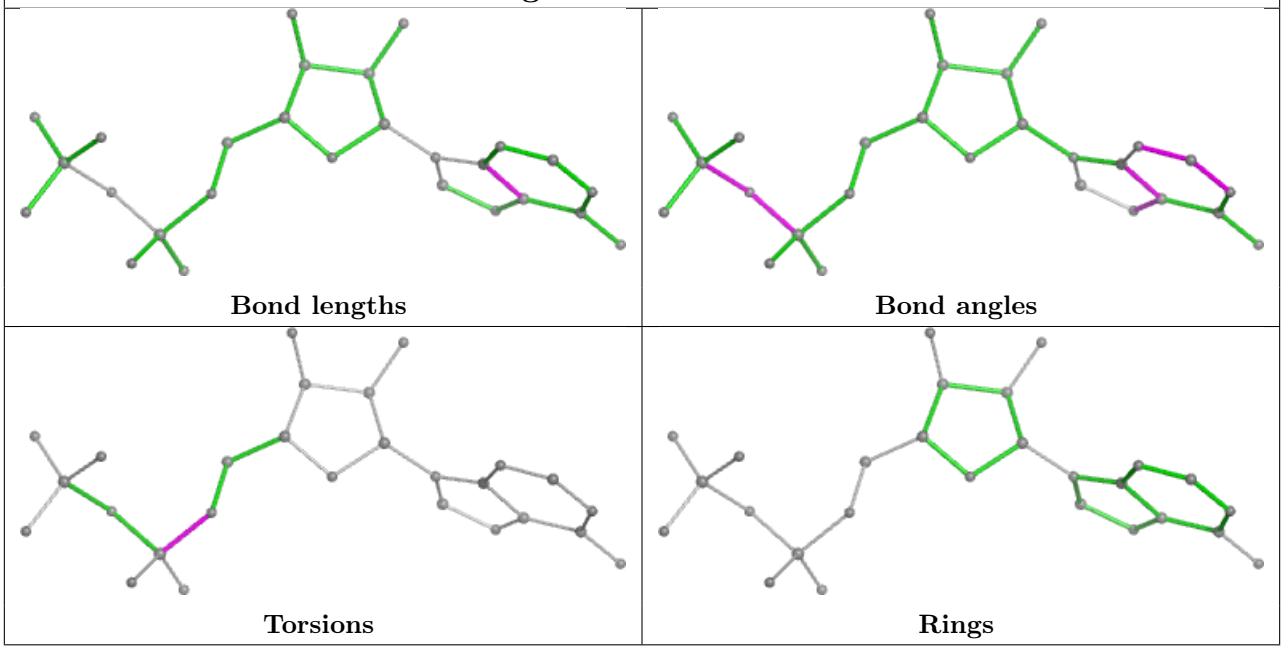


Rings

Ligand ADP J 401



Ligand ADP K 501



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.

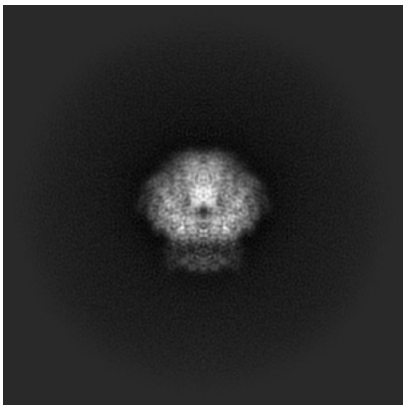
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-52580. These allow visual inspection of the internal detail of the map and identification of artifacts.

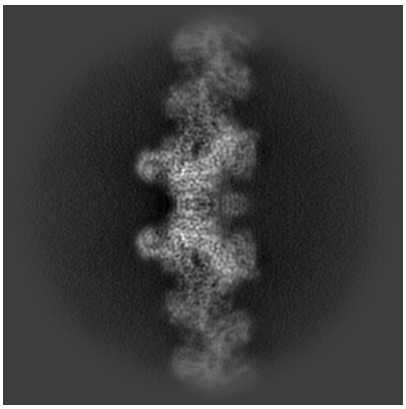
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

