



# wwPDB EM Validation Summary Report ⓘ

May 2, 2023 – 04:48 PM JST

PDB ID : 8IAH  
EMDB ID : EMD-35301  
Title : Structure of mammalian spectrin-actin junctional complex of membrane skeleton, State I, Global map  
Authors : Li, N.; Chen, S.; Gao, N.  
Deposited on : 2023-02-08  
Resolution : 3.60 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

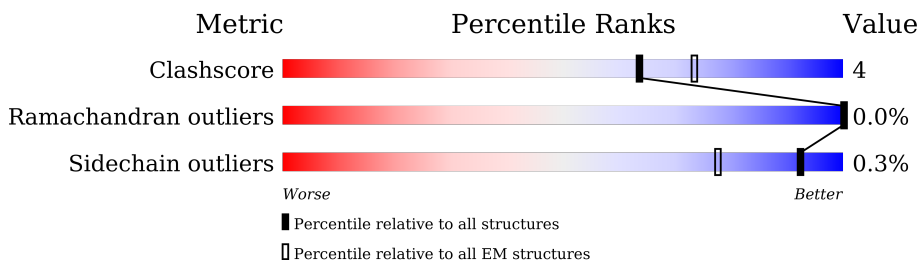
EMDB validation analysis : 0.0.1.dev50  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.32.2

# 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 3.60 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	0	744	7% (red), 93% (grey)
1	1	744	40% (green), 5% (yellow), 55% (grey)
1	2	744	32% (green), 7% (yellow), 60% (grey)
2	3	724	44% (green), 6% (yellow), 50% (grey)
2	4	724	33% (green), 6% (yellow), 61% (grey)
2	9	724	6% (green), 93% (grey)
3	5	405	28% (green), 70% (grey)
3	6	405	7% (red), 28% (green), 69% (grey)

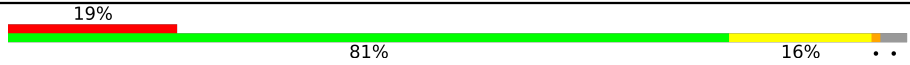

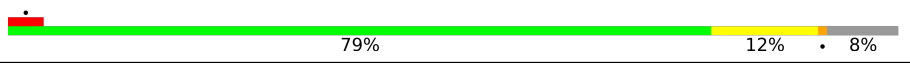
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Mol	Chain	Length	Quality of chain
3	7	405	6% 25% 70%
4	8	2417	15% 13% 84%
5	A	375	86% 14%
5	B	375	88% 11%
5	C	375	94% 6%
5	D	375	88% 11%
5	E	375	92% 7%
5	F	375	92% 8%
5	G	375	90% 10%
5	H	375	90% 10%
5	I	375	89% 11%
5	J	375	90% 10%
5	K	375	89% 10%
5	L	375	90% 9%
6	M	2148	5% 94%
6	N	2148	5% 94%
6	O	2148	5% 94%
6	P	2148	5% 95%
6	Q	2148	5% 94%
6	R	2148	5% 95%
6	S	2148	14% 19% 77%
6	T	2148	5% 94%
7	U	248	21% 88% 11%
8	V	248	26% 83% 16%
8	W	248	17% 84% 15%

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Mol	Chain	Length	Quality of chain
8	X	248	
9	Y	359	
10	Z	107	

## 2 Entry composition [i](#)

There are 11 unique types of molecules in this entry. The entry contains 74320 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 Adducin 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	54	453	280	80	87	6	0	0
1	1	334	2585	1647	448	478	12	0	0
1	2	294	2263	1444	391	418	10	0	0

- Molecule 2 is a protein called Beta-adducin.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	3	365	2870	1812	500	538	20	0	0
2	4	280	2157	1369	369	403	16	0	0
2	9	54	455	280	84	88	3	0	0

- Molecule 3 is a protein called Dematin actin binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	5	123	1008	649	175	182	2	0	0
3	6	125	963	619	163	179	2	0	0
3	7	121	976	624	173	177	2	0	0

- Molecule 4 is a protein called Spectrin alpha, erythrocytic 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	8	379	2799	1749	488	553	9	0	0

- Molecule 5 is a protein called Actin, cytoplasmic 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	A	374	Total	C	N	O	S	0	0
			2907	1837	490	560	20		
5	B	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	C	373	Total	C	N	O	S	0	0
			2909	1841	489	557	22		
5	D	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	E	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	F	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	G	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	H	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	I	373	Total	C	N	O	S	0	0
			2909	1841	489	557	22		
5	J	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	K	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
5	L	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		

- Molecule 6 is a protein called Spectrin beta chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	M	130	Total	C	N	O	S	0	0
			1065	671	200	188	6		
6	N	122	Total	C	N	O	S	0	0
			1004	638	189	171	6		
6	O	131	Total	C	N	O	S	0	0
			1073	675	201	191	6		
6	P	117	Total	C	N	O	S	0	0
			960	609	181	164	6		
6	Q	129	Total	C	N	O	S	0	0
			1057	667	199	185	6		
6	R	117	Total	C	N	O	S	0	0
			960	609	181	164	6		
6	S	486	Total	C	N	O	S	0	0
			3983	2511	721	739	12		

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Mol	Chain	Residues	Atoms					AltConf	Trace
6	T	128	Total	C	N	O	S	0	0
			1048	660	197	185	6		

- Molecule 7 is a protein called Tropomyosin-1.9.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	U	246	Total	C	N	O	S	0	0
			1992	1208	357	421	6		

- Molecule 8 is a protein called Tropomyosin 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	V	246	Total	C	N	O	S	0	0
			2011	1218	362	421	10		
8	W	248	Total	C	N	O	S	0	0
			2017	1222	364	421	10		
8	X	241	Total	C	N	O	S	0	0
			1974	1196	356	413	9		

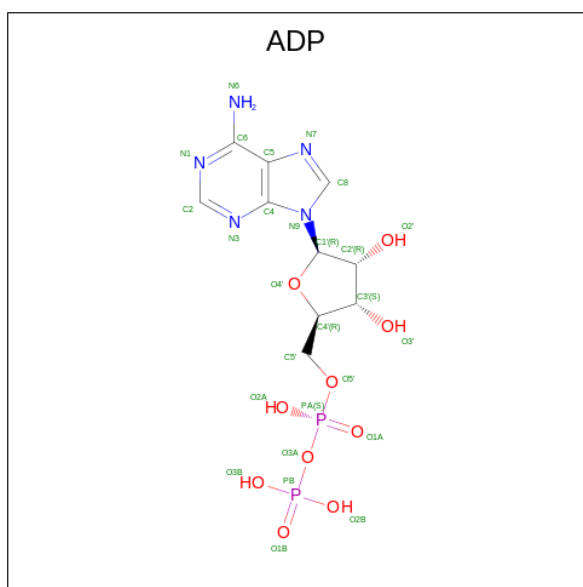
- Molecule 9 is a protein called Tropomodulin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Y	333	Total	C	N	O	S	0	0
			2547	1599	443	496	9		

- Molecule 10 is a protein called SH3 domain-binding glutamic acid-rich-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Z	98	Total	C	N	O	S	0	0
			798	513	131	151	3		

- Molecule 11 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ) (labeled as "Ligand of Interest" by depositor).



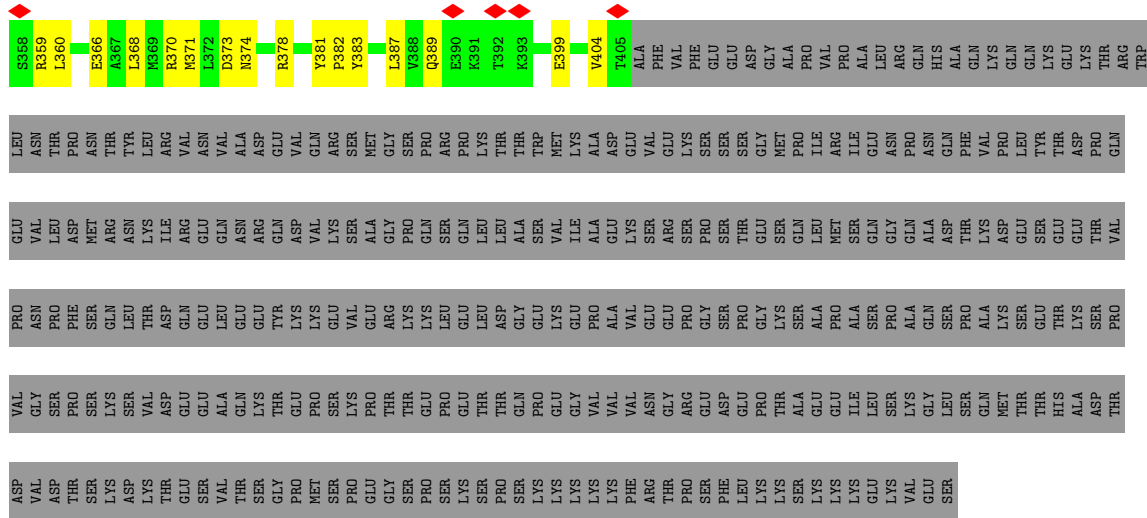
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
11	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	B	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	D	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	E	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	F	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	G	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	H	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	I	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	J	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	K	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	L	1	Total	C	N	O	P	0
			27	10	5	10	2	







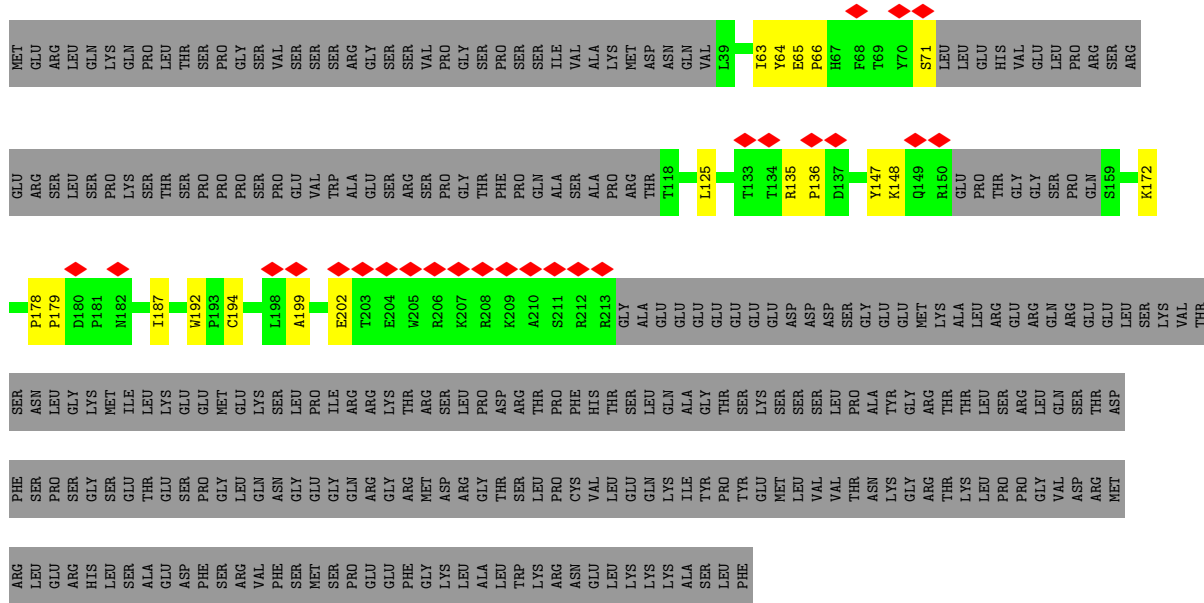




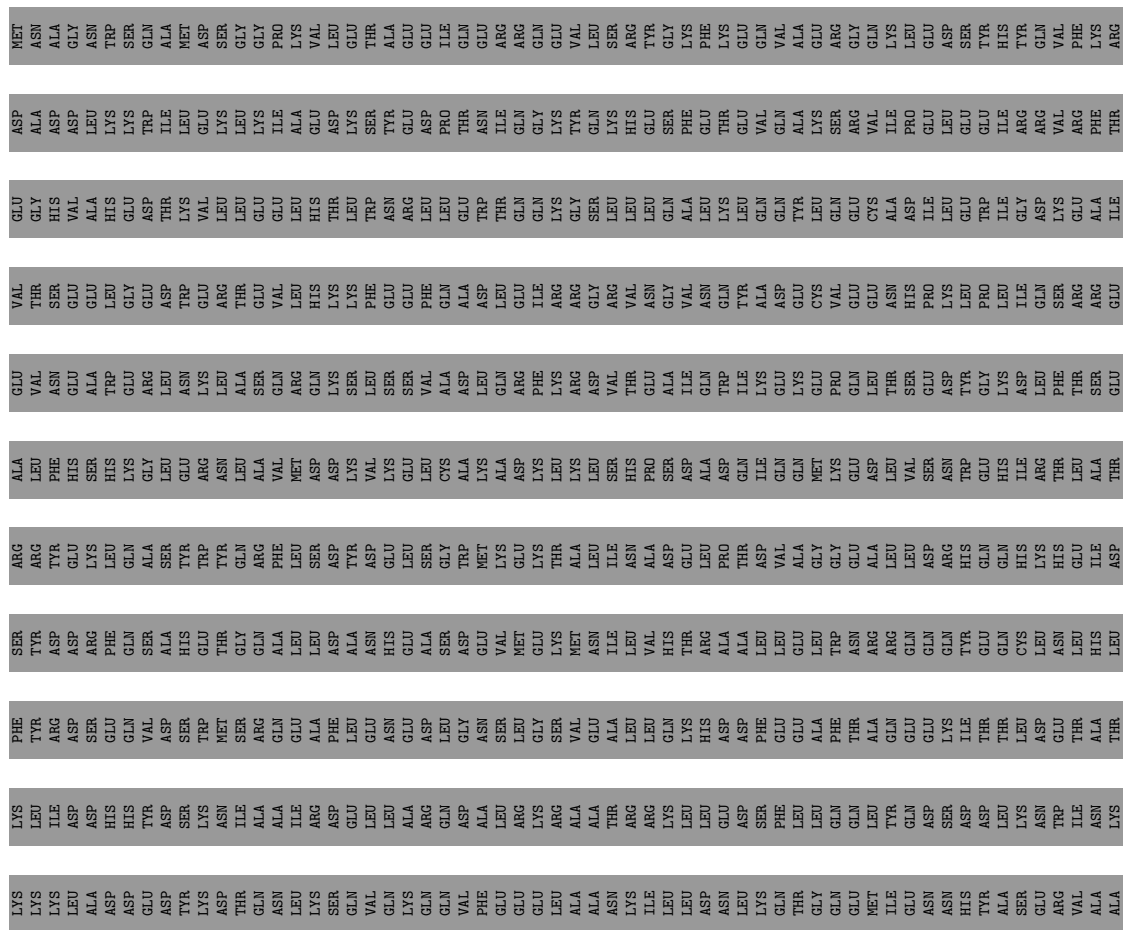
● Molecule 2: Beta-adducin







• Molecule 4: Spectrin alpha, erythrocytic 1



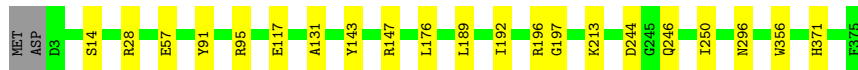




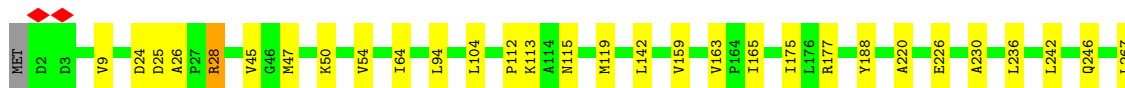
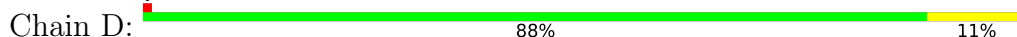




