



## wwPDB EM Validation Summary Report ⓘ

May 27, 2024 – 04:16 AM EDT

PDB ID : 7TJ7  
EMDB ID : EMD-25918  
Title : Cardiac thin filament decorated with C1 Ig-domain and regulatory M-domain of cardiac myosin binding protein C (cMyBP-C)  
Authors : Risi, C.M.; Galkin, V.E.  
Deposited on : 2022-01-14  
Resolution : 8.00 Å (reported)  
Based on initial models : 7JH7, 6G2T, 3MFP, 5K6P

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>.

---

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

EMDB validation analysis : 0.0.1.dev92  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.2

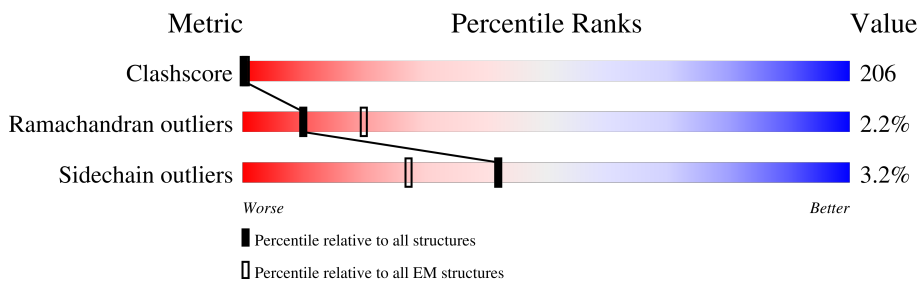
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 8.00 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	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	A	375	88% 8% .
1	B	375	88% 8% .
1	C	375	88% 8% .
1	D	375	88% 8% .
1	E	375	87% 8% .
1	F	375	5% 86% 8% .
2	G	220	5% 11% . 82%
2	H	220	5% 11% . 82%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	I	220	 5% 12% 82%
2	J	220	 5% 11% 82%
2	K	220	 5% 11% 82%
2	L	220	 5% 11% 82%
2	M	220	 10% 9% 36% 53%
2	N	220	 12% 9% 36% 53%
2	O	220	 11% 9% 36% 53%
2	P	220	 12% 9% 36% 53%
2	Q	220	 11% 9% 36% 53%
2	R	220	 11% 8% 37% 53%
3	S	135	 100%
3	T	135	 100%
3	U	135	 100%
3	V	135	 100%

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 29183 atoms, of which 2016 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 cardiac actin.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	375	2932	1854	493	565	20	0	0
1	B	375	2932	1854	493	565	20	0	0
1	C	375	2932	1854	493	565	20	0	0
1	D	375	2932	1854	493	565	20	0	0
1	E	375	2932	1854	493	565	20	0	0
1	F	375	2932	1854	493	565	20	0	0

- Molecule 2 is a protein called Myosin-binding protein C, cardiac-type.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
2	G	39	666	209	336	62	57	2	0	0
2	H	39	666	209	336	62	57	2	0	0
2	I	39	666	209	336	62	57	2	0	0
2	J	39	666	209	336	62	57	2	0	0
2	K	39	666	209	336	62	57	2	0	0
2	L	39	666	209	336	62	57	2	0	0
2	M	104	816	521	138	154	3	0	0	
2	N	104	816	521	138	154	3	0	0	
2	O	104	816	521	138	154	3	0	0	

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf	Trace
2	P	104	Total	C	N	O	S	0	0
			816	521	138	154	3		
2	Q	104	Total	C	N	O	S	0	0
			816	521	138	154	3		
2	R	104	Total	C	N	O	S	0	0
			816	521	138	154	3		

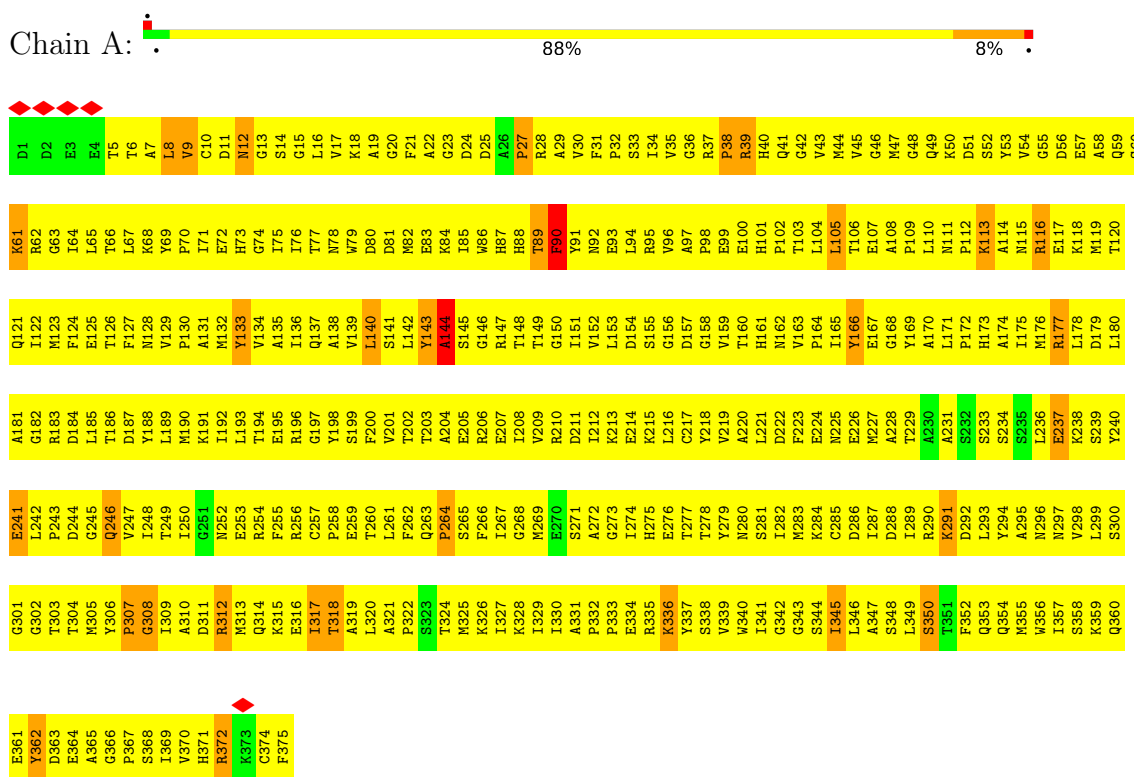
- Molecule 3 is a protein called tropomyosin model.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	S	135	Total	C	N	O	0	0
			674	405	134	135		
3	T	135	Total	C	N	O	0	0
			675	405	135	135		
3	U	135	Total	C	N	O	0	0
			675	405	135	135		
3	V	135	Total	C	N	O	0	0
			675	405	135	135		