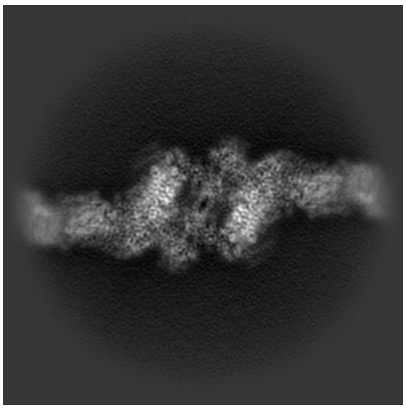
6.1.1 Primary map



X

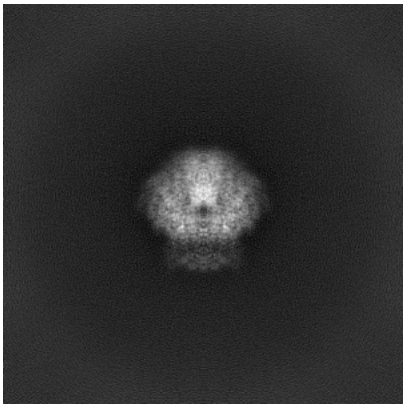


Y

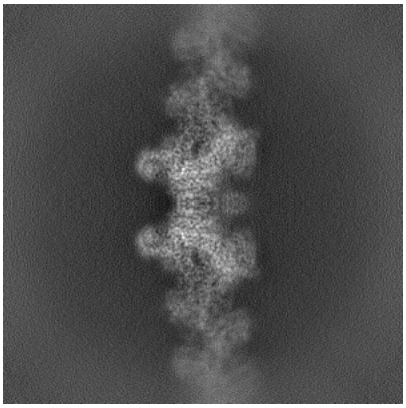


Z

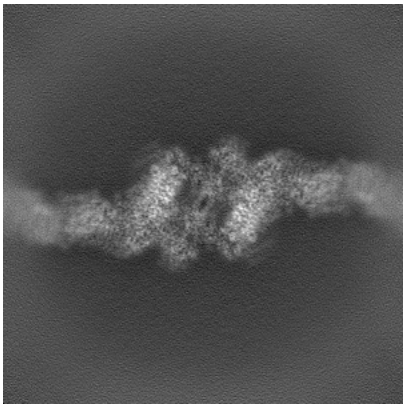
6.1.2 Raw map



X



Y



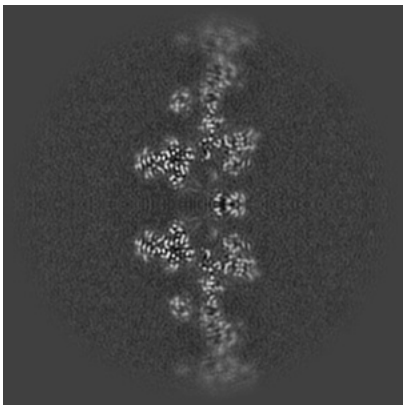
Z

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

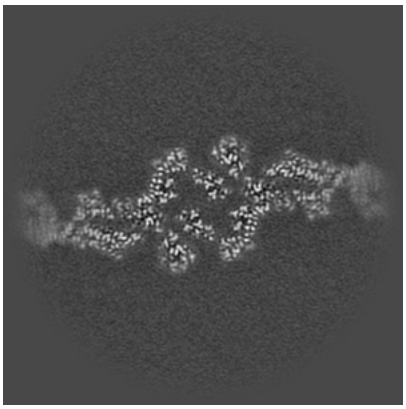
6.2 Central slices (i)

6.2.1 Primary map

X Index: 184

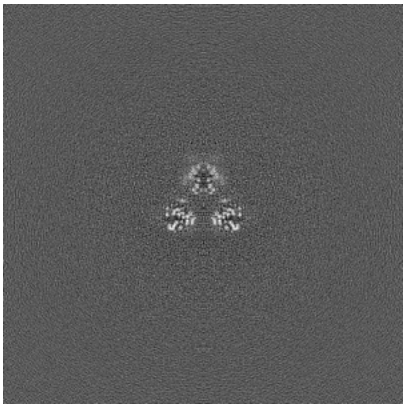


Y Index: 184

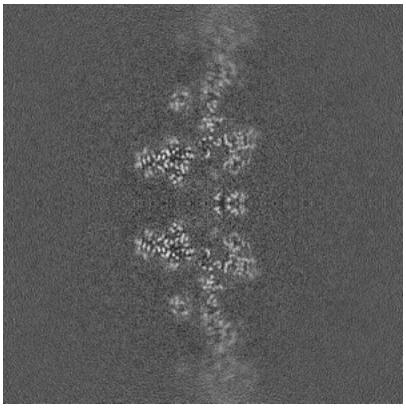


Z Index: 184

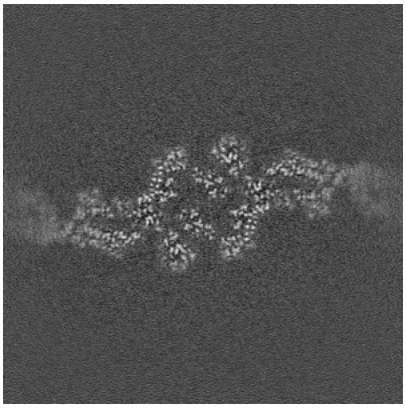
6.2.2 Raw map



X Index: 184



Y Index: 184

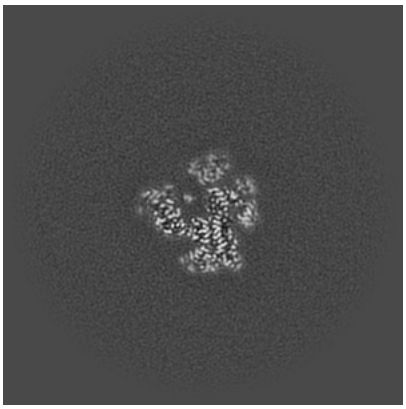


Z Index: 184

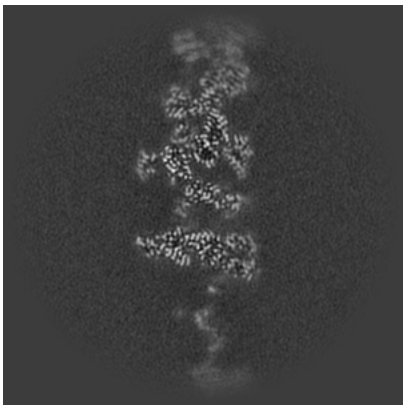
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