• Molecule 5: Actin, cytoplasmic 1



• Molecule 5: Actin, cytoplasmic 1



• Molecule 5: Actin, cytoplasmic 1



• Molecule 5: Actin, cytoplasmic 1

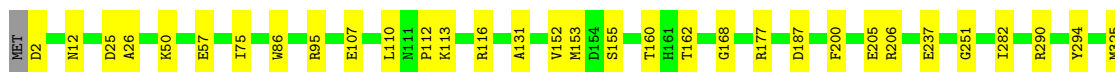
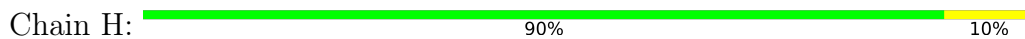


• Molecule 5: Actin, cytoplasmic 1





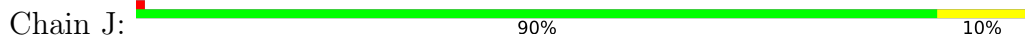
• Molecule 5: Actin, cytoplasmic 1



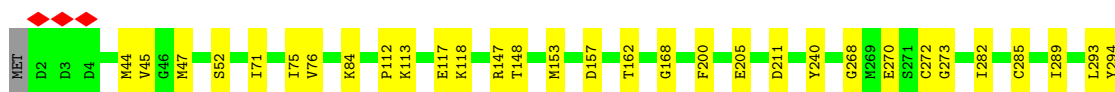
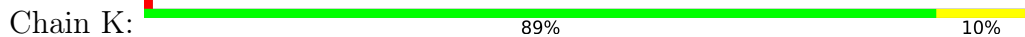
• Molecule 5: Actin, cytoplasmic 1



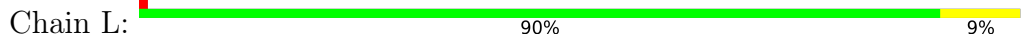
• Molecule 5: Actin, cytoplasmic 1



• Molecule 5: Actin, cytoplasmic 1

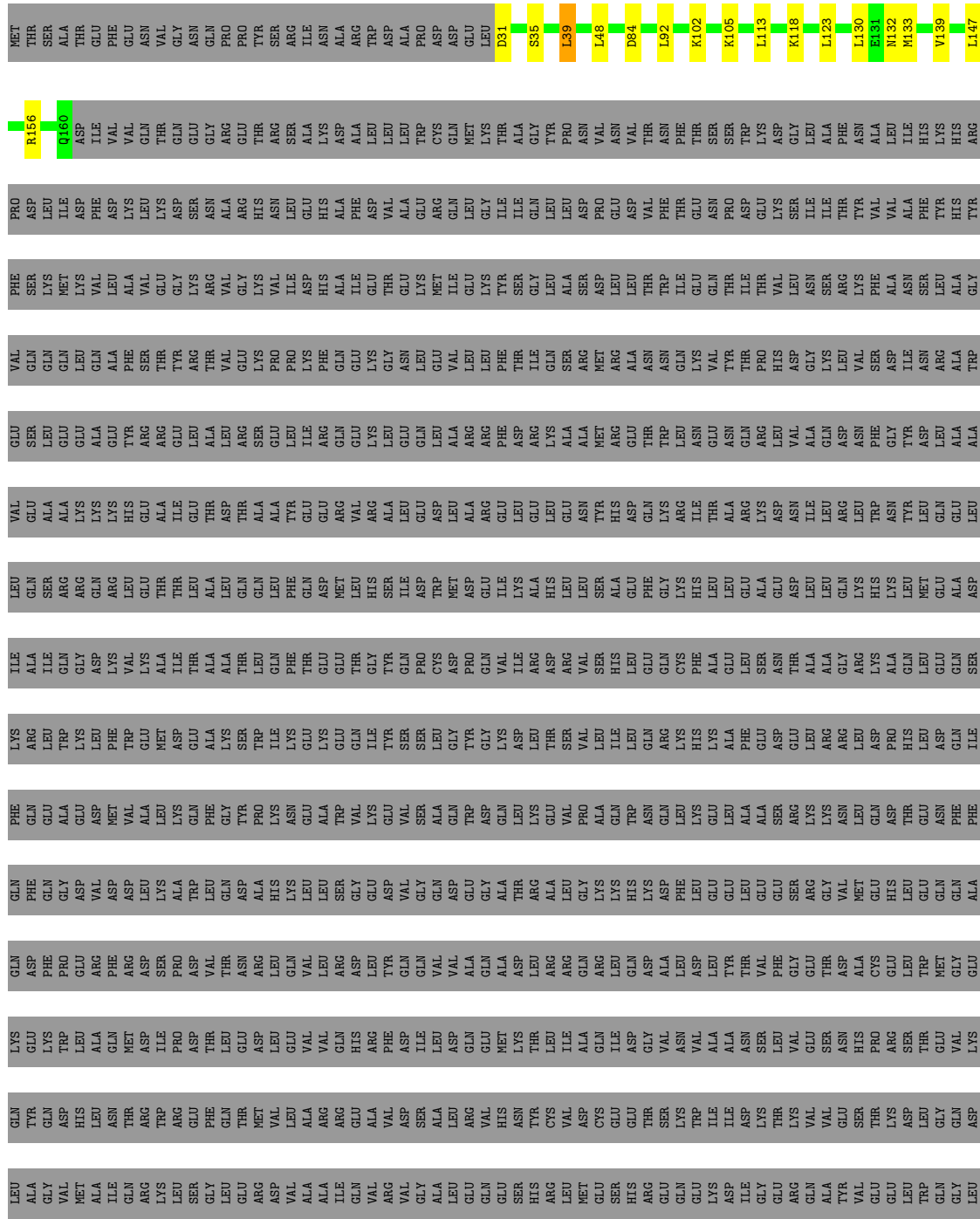


• Molecule 5: Actin, cytoplasmic 1





• Molecule 6: Spectrin beta chain









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

















GLU
PRO
ALA
HIS
PRO
TYR

• Molecule 6: Spectrin beta chain



MET	THR	SER	ALA	HIS	PRO	TYR
ILE	VAL	VAL	GLN	THR	GLU	PHE
GLU	ARG	ASN	GLY	ASN	ASN	GLN
PRO	PRO	TYR	TYR	SER	ARG	ILE
ILE	ALA	ALA	ALA	ARG	ASP	ASP
ASP	ASP	ASP	ASP	ASP	ASP	ASP
GLU	GLU	GLU	GLU	GLU	GLU	GLU
LEU	LEU	LEU	LEU	LEU	LEU	LEU
D31	R44	T59	K102	G106	R109	K118
L123	M132	W202	D137	D140	R144	L147
Q158	ILE	GLN	ASP			
ILE	VAL	VAL	GLN	THR	GLU	PHE
GLU	ARG	ASN	GLY	ASN	ASN	GLN
PRO	PRO	TYR	TYR	SER	ARG	ILE
ILE	ALA	ALA	ALA	ARG	ASP	ASP
ASP	ASP	ASP	ASP	ASP	ASP	ASP
GLU	GLU	GLU	GLU	GLU	GLU	GLU
LEU	LEU	LEU	LEU	LEU	LEU	LEU
D222	D223	K224	L225	K226	D227	S228
N229	A230	R231	H232	N233	L234	E235
H236	A237	F238	D239	V240	Q184	A241
E242	R243	Q244	L245	G246	Y190	P191
I248	Q249	L250	D252	E254	F198	T199
V256	T257	T258	N260	P261	D262	E263
K264	S265	I266	T268	Y269	K214	H215
V270	V271	A272	F273	Y274	P217	D218
H219	L219	I220	D221			
V282	L283	A284	V285	E286	Q287	K288
R289	V290	Q291	K292	V293	I294	D295
H296	A297	I298	D299	T300	E301	K302
M303	I304	E305	K306	Y307	S308	G309
L310	S312	D313	L314	L315	T316	W317
I318	E319	Q320	T321	I322	T323	V324
L325	N326	S327	K328	K329	F330	A331
S332	L334	A335	G336	V337	Q338	Q339
Q340	L341					
Q342	A343	F344	S345	T346	R348	T349
V350	E351	K352	F356	Q357	E358	K359
G360	N361	L362	E363	V364	L365	M303
I366	F367	T368	I369	Q370	S371	R372
K373	R374	A375	N376	N377	Q378	K379
V380	I381	T382	P383	H384	D385	G386
K387	L388	V389	S390	D391	I392	N393
R394	A395	W396	E397	S398	L399	E400
E401	A402	E403	Y404	R405	R406	E407
L408	A409	R411	S412	E413	L414	T415
R416	Q417	E418	K419	L420	E421	Q422
L423	A424	R425	R426	F427	D428	A431
R434	W437	N439	N441	Q442	L444	V445
A446	A447	D448	N449	F450	G451	Y452
L453	L454	A455	A456	V457	E458	A459
A460	K461	K462	K463	H464	E465	A466
I467	E468	T469	D470	T471	A472	L410
A473	Y474	E475	E476	R477	V478	A480
E481	L482	D483	L484	A485	R486	E487
L488	E489	L490	E491	N492	Y493	H494
D495	Q496	R498	R502	K603	D504	N506
L506	L507	R508	L509	Y512	E515	L516
L517	L518	Q518	S519	R520	R521	Q522
R523	L524	E525	T526	T527	L528	A529
L530						
G531	GLN	LEU	PHE	GLN	MET	LEU
GLN	ASP	GLY	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ALA	ALA	ALA	ALA	ALA	ALA	ALA
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ALA	ALA	ALA	ALA	ALA	ALA	ALA
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ALA	ALA	ALA	ALA	ALA	ALA	ALA
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ALA	ALA	ALA	ALA	ALA	ALA	ALA
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ALA	ALA	ALA	ALA	ALA	ALA	ALA
LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	THR	THR	THR	THR	THR
LEU	LEU	LEU	LEU	LEU	LEU	LEU

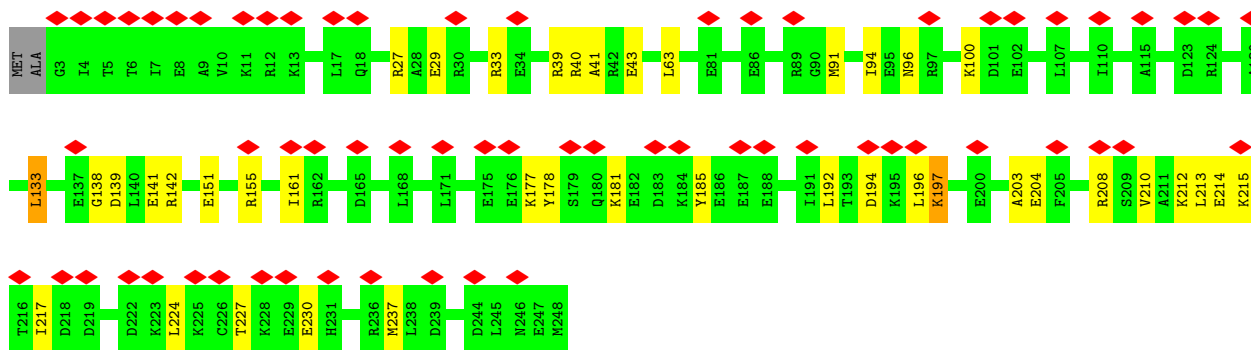
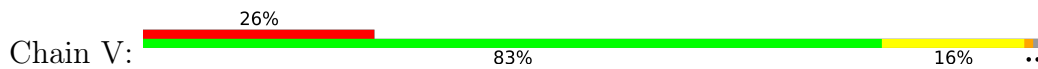




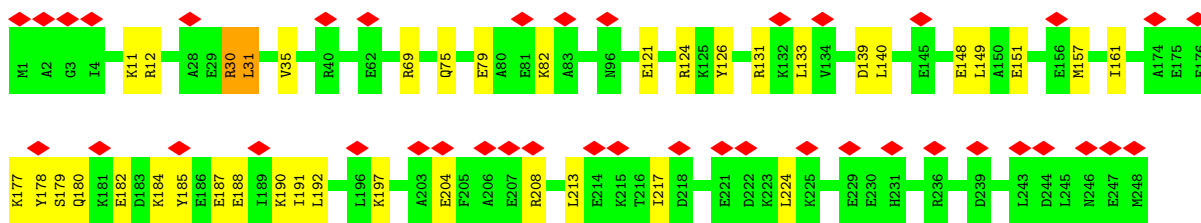
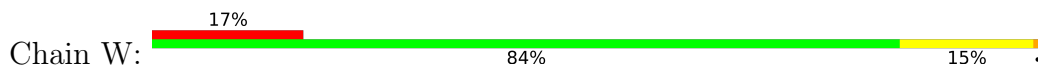




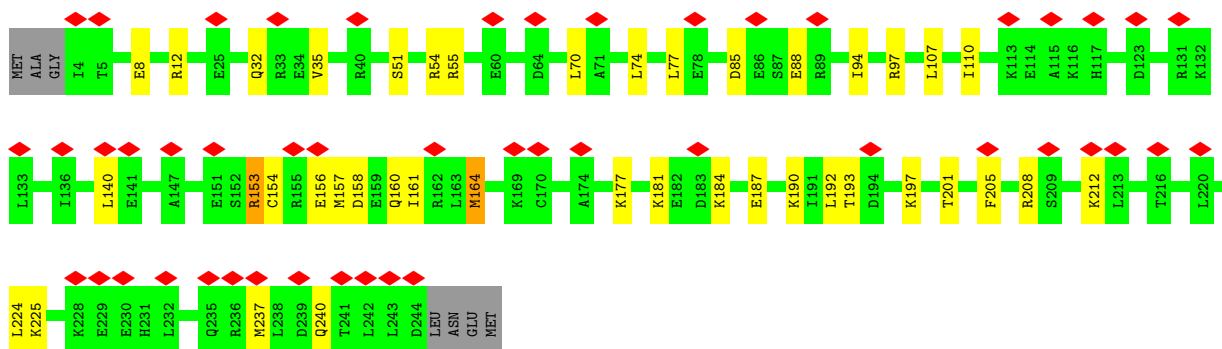
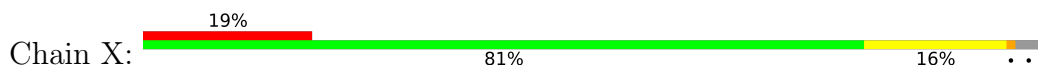
• Molecule 8: Tropomyosin 3