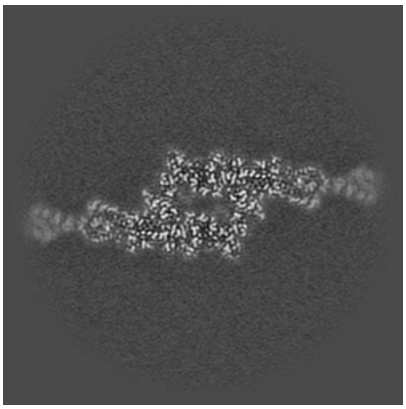
6.3.1 Primary map



X Index: 151

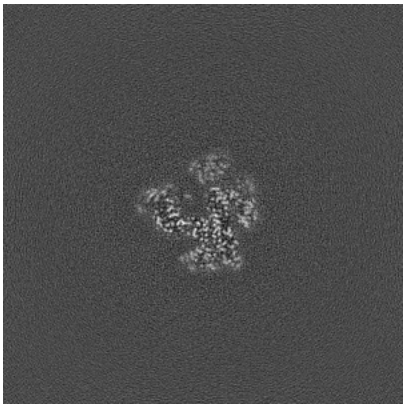


Y Index: 193

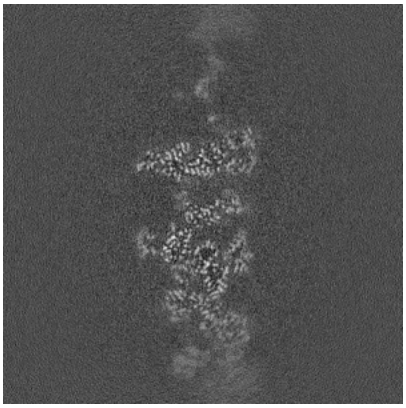


Z Index: 169

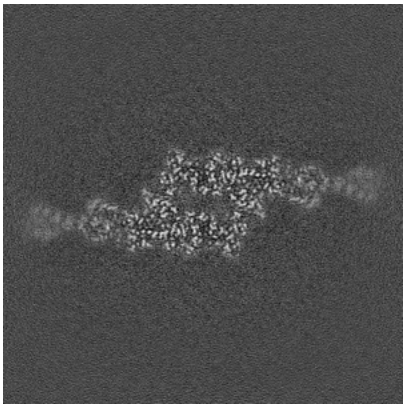
6.3.2 Raw map



X Index: 152



Y Index: 175

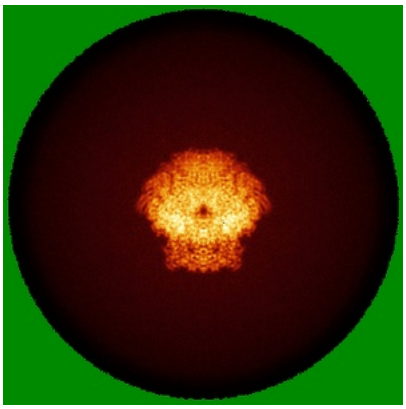


Z Index: 169

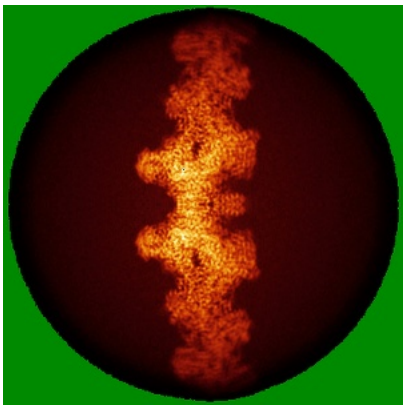
The images above show the largest variance slices of the map in three orthogonal directions.

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

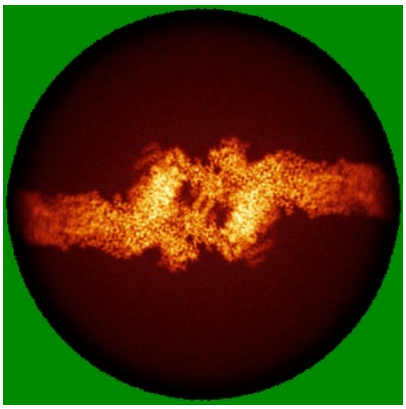
6.4.1 Primary map



X

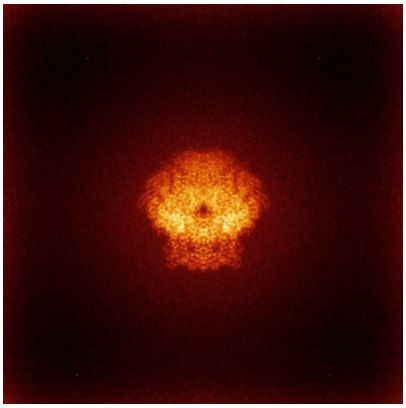


Y

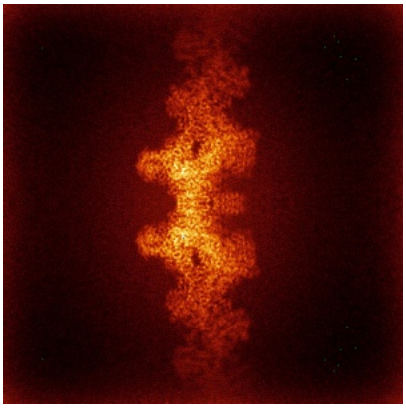


Z

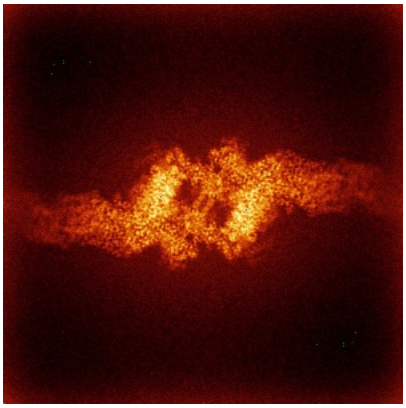
6.4.2 Raw map



X



Y

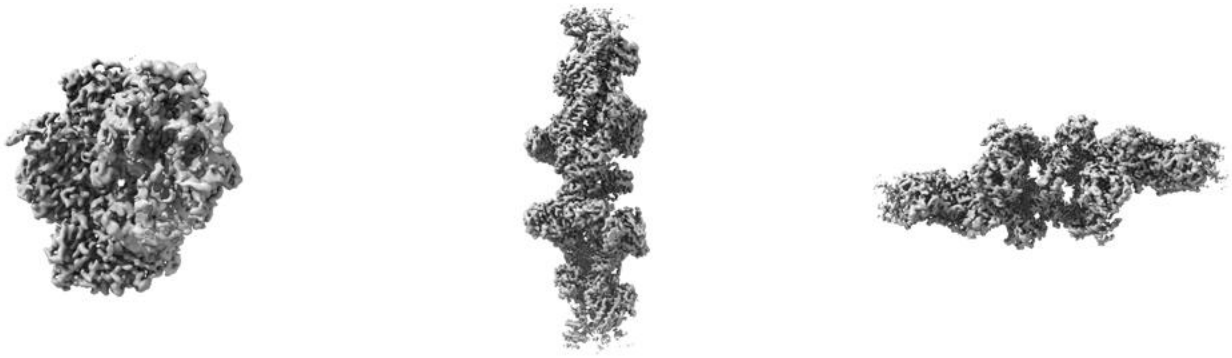


Z

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)

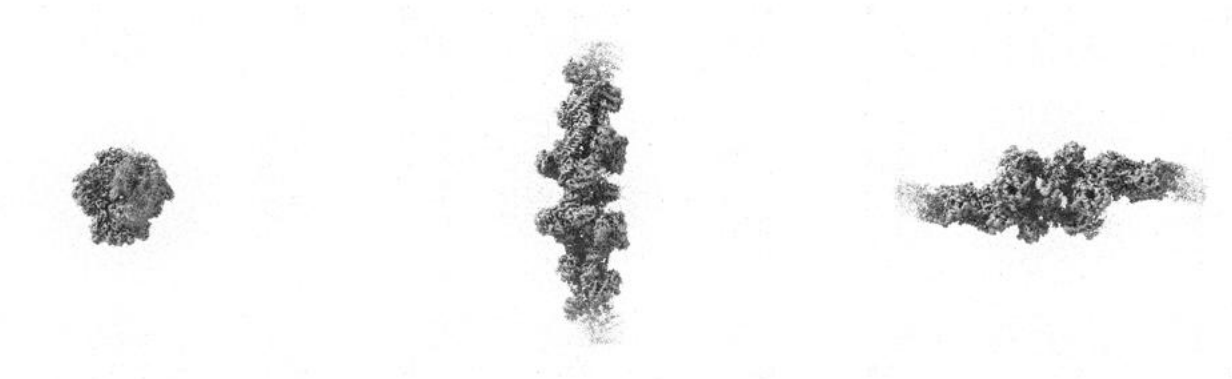
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.17. 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



X Y Z

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.

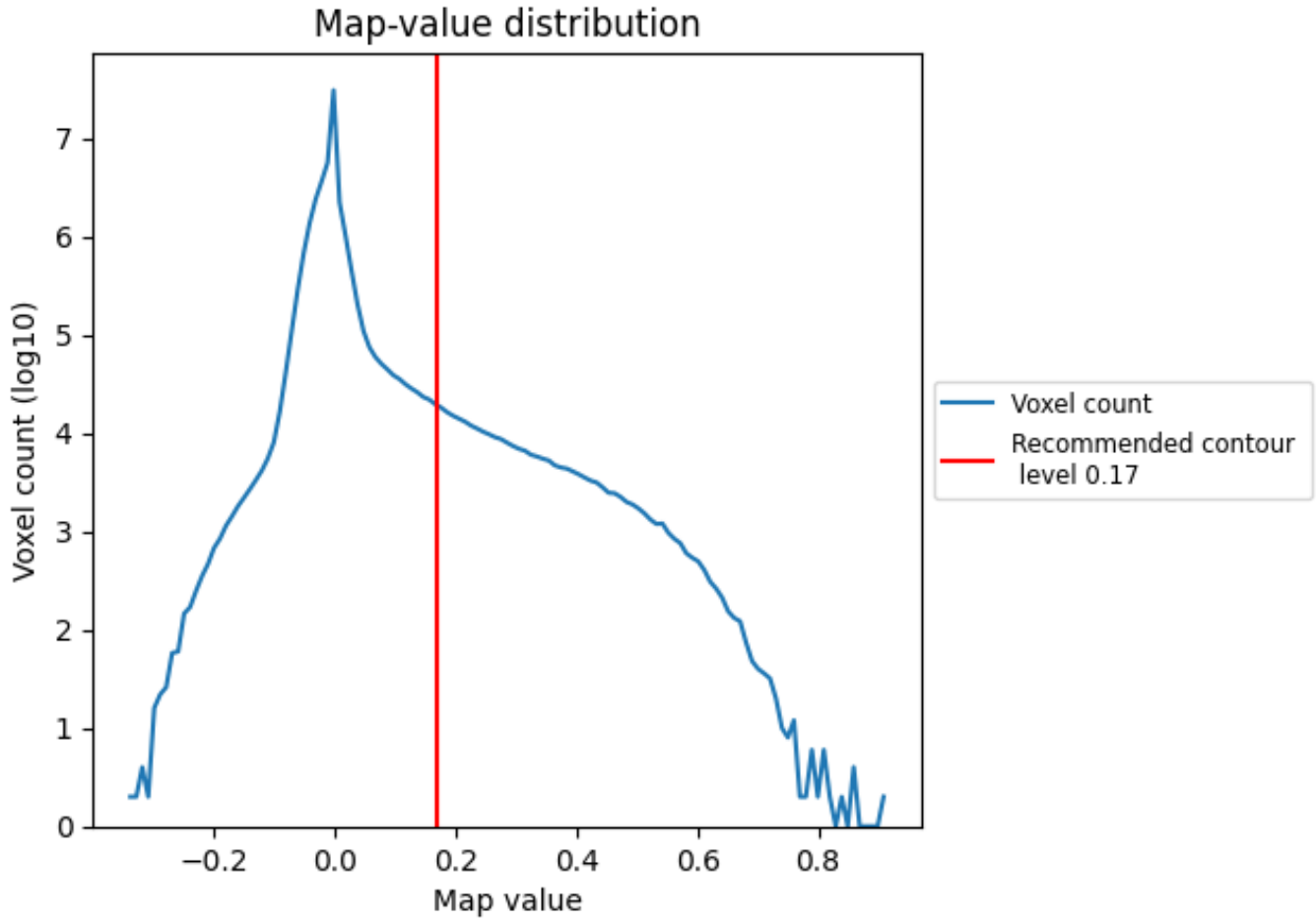
6.6 Mask visualisation (i)