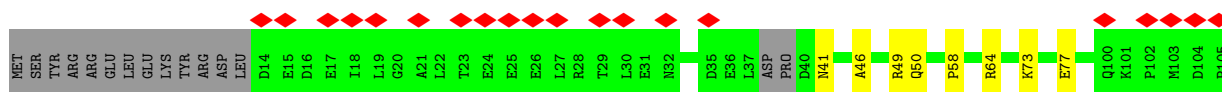
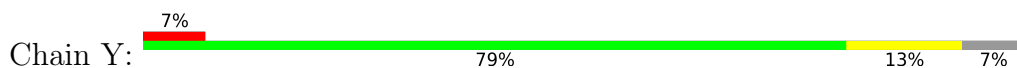
• Molecule 8: Tropomyosin 3

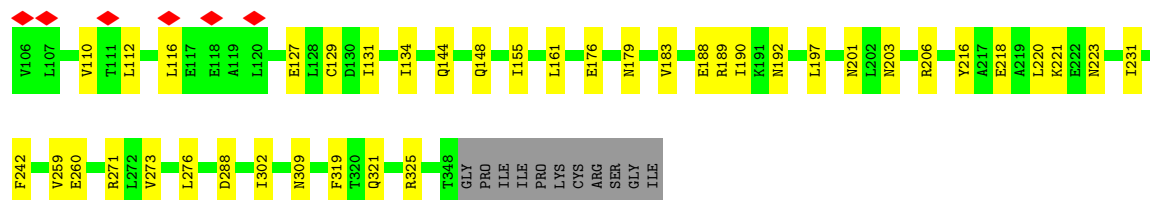


• Molecule 8: Tropomyosin 3

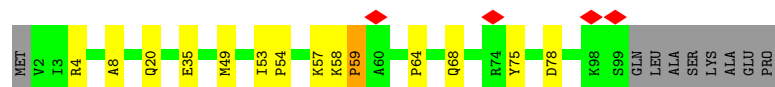
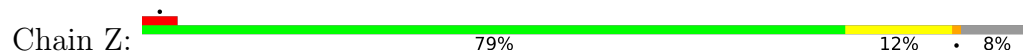


• Molecule 9: Tropomodulin-1





- Molecule 10: SH3 domain-binding glutamic acid-rich-like protein



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	43000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	34.4	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	2.839	Depositor
Minimum map value	-1.150	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.071	Depositor
Recommended contour level	0.35	Depositor
Map size ( $\text{\AA}$ )	657.6, 657.6, 657.6	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.37, 1.37, 1.37	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: 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	0	0.31	0/459	0.69	0/609
1	1	0.28	0/2638	0.54	0/3579
1	2	0.26	0/2312	0.51	0/3139
2	3	0.27	0/2924	0.56	0/3956
2	4	0.27	0/2198	0.54	0/2978
2	9	0.38	0/459	0.79	0/610
3	5	0.31	0/1040	0.62	0/1415
3	6	0.30	0/992	0.52	0/1358
3	7	0.29	0/1006	0.57	0/1369
4	8	0.32	0/2843	0.69	7/3851 (0.2%)
5	A	0.27	0/2970	0.51	0/4023
5	B	0.28	0/2980	0.49	0/4035
5	C	0.30	0/2972	0.50	0/4024
5	D	0.30	0/2980	0.53	2/4035 (0.0%)
5	E	0.30	0/2980	0.49	0/4035
5	F	0.30	0/2980	0.51	1/4035 (0.0%)
5	G	0.29	0/2980	0.49	0/4035
5	H	0.30	0/2980	0.51	0/4035
5	I	0.31	0/2972	0.51	0/4024
5	J	0.31	0/2980	0.52	1/4035 (0.0%)
5	K	0.29	0/2980	0.50	0/4035
5	L	0.27	0/2980	0.50	0/4035
6	M	0.28	0/1080	0.67	2/1448 (0.1%)
6	N	0.27	0/1019	0.59	0/1365
6	O	0.30	0/1088	0.55	0/1459
6	P	0.29	0/974	0.61	0/1305
6	Q	0.26	0/1072	0.56	0/1437
6	R	0.28	0/974	0.55	0/1305
6	S	0.32	0/4050	0.69	4/5458 (0.1%)
6	T	0.29	0/1063	0.55	0/1425
7	U	0.39	0/1999	0.72	3/2667 (0.1%)
8	V	0.41	0/2016	0.79	4/2687 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
8	W	0.43	0/2022	0.77	5/2696 (0.2%)
8	X	0.43	0/1979	0.74	3/2638 (0.1%)
9	Y	0.27	0/2584	0.54	0/3501
10	Z	0.56	1/817 (0.1%)	0.84	3/1099 (0.3%)
All	All	0.31	1/75342 (0.0%)	0.58	35/101740 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
6	S	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	Z	59	PRO	CG-CD	-12.50	1.09	1.50

The worst 5 of 35 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	Z	59	PRO	N-CD-CG	-15.33	80.20	103.20
10	Z	59	PRO	CA-CB-CG	-8.94	87.02	104.00
8	V	224	LEU	CA-CB-CG	8.05	133.83	115.30
6	M	39	LEU	CA-CB-CG	7.22	131.91	115.30
8	W	133	LEU	CA-CB-CG	6.99	131.38	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	S	405	ARG	Peptide

## 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	0	453	0	446	1	0
1	1	2585	0	2610	21	0
1	2	2263	0	2279	37	0
2	3	2870	0	2884	31	0
2	4	2157	0	2149	31	0
2	9	455	0	456	9	0
3	5	1008	0	1009	8	0
3	6	963	0	914	9	0
3	7	976	0	965	14	0
4	8	2799	0	2478	45	0
5	A	2907	0	2851	32	0
5	B	2917	0	2879	28	0
5	C	2909	0	2875	16	0
5	D	2917	0	2879	30	0
5	E	2917	0	2879	20	0
5	F	2917	0	2879	19	0
5	G	2917	0	2879	27	0
5	H	2917	0	2879	24	0
5	I	2909	0	2875	26	0
5	J	2917	0	2879	25	0
5	K	2917	0	2879	26	0
5	L	2917	0	2879	24	0
6	M	1065	0	1109	10	0
6	N	1004	0	1060	9	0
6	O	1073	0	1113	15	0
6	P	960	0	1016	13	0
6	Q	1057	0	1105	9	0
6	R	960	0	1016	5	0
6	S	3983	0	4009	50	0
6	T	1048	0	1090	8	0
7	U	1992	0	1988	25	0
8	V	2011	0	2017	29	0
8	W	2017	0	2023	28	0
8	X	1974	0	1982	28	0
9	Y	2547	0	2527	34	0
10	Z	798	0	781	8	0
11	A	27	0	12	2	0
11	B	27	0	12	0	0
11	C	27	0	12	2	0
11	D	27	0	12	0	0
11	E	27	0	12	0	0
11	F	27	0	12	0	0
11	G	27	0	12	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	H	27	0	12	0	0
11	I	27	0	12	0	0
11	J	27	0	12	1	0
11	K	27	0	12	1	0
11	L	27	0	12	0	0
All	All	74320	0	73682	643	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.

The worst 5 of 643 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)
6:O:31:ASP:N	6:O:34:ASN:HD22	1.46	1.12
4:8:2206:ALA:O	4:8:2209:ARG:HB3	1.48	1.11
2:3:167:HIS:HA	2:3:188:VAL:O	1.81	0.80
5:I:159:VAL:HG21	5:I:177:ARG:HE	1.50	0.77
5:L:283:MET:HA	5:L:290:ARG:HH12	1.52	0.75

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	0	52/744 (7%)	50 (96%)	2 (4%)	0	100	100
1	1	328/744 (44%)	317 (97%)	11 (3%)	0	100	100
1	2	290/744 (39%)	278 (96%)	12 (4%)	0	100	100
2	3	357/724 (49%)	335 (94%)	21 (6%)	1 (0%)	41	75
2	4	276/724 (38%)	262 (95%)	14 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	9	52/724 (7%)	50 (96%)	2 (4%)	0	100	100
3	5	117/405 (29%)	114 (97%)	3 (3%)	0	100	100
3	6	119/405 (29%)	112 (94%)	7 (6%)	0	100	100
3	7	115/405 (28%)	105 (91%)	10 (9%)	0	100	100
4	8	377/2417 (16%)	356 (94%)	19 (5%)	2 (0%)	29	68
5	A	372/375 (99%)	355 (95%)	17 (5%)	0	100	100
5	B	372/375 (99%)	365 (98%)	7 (2%)	0	100	100
5	C	371/375 (99%)	363 (98%)	8 (2%)	0	100	100
5	D	372/375 (99%)	360 (97%)	12 (3%)	0	100	100
5	E	372/375 (99%)	361 (97%)	11 (3%)	0	100	100
5	F	372/375 (99%)	359 (96%)	13 (4%)	0	100	100
5	G	372/375 (99%)	363 (98%)	9 (2%)	0	100	100
5	H	372/375 (99%)	360 (97%)	12 (3%)	0	100	100
5	I	371/375 (99%)	359 (97%)	11 (3%)	1 (0%)	41	75
5	J	372/375 (99%)	363 (98%)	9 (2%)	0	100	100
5	K	372/375 (99%)	358 (96%)	14 (4%)	0	100	100
5	L	372/375 (99%)	360 (97%)	12 (3%)	0	100	100
6	M	128/2148 (6%)	124 (97%)	4 (3%)	0	100	100
6	N	120/2148 (6%)	119 (99%)	1 (1%)	0	100	100
6	O	129/2148 (6%)	127 (98%)	2 (2%)	0	100	100
6	P	115/2148 (5%)	112 (97%)	3 (3%)	0	100	100
6	Q	127/2148 (6%)	124 (98%)	3 (2%)	0	100	100
6	R	115/2148 (5%)	110 (96%)	5 (4%)	0	100	100
6	S	482/2148 (22%)	473 (98%)	9 (2%)	0	100	100
6	T	126/2148 (6%)	124 (98%)	2 (2%)	0	100	100
7	U	244/248 (98%)	242 (99%)	2 (1%)	0	100	100
8	V	244/248 (98%)	243 (100%)	1 (0%)	0	100	100
8	W	246/248 (99%)	243 (99%)	3 (1%)	0	100	100
8	X	239/248 (96%)	239 (100%)	0	0	100	100
9	Y	329/359 (92%)	318 (97%)	11 (3%)	0	100	100
10	Z	96/107 (90%)	94 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	9285/31178 (30%)	8997 (97%)	284 (3%)	4 (0%)	100	100

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	8	2068	VAL
5	I	4	ASP
4	8	2226	VAL
2	3	360	LEU

### 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	0	51/626 (8%)	51 (100%)	0	100	100
1	1	280/626 (45%)	280 (100%)	0	100	100
1	2	243/626 (39%)	243 (100%)	0	100	100
2	3	320/637 (50%)	320 (100%)	0	100	100
2	4	235/637 (37%)	234 (100%)	1 (0%)	91	97
2	9	50/637 (8%)	49 (98%)	1 (2%)	55	79
3	5	113/364 (31%)	112 (99%)	1 (1%)	78	90
3	6	101/364 (28%)	101 (100%)	0	100	100
3	7	107/364 (29%)	106 (99%)	1 (1%)	78	90
4	8	257/2118 (12%)	255 (99%)	2 (1%)	81	91
5	A	313/318 (98%)	313 (100%)	0	100	100
5	B	317/318 (100%)	317 (100%)	0	100	100
5	C	316/318 (99%)	316 (100%)	0	100	100
5	D	317/318 (100%)	315 (99%)	2 (1%)	86	94
5	E	317/318 (100%)	317 (100%)	0	100	100
5	F	317/318 (100%)	317 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	G	317/318 (100%)	317 (100%)	0	100	100
5	H	317/318 (100%)	316 (100%)	1 (0%)	92	97
5	I	316/318 (99%)	315 (100%)	1 (0%)	92	97
5	J	317/318 (100%)	317 (100%)	0	100	100
5	K	317/318 (100%)	317 (100%)	0	100	100
5	L	317/318 (100%)	316 (100%)	1 (0%)	92	97
6	M	119/1870 (6%)	118 (99%)	1 (1%)	81	91
6	N	111/1870 (6%)	111 (100%)	0	100	100
6	O	120/1870 (6%)	120 (100%)	0	100	100
6	P	107/1870 (6%)	106 (99%)	1 (1%)	78	90
6	Q	118/1870 (6%)	118 (100%)	0	100	100
6	R	107/1870 (6%)	107 (100%)	0	100	100
6	S	429/1870 (23%)	427 (100%)	2 (0%)	88	95
6	T	117/1870 (6%)	117 (100%)	0	100	100
7	U	212/214 (99%)	211 (100%)	1 (0%)	88	95
8	V	215/216 (100%)	214 (100%)	1 (0%)	88	95
8	W	214/216 (99%)	211 (99%)	3 (1%)	67	85
8	X	211/216 (98%)	209 (99%)	2 (1%)	78	90
9	Y	271/318 (85%)	271 (100%)	0	100	100
10	Z	89/96 (93%)	89 (100%)	0	100	100
All	All	7995/27051 (30%)	7973 (100%)	22 (0%)	92	97

5 of 22 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	S	439	ASN
8	W	177	LYS
8	V	197	LYS
8	W	178	TYR
5	D	326	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
4	8	2055	ASN
4	8	2098	ASN
7	U	231	ASN
6	Q	67	HIS
2	4	389	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

12 ligands 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
11	ADP	F	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.49	4 (13%)
11	ADP	K	401	-	24,29,29	0.93	1 (4%)	29,45,45	1.46	4 (13%)
11	ADP	H	401	-	24,29,29	0.93	1 (4%)	29,45,45	1.48	4 (13%)
11	ADP	J	401	-	24,29,29	0.92	1 (4%)	29,45,45	1.56	4 (13%)
11	ADP	G	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.46	4 (13%)
11	ADP	B	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.40	5 (17%)
11	ADP	C	401	-	24,29,29	0.93	1 (4%)	29,45,45	1.47	4 (13%)
11	ADP	L	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.47	4 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
11	ADP	D	401	-	24,29,29	0.92	1 (4%)	29,45,45	1.47	4 (13%)
11	ADP	E	401	-	24,29,29	0.95	1 (4%)	29,45,45	1.52	4 (13%)
11	ADP	A	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.47	4 (13%)
11	ADP	I	401	-	24,29,29	0.93	1 (4%)	29,45,45	1.49	4 (13%)

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	F	401	-	-	5/12/32/32	0/3/3/3
11	ADP	K	401	-	-	5/12/32/32	0/3/3/3
11	ADP	H	401	-	-	5/12/32/32	0/3/3/3
11	ADP	J	401	-	-	5/12/32/32	0/3/3/3
11	ADP	G	401	-	-	5/12/32/32	0/3/3/3
11	ADP	B	401	-	-	6/12/32/32	0/3/3/3
11	ADP	C	401	-	-	6/12/32/32	0/3/3/3
11	ADP	L	401	-	-	3/12/32/32	0/3/3/3
11	ADP	D	401	-	-	5/12/32/32	0/3/3/3
11	ADP	E	401	-	-	3/12/32/32	0/3/3/3
11	ADP	A	401	-	-	7/12/32/32	0/3/3/3
11	ADP	I	401	-	-	5/12/32/32	0/3/3/3

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	401	ADP	C5-C4	2.44	1.47	1.40
11	F	401	ADP	C5-C4	2.42	1.47	1.40
11	L	401	ADP	C5-C4	2.42	1.47	1.40
11	B	401	ADP	C5-C4	2.42	1.47	1.40
11	D	401	ADP	C5-C4	2.40	1.47	1.40

The worst 5 of 49 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	E	401	ADP	PA-O3A-PB	-4.23	118.32	132.83
11	J	401	ADP	PA-O3A-PB	-4.10	118.77	132.83

*Continued on next page...*

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	H	401	ADP	PA-O3A-PB	-3.87	119.54	132.83
11	I	401	ADP	PA-O3A-PB	-3.75	119.97	132.83
11	K	401	ADP	PA-O3A-PB	-3.69	120.16	132.83

There are no chirality outliers.

5 of 60 torsion outliers are listed below:

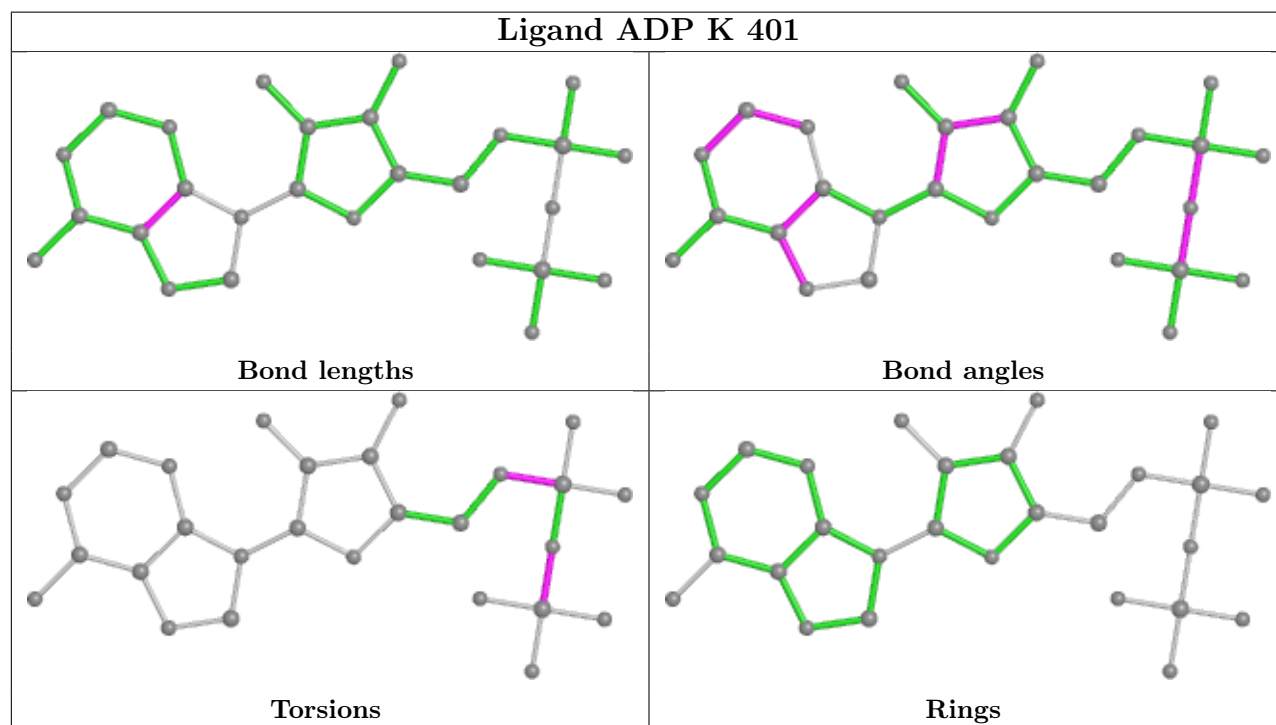
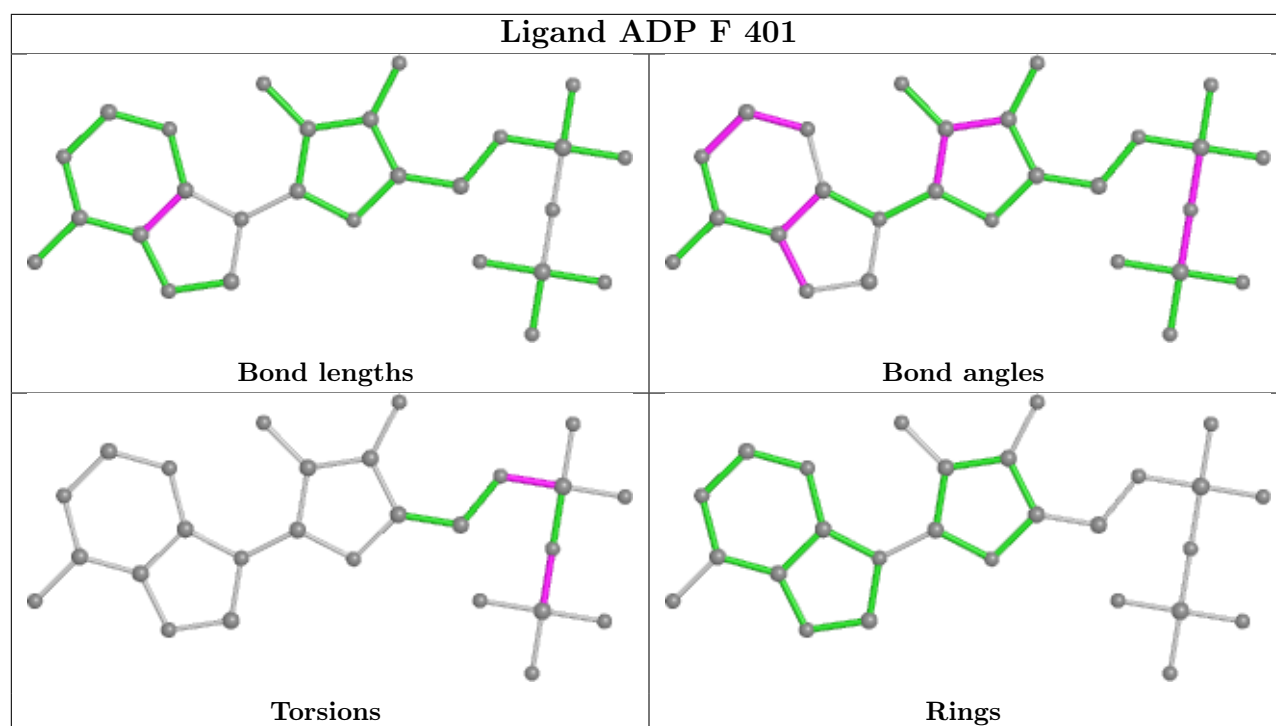
Mol	Chain	Res	Type	Atoms
11	A	401	ADP	PA-O3A-PB-O3B
11	A	401	ADP	C5'-O5'-PA-O1A
11	A	401	ADP	C5'-O5'-PA-O2A
11	B	401	ADP	PA-O3A-PB-O3B
11	B	401	ADP	C5'-O5'-PA-O1A

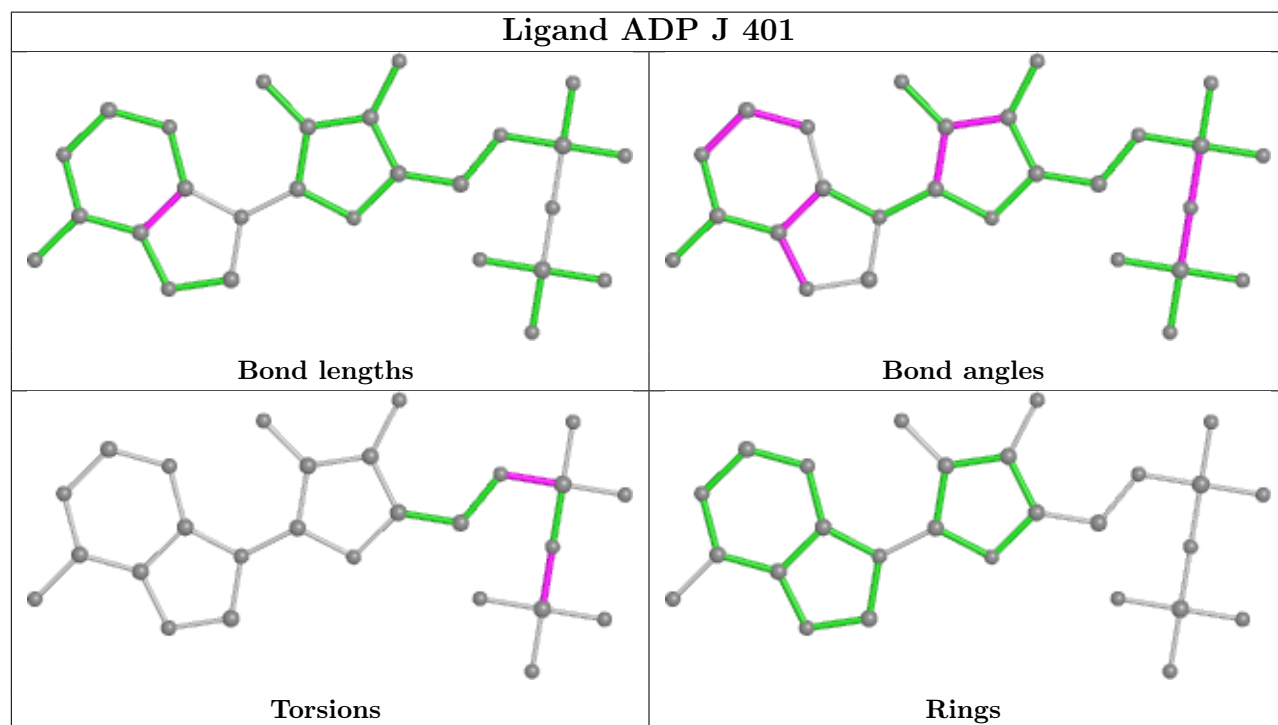
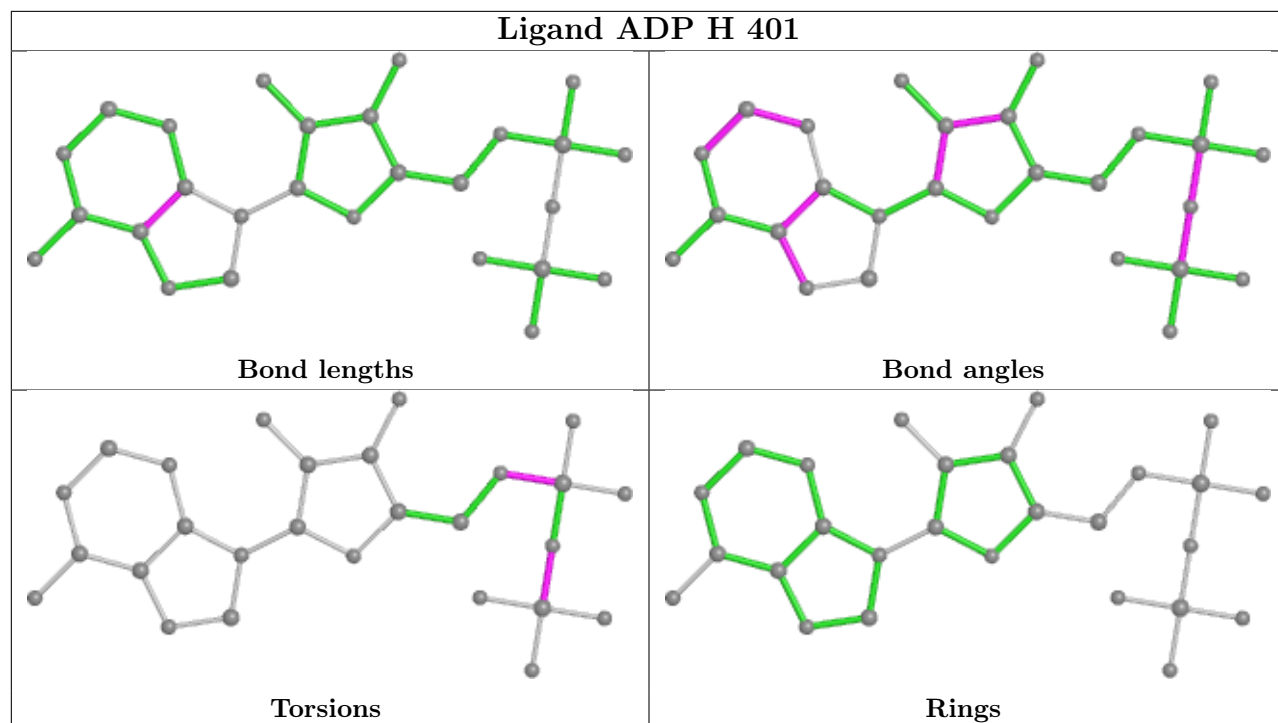
There are no ring outliers.