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

7 Map analysis

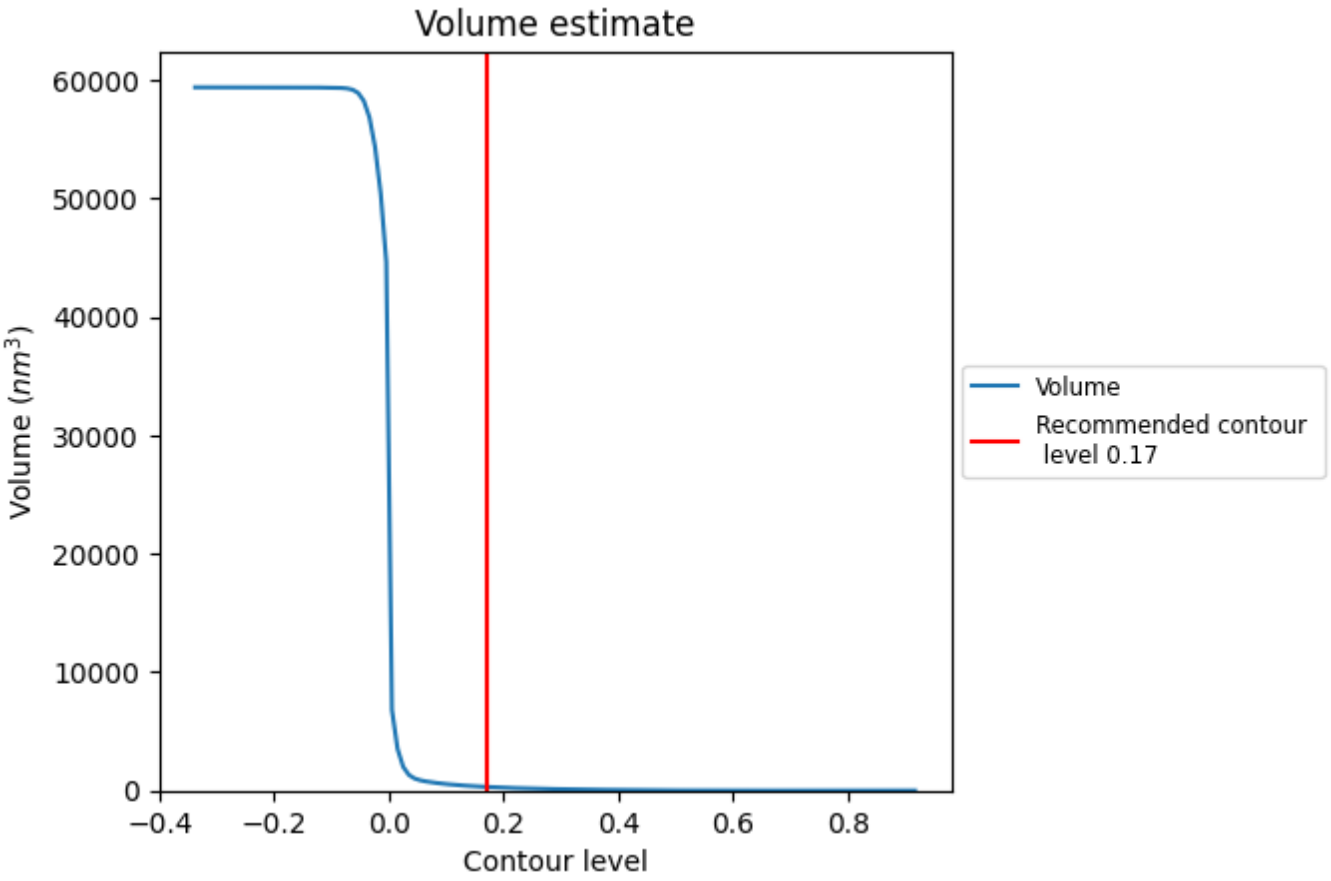
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