5 monomers are involved in 7 short contacts:

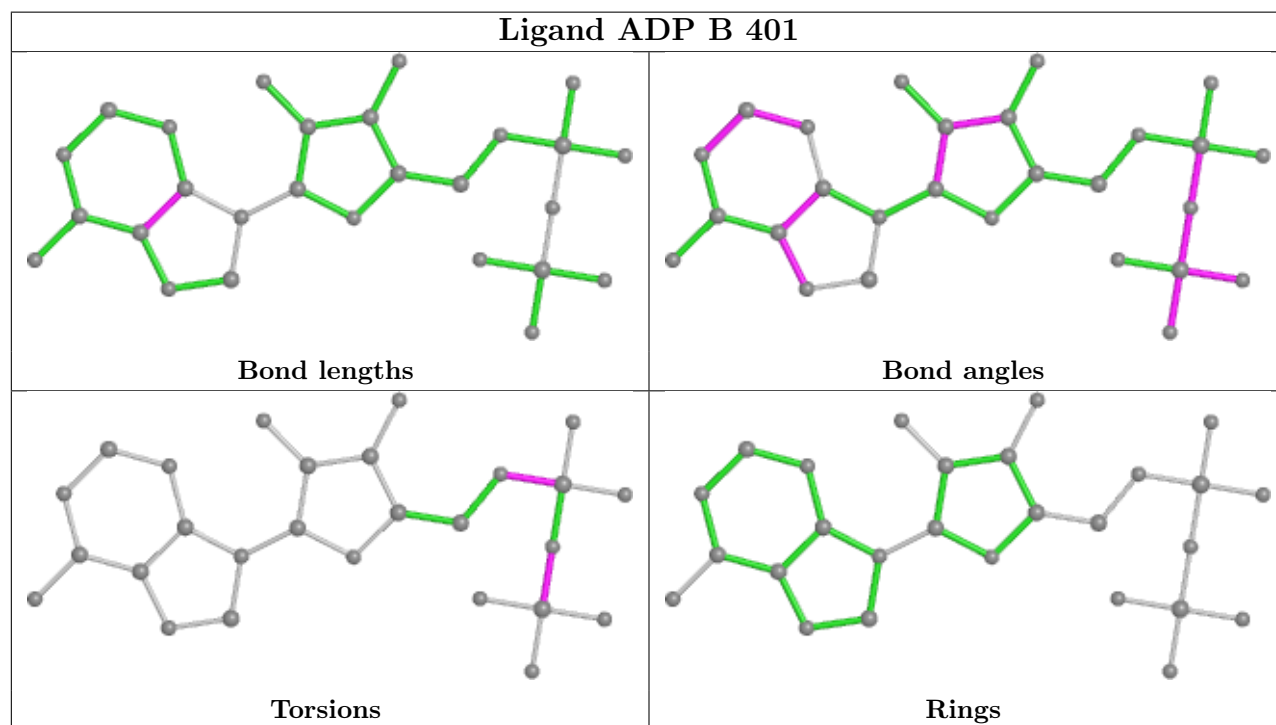
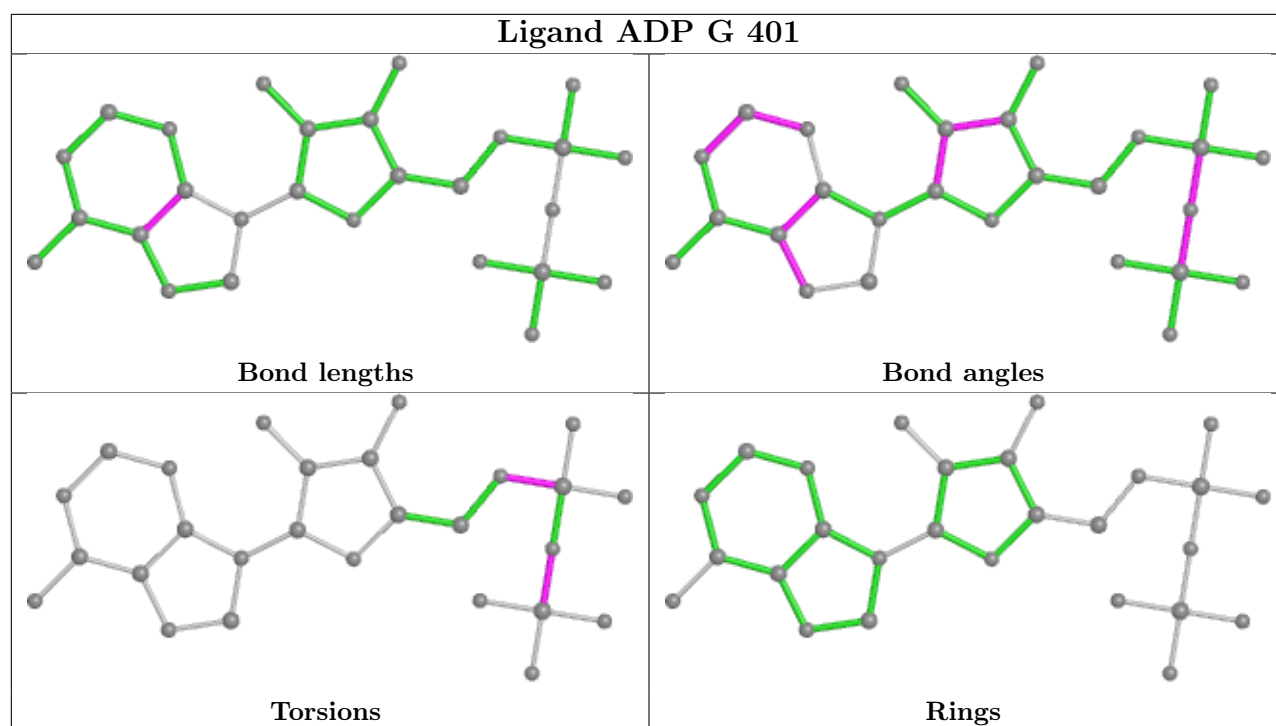
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	K	401	ADP	1	0
11	J	401	ADP	1	0
11	G	401	ADP	1	0
11	C	401	ADP	2	0
11	A	401	ADP	2	0

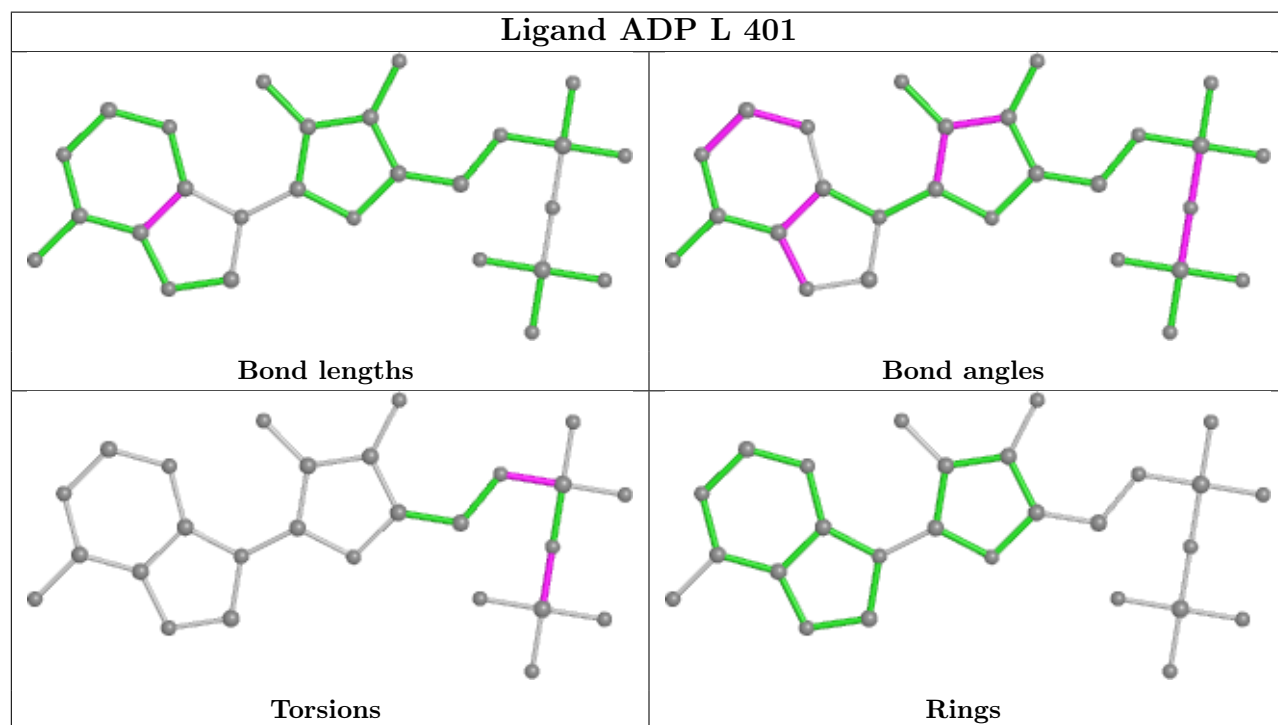
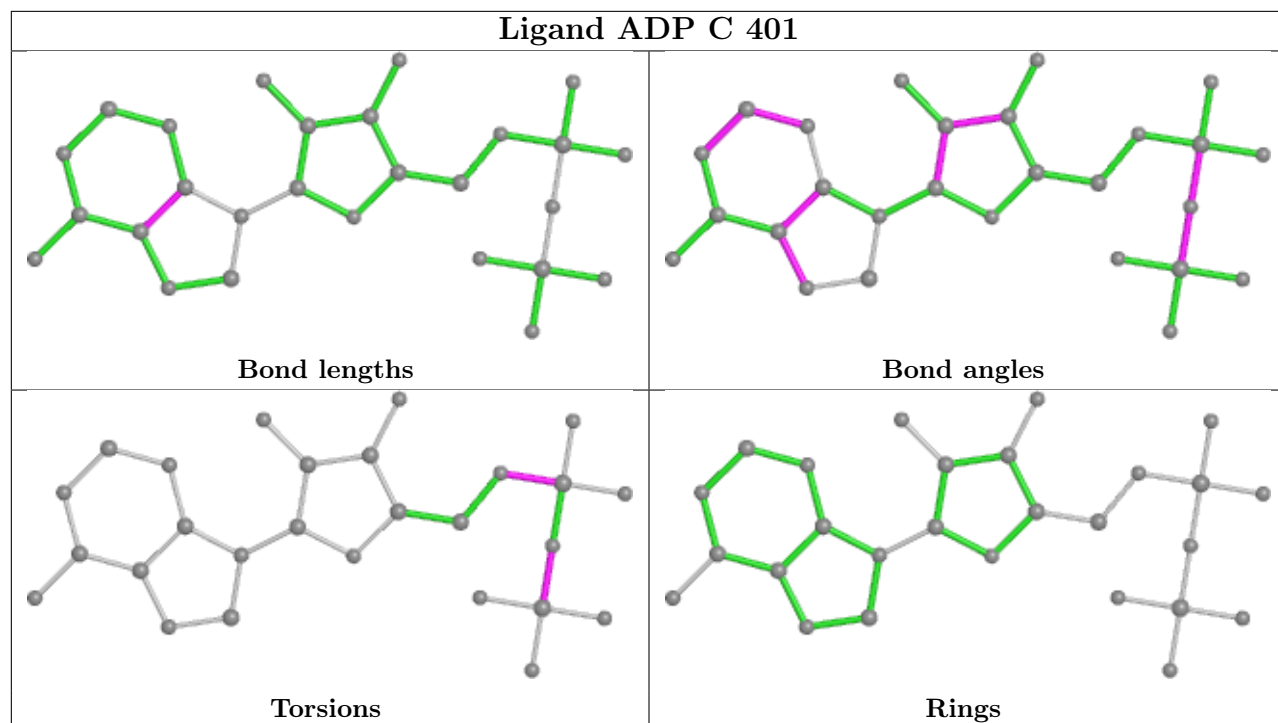
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

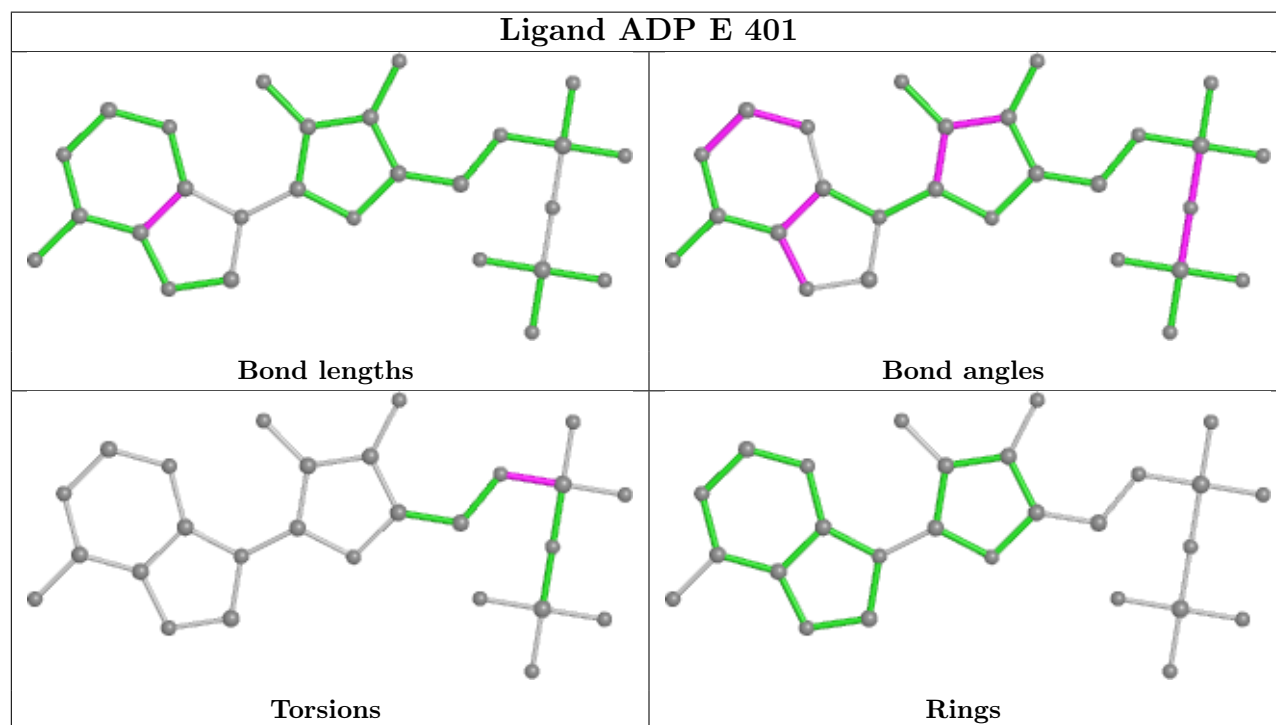
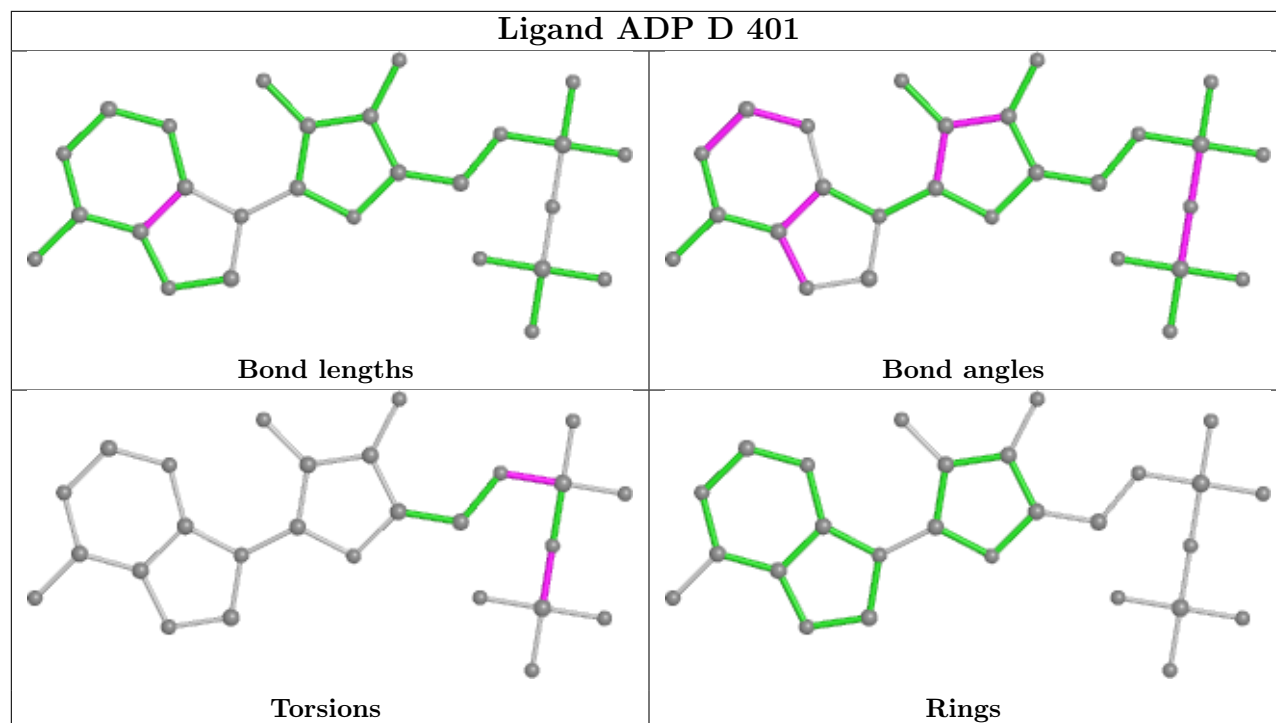