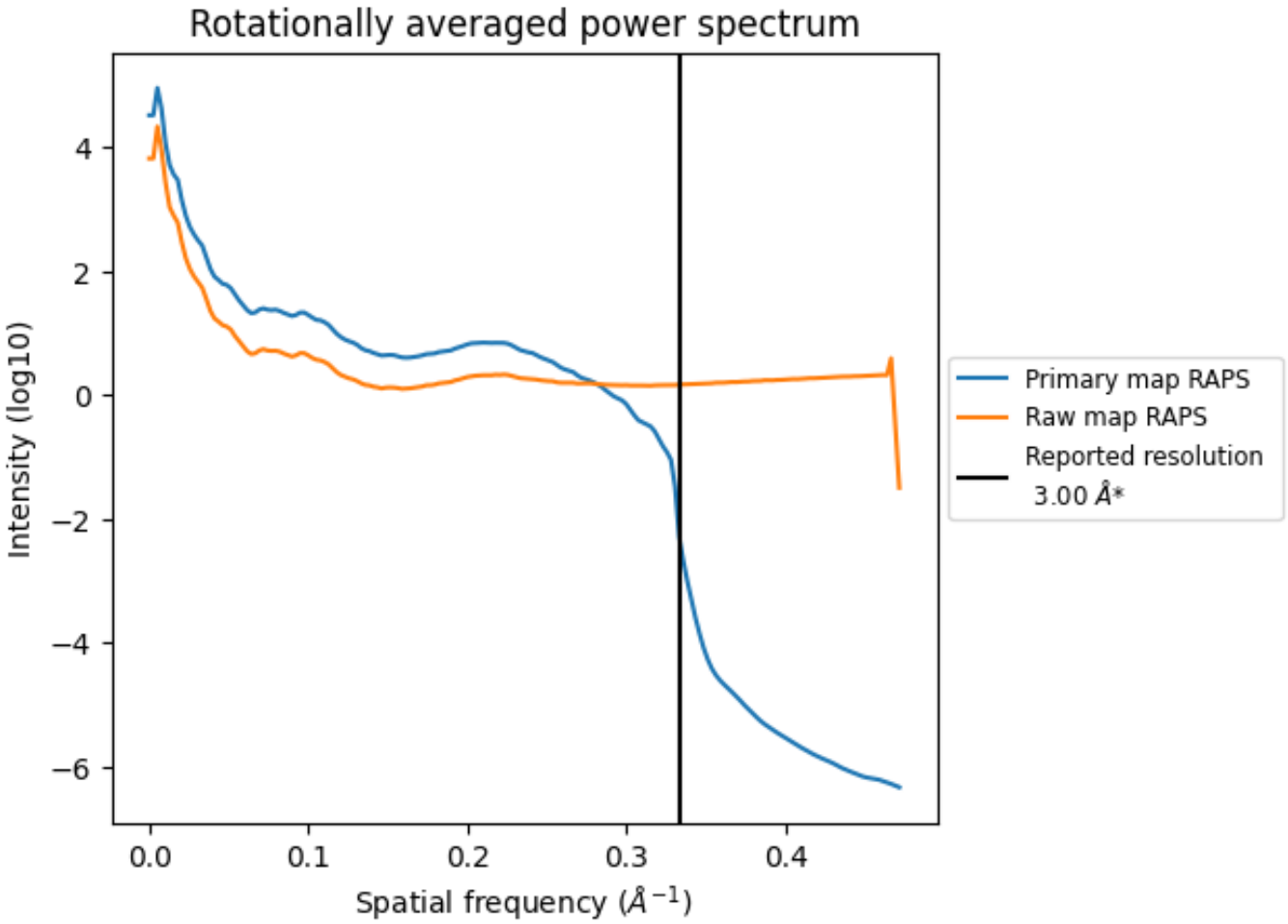
7.2 Volume estimate (i)



The volume at the recommended contour level is 310 nm^3; this corresponds to an approximate mass of 280 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)

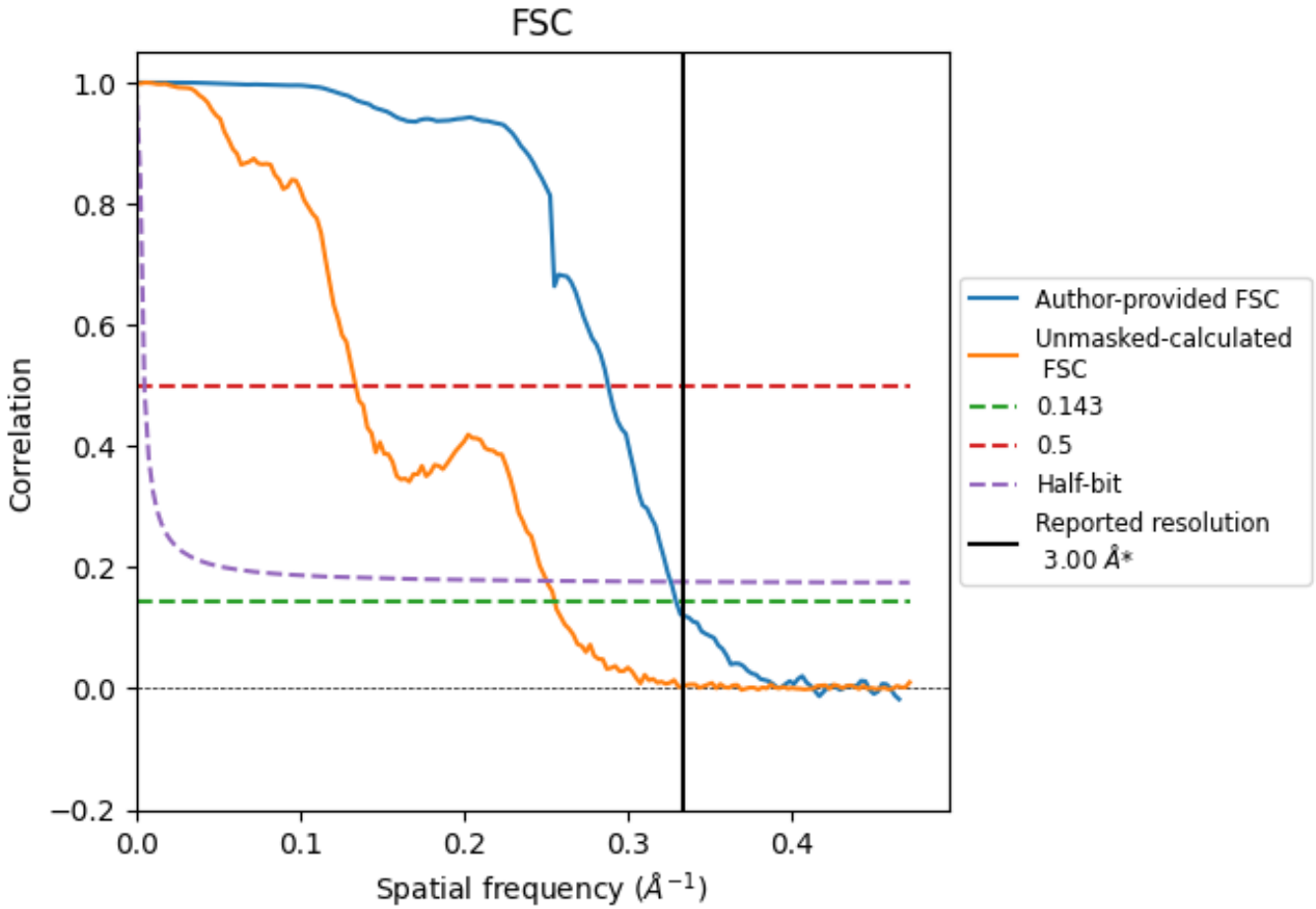


*Reported resolution corresponds to spatial frequency of 0.333 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.333 Å^{-1}

8.2 Resolution estimates (i)

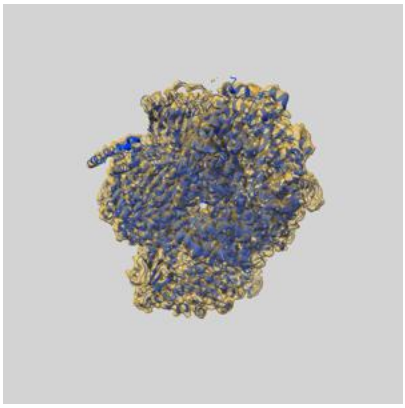
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	3.04	3.47	3.07
Unmasked-calculated*	3.92	7.47	4.00

*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 3.92 differs from the reported value 3.0 by more than 10 %

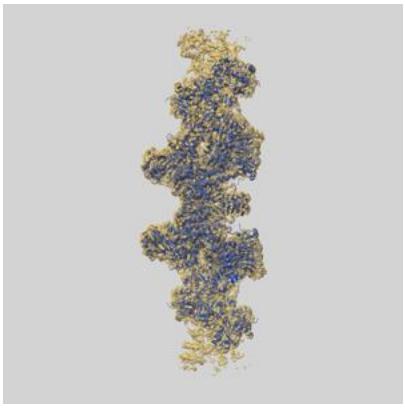
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-52580 and PDB model 9I2B. Per-residue inclusion information can be found in section 3 on page 8.

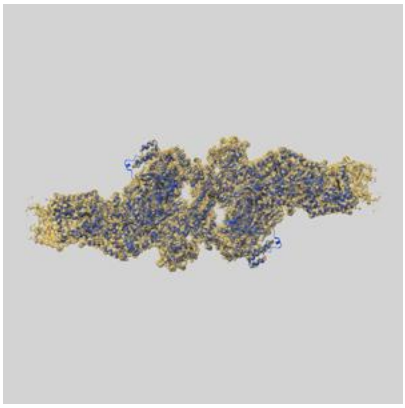
9.1 Map-model overlay



X



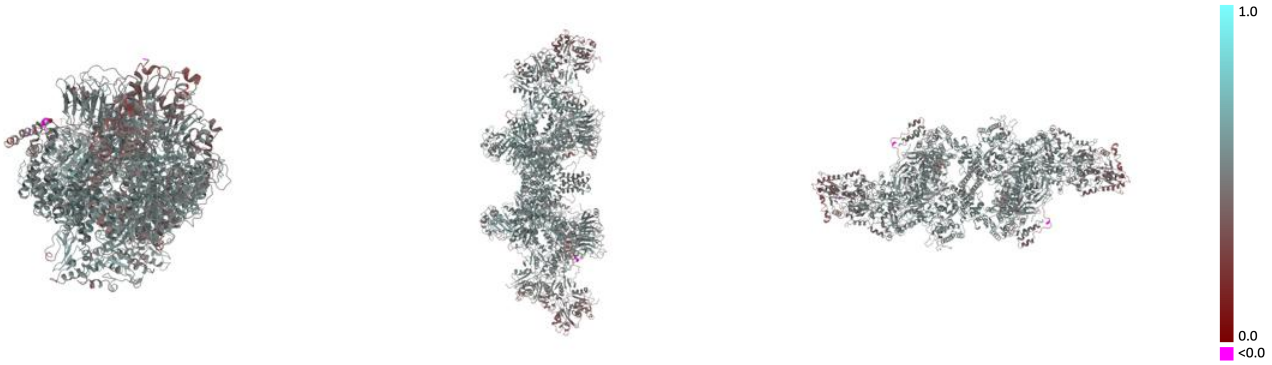
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.17 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