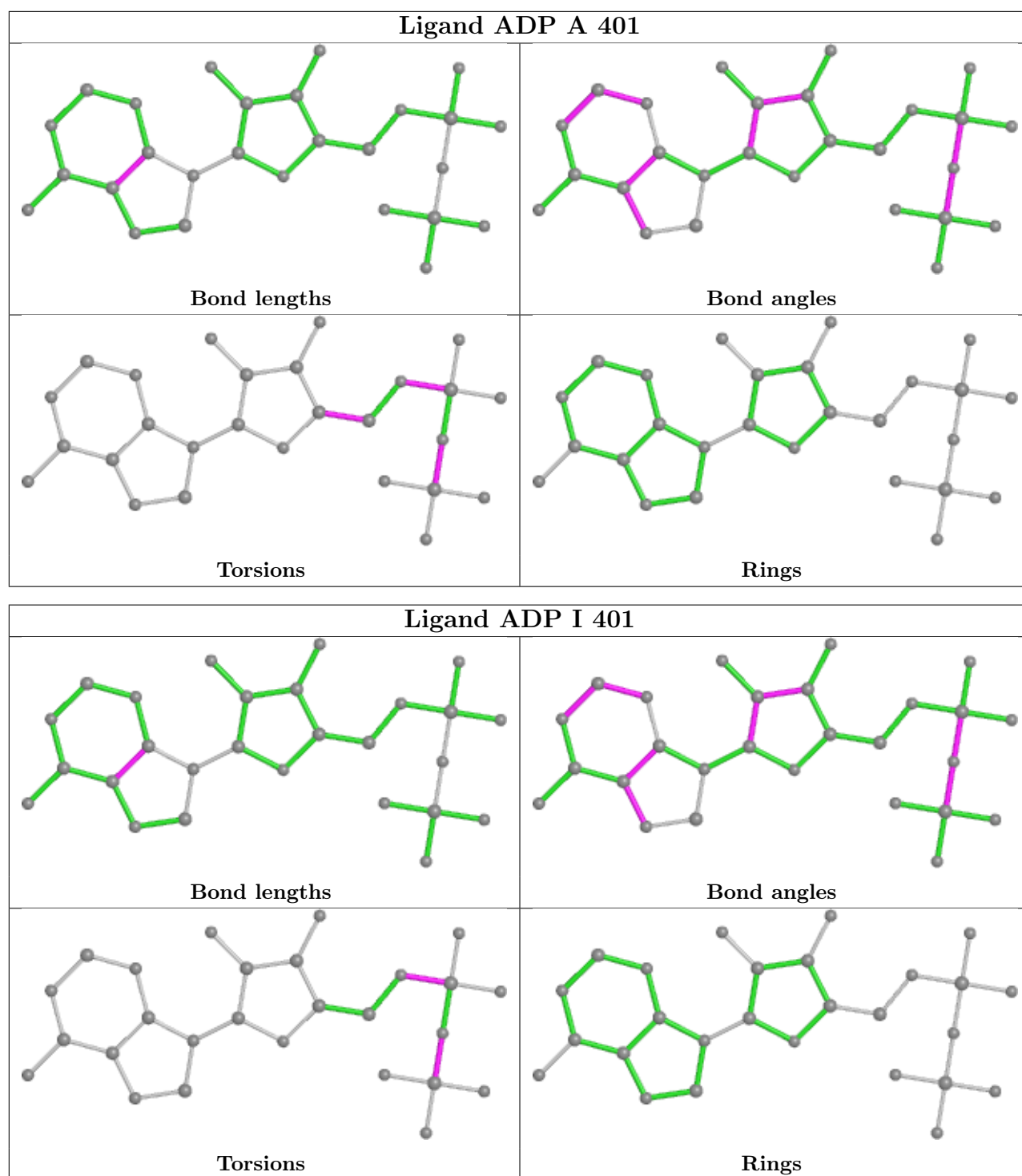












## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

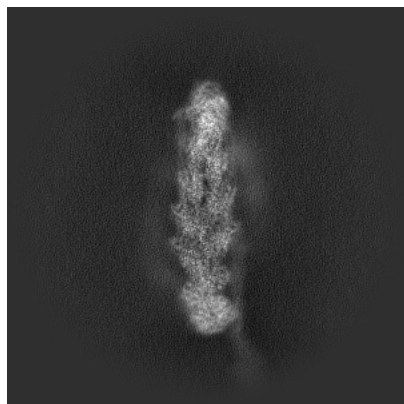
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-35301. These allow visual inspection of the internal detail of the map and identification of artifacts.

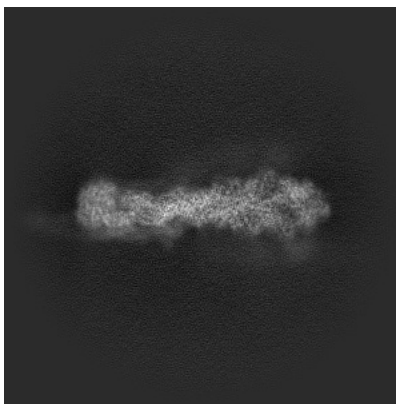
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

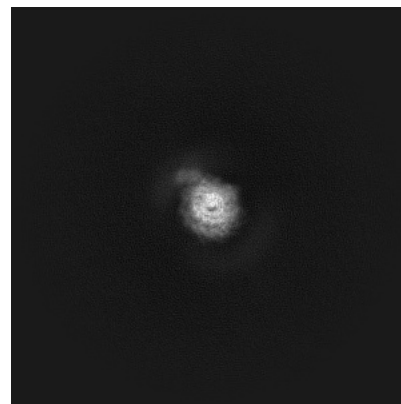
#### 6.1.1 Primary map



X

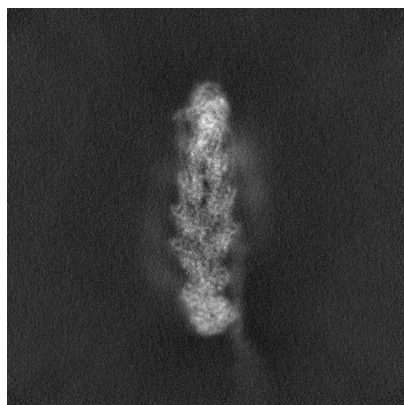


Y

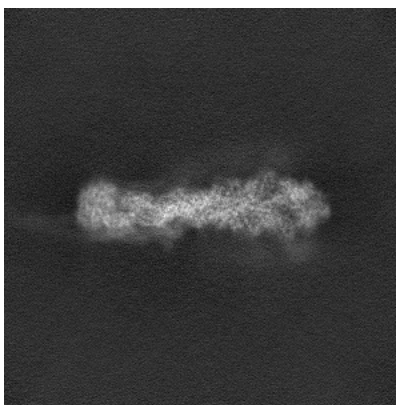


Z

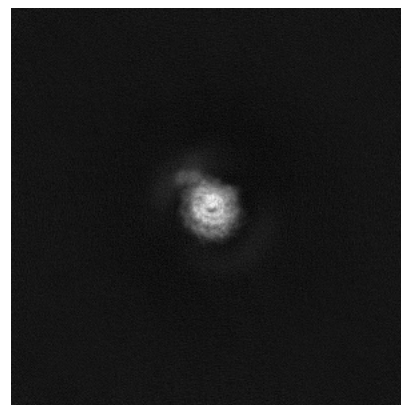
#### 6.1.2 Raw map



X



Y

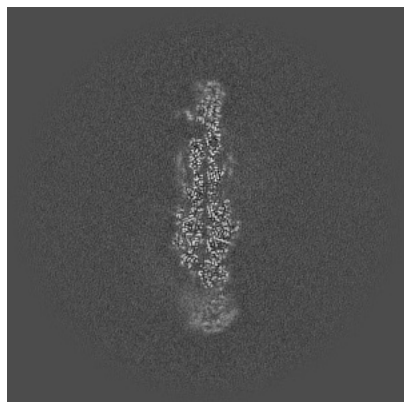


Z

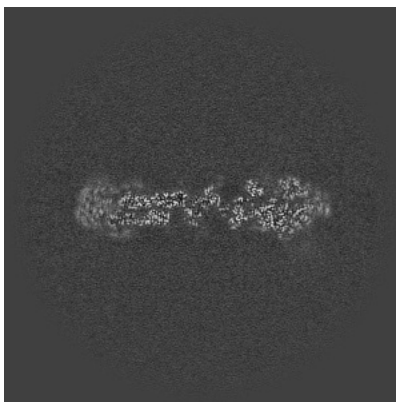
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