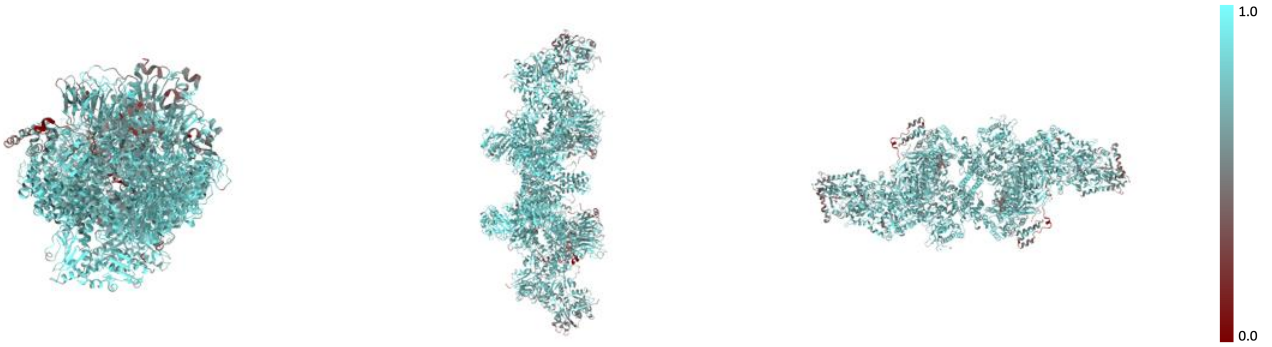
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

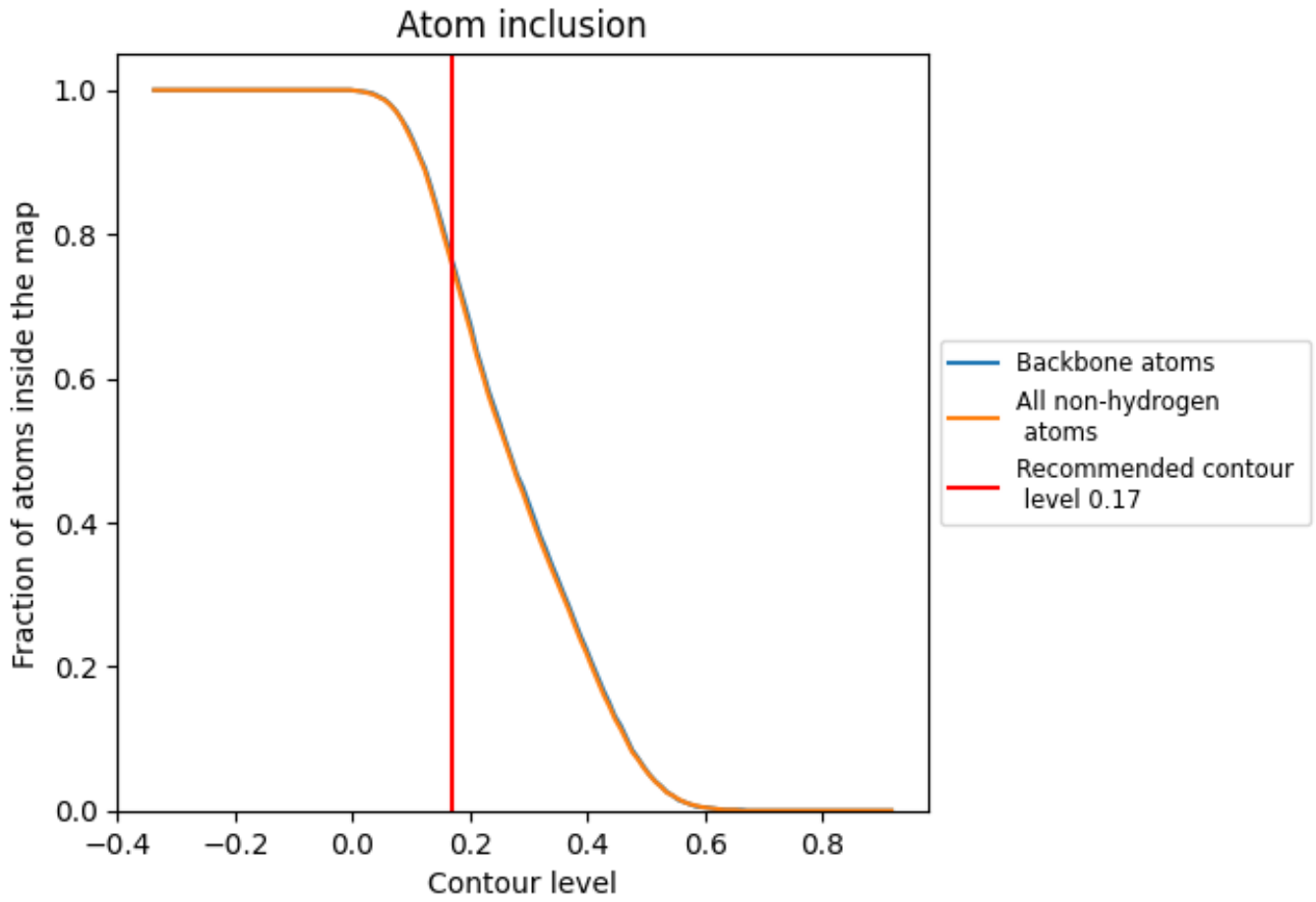
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.17).

9.4 Atom inclusion (i)



At the recommended contour level, 76% of all backbone atoms, 76% 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 (0.17) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7560	0.5080
A	0.8320	0.5430
B	0.7900	0.5260
C	0.7040	0.5050
D	0.8330	0.5230
E	0.8060	0.5170
F	0.8310	0.5480
G	0.4980	0.4520
H	0.8270	0.5360
I	0.7750	0.4980
J	0.6450	0.4270
K	0.8310	0.5420
L	0.7910	0.5260
M	0.7050	0.5050
N	0.8330	0.5230
O	0.8040	0.5180
P	0.8320	0.5520
Q	0.4960	0.4500
R	0.8280	0.5350
S	0.7750	0.4960
T	0.6450	0.4260
U	0.8330	0.5120
V	0.7590	0.4450
c	0.8330	0.5020
d	0.7590	0.4590