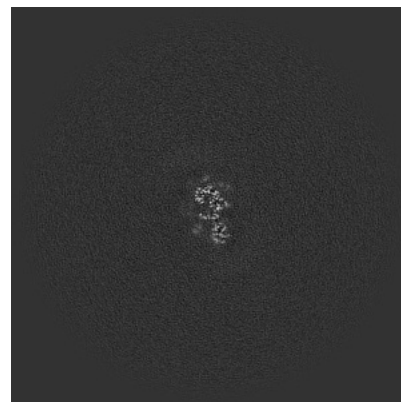
### 6.2.1 Primary map



X Index: 240

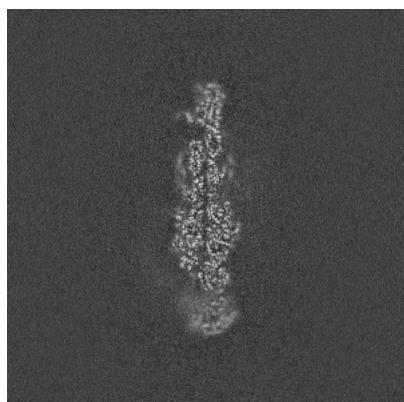


Y Index: 240

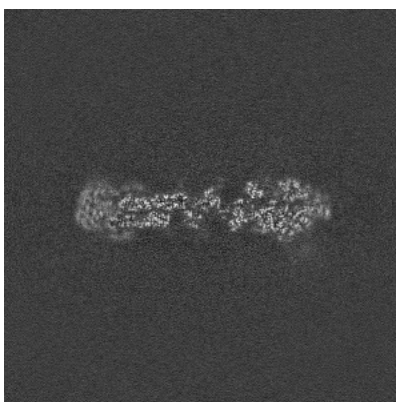


Z Index: 240

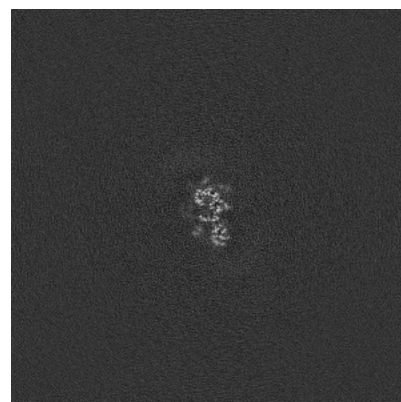
### 6.2.2 Raw map



X Index: 240



Y Index: 240



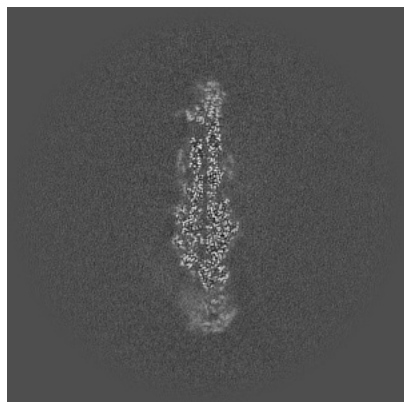
Z Index: 240

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

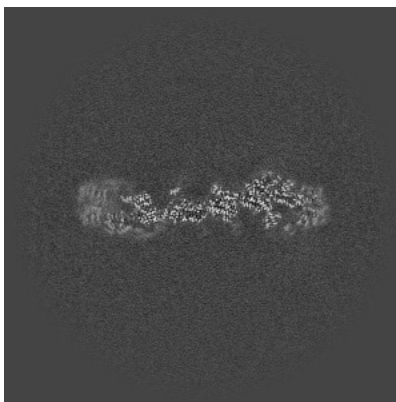


## 6.3 Largest variance slices [i](#)

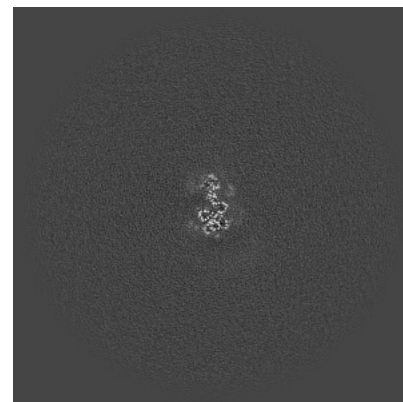
### 6.3.1 Primary map



X Index: 241

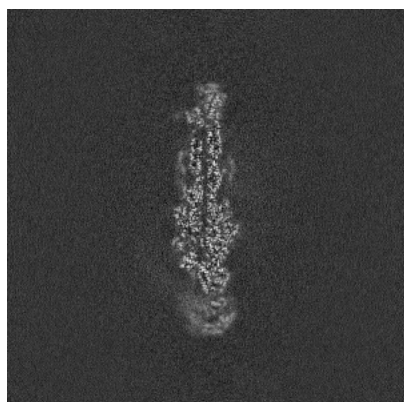


Y Index: 231

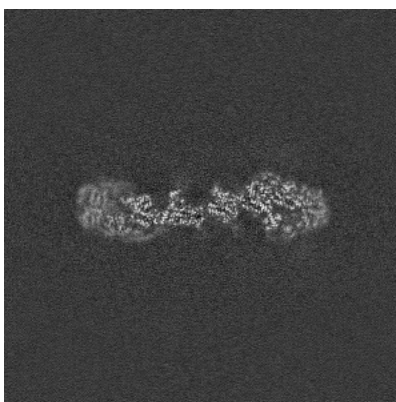


Z Index: 214

### 6.3.2 Raw map



X Index: 242



Y Index: 232



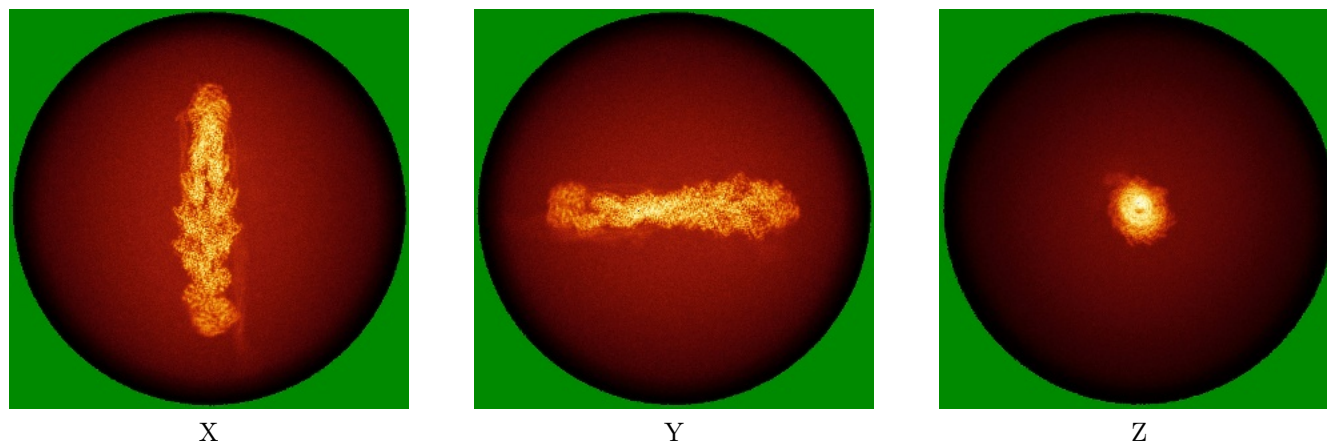
Z Index: 249

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

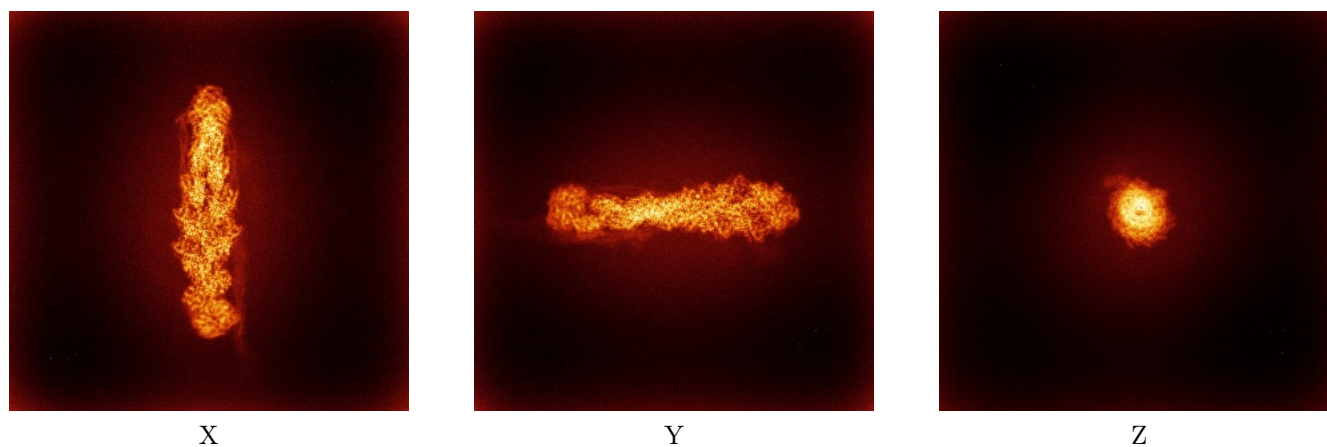


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

### 6.4.1 Primary map



### 6.4.2 Raw map



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

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

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.35. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

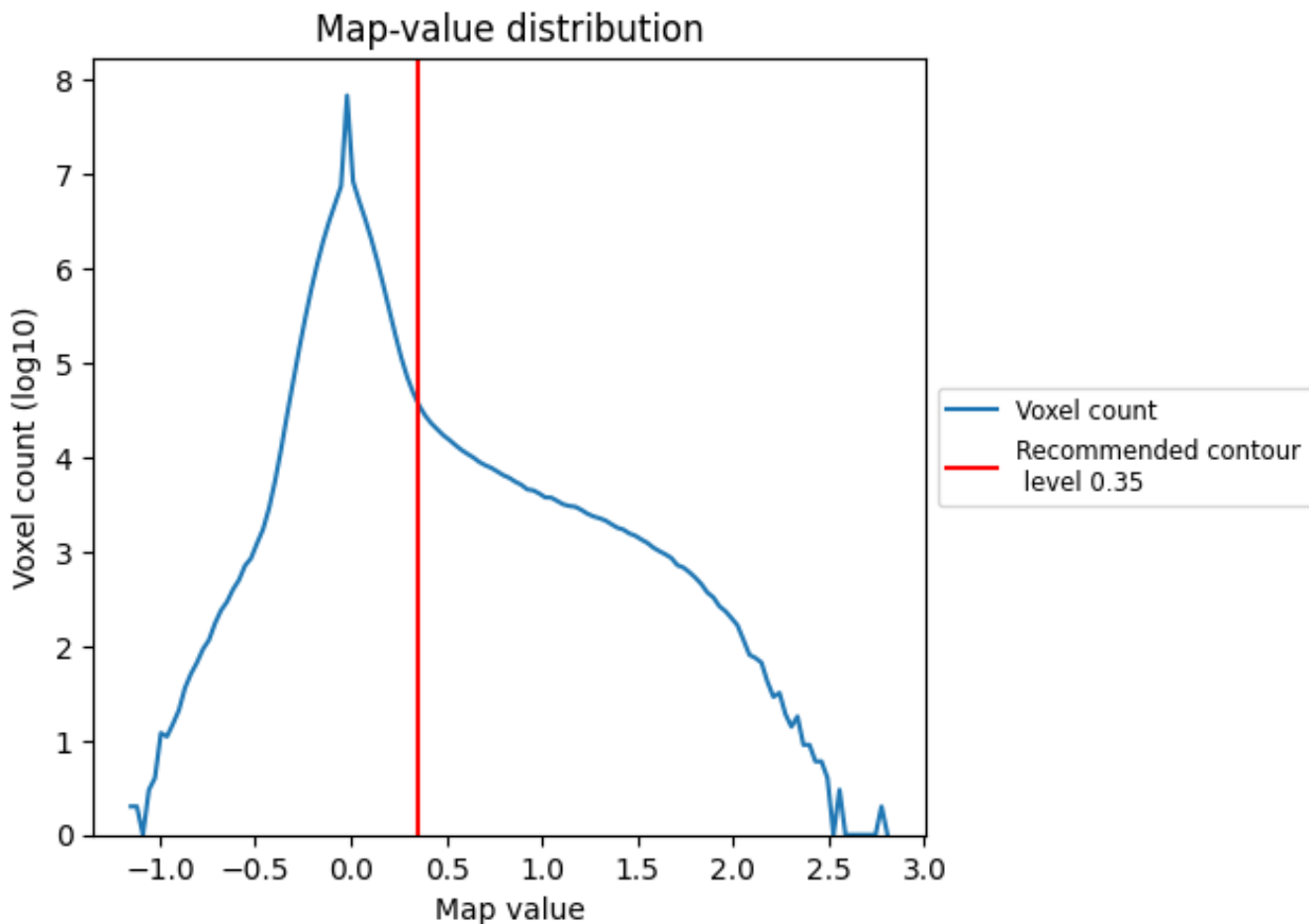
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

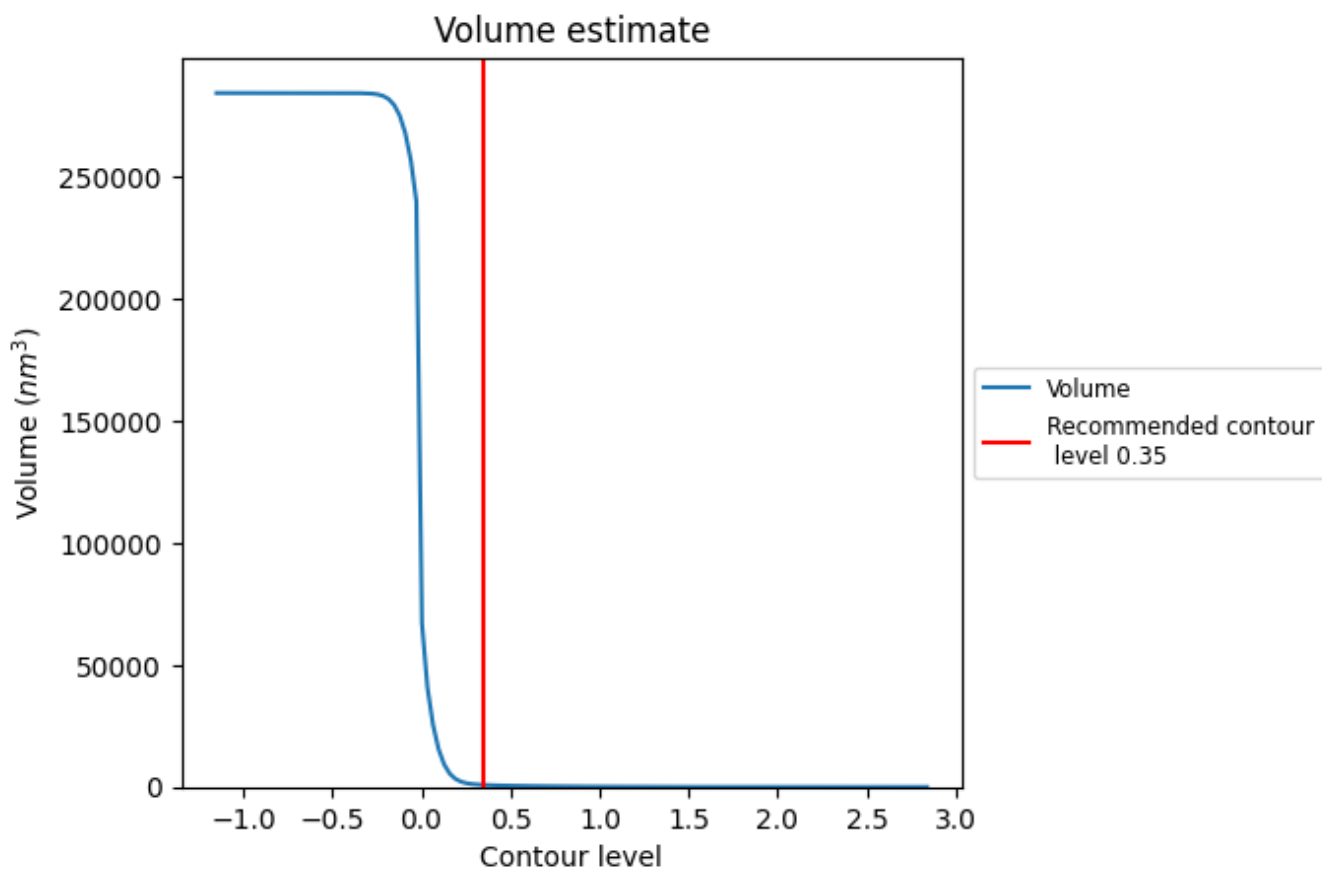
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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

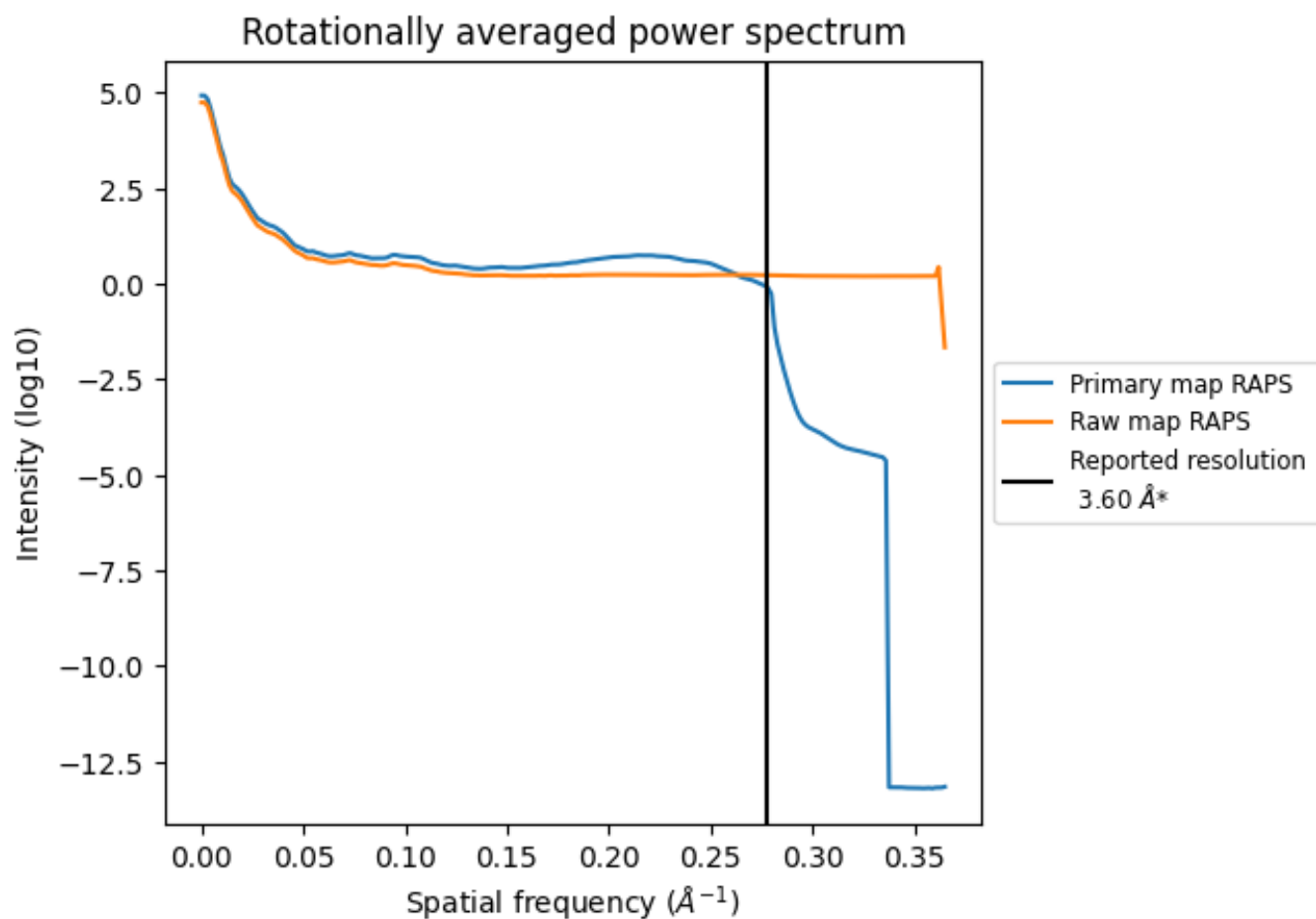
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 817  $\text{nm}^3$ ; this corresponds to an approximate mass of 738 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](#)

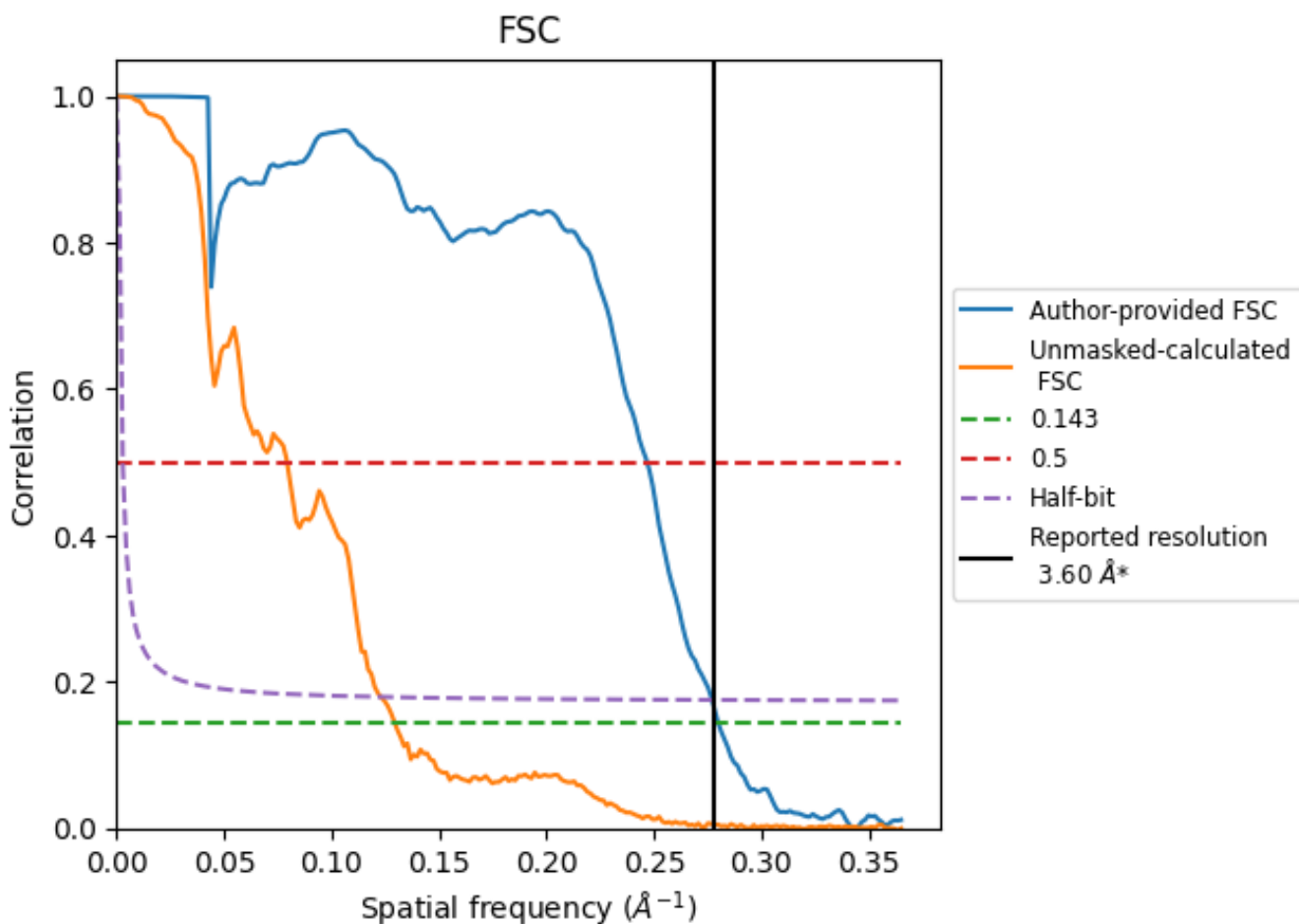


\*Reported resolution corresponds to spatial frequency of 0.278 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.278  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

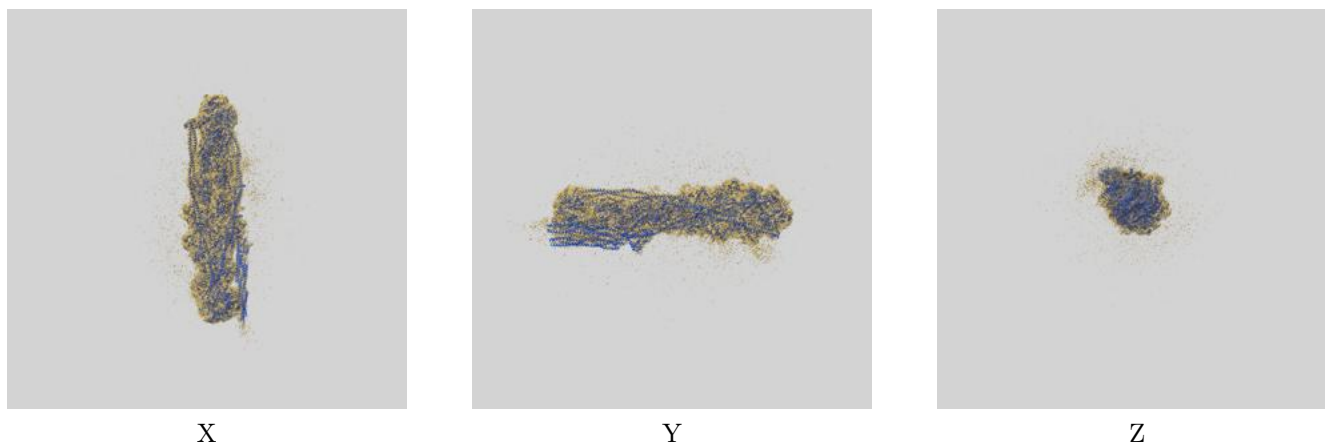
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.57	4.05	3.61
Unmasked-calculated*	7.73	12.61	8.13

\*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 7.73 differs from the reported value 3.6 by more than 10 %

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

This section contains information regarding the fit between EMDB map EMD-35301 and PDB model 8IAH. Per-residue inclusion information can be found in section [3](#) on page [9](#).

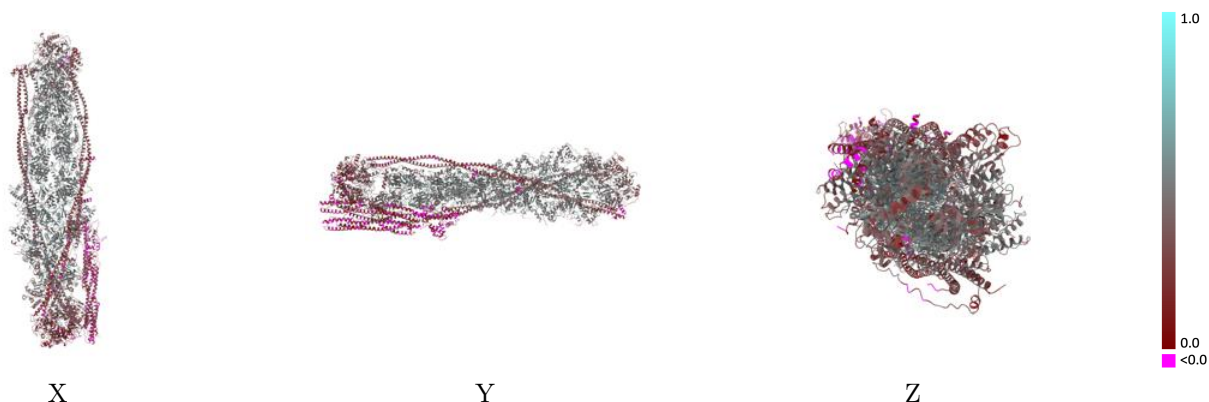
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.35 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.

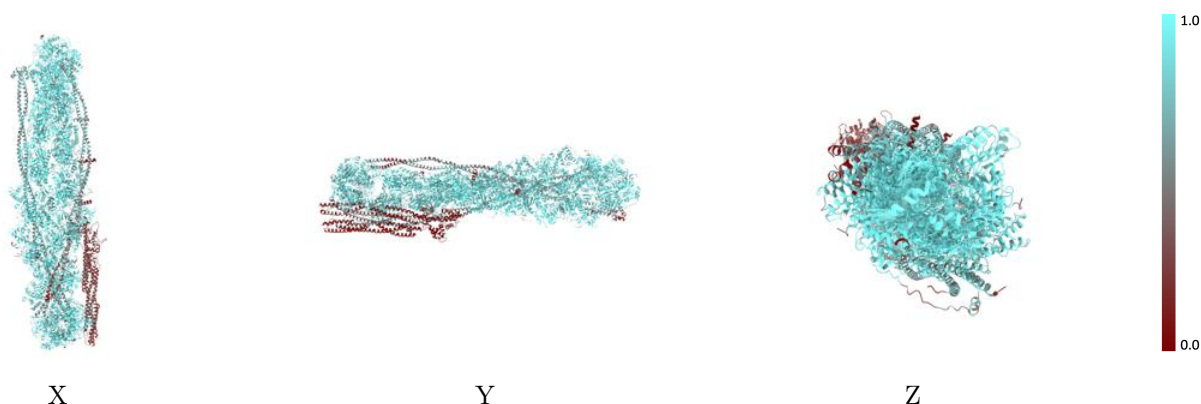


## 9.2 Q-score mapped to coordinate model [\(i\)](#)



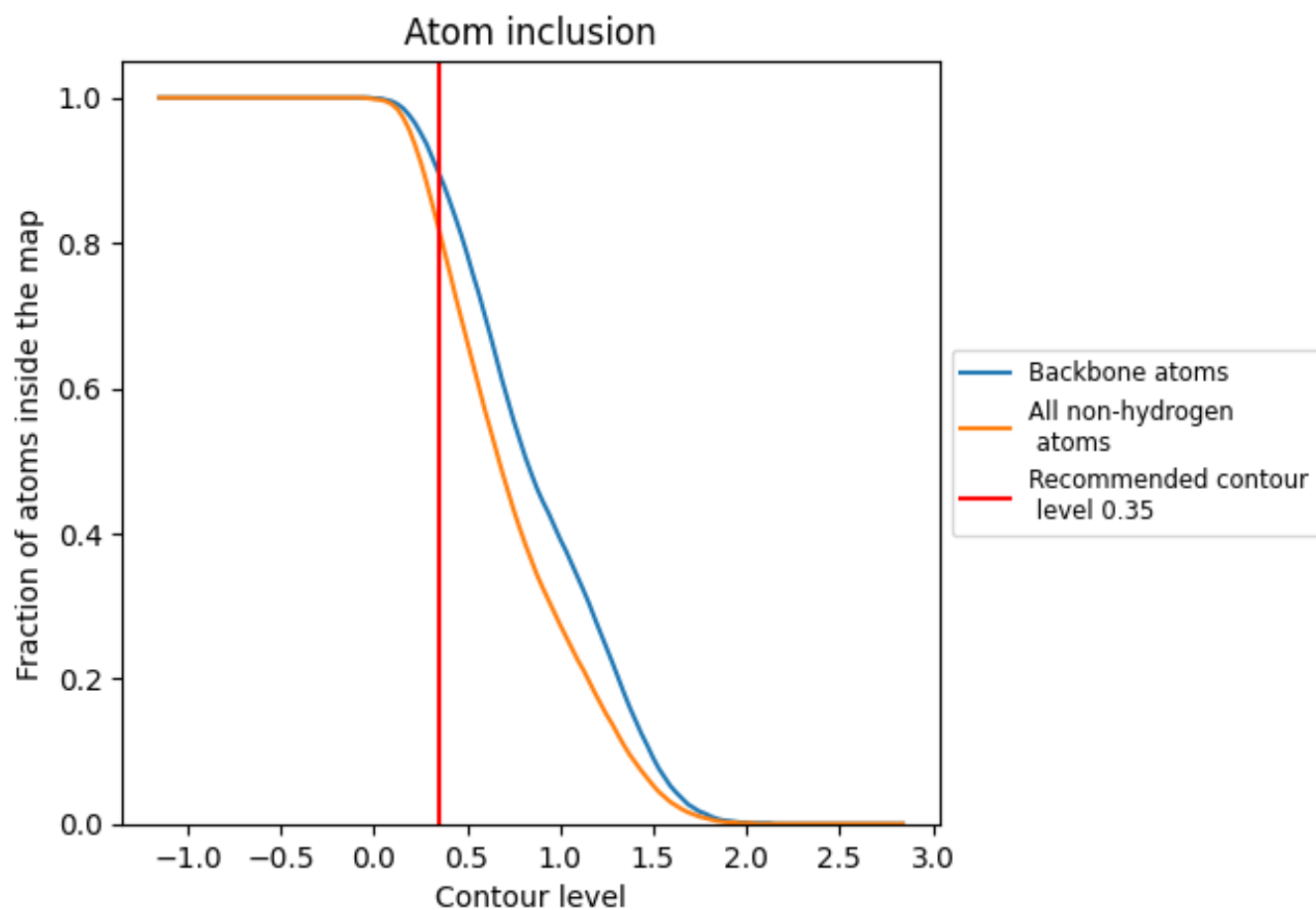
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.35).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 82% 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 (0.35) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8180	 0.3850
0	 0.8490	 0.2980
1	 0.8800	 0.3370
2	 0.8640	 0.2550
3	 0.8300	 0.2810
4	 0.8390	 0.2770
5	 0.7780	 0.3820
6	 0.6920	 0.3810
7	 0.7140	 0.3650
8	 0.1040	 0.0700
9	 0.8150	 0.3460
A	 0.9340	 0.4030
B	 0.9500	 0.4640
C	 0.9550	 0.4970
D	 0.9520	 0.4980
E	 0.9600	 0.5090
F	 0.9550	 0.5030
G	 0.9640	 0.5080
H	 0.9580	 0.5040
I	 0.9570	 0.5030
J	 0.9500	 0.5010
K	 0.9490	 0.4800
L	 0.9270	 0.4330
M	 0.9340	 0.4210
N	 0.8710	 0.4340
O	 0.9470	 0.4680
P	 0.9370	 0.4610
Q	 0.9610	 0.4690
R	 0.9520	 0.4720
S	 0.3960	 0.2030
T	 0.9450	 0.4540
U	 0.5690	 0.2710
V	 0.5340	 0.2430
W	 0.5970	 0.2320
X	 0.5750	 0.2260



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Chain	Atom inclusion	Q-score
Y	 0.8280	 0.3220
Z	 0.8400	 0.3540