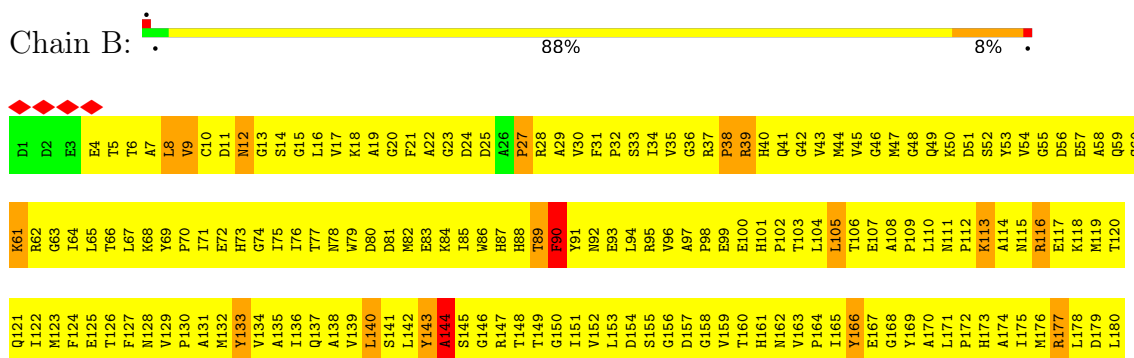
### 3 Residue-property plots

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

- Molecule 1: cardiac actin

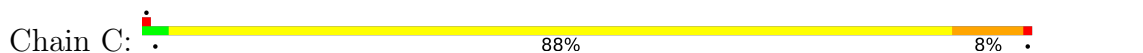


- Molecule 1: cardiac actin



A181	G182	E241	G301	E361	G361
R183	L242	L242	G302	Y362	Y362
D184	P243	P243	T303	D363	D363
L185	D244	D244	T304	E364	E364
T186	M305	M305	M305	A365	A365
D187	Q246	Q246	Y306	G366	G366
Y188	V247	V247	P307	P367	P367
L189	L248	L248	G308	S368	S368
M190	T249	T249	I309	I369	I369
K191	K1250	K1250	A310	V370	V370
L192	D311	D311	D311	H371	H371
L193	G251	G251	R312	R372	R372
L194	M252	M252	M313	K373	K373
E195	E253	E253	Q314	C374	C374
R196	R254	R254	K315	F375	F375
G197	F255	F255	E316		
Y198	R256	R256	I317		
S199	C257	C257	T318		
F200	G197	G197	P258		
	Y198	Y198	A319		
	S199	S199	L320		
	F200	F200	L320		
	V201	V201	A321		
	T202	T202	F322		
	T203	T203	Q263		
	A204	A204	S323		
	E205	E205	T324		
	R206	R206	M325		
	E207	E207	K326		
	L208	L208	I327		
	V209	V209	K328		
	R210	R210	I329		
	D211	D211	T330		
	L212	L212	A331		
	K213	K213	P332		
	E214	E214	F333		
	K215	K215	E334		
	L216	L216	R335		
	C217	C217	H275		
	Y218	Y218	E276		
	V219	V219	Y337		
	A220	A220	S338		
	L221	L221	W340		
	D222	D222	I341		
	F223	F223	G342		
	E224	E224	G343		
	M225	M225	G344		
	E226	E226	I345		
	M227	M227	L346		
	A228	A228	A347		
	T229	T229	S348		
	A230	A230	L349		
	A231	A231	R290		
	S232	S232	S350		
	S233	S233	T351		
	S234	S234	F352		
	S235	S235	Q353		
	L236	L236	Q354		
	E237	E237	M355		
	K238	K238	M356		
	S239	S239	I357		
	Y240	Y240	S358		
			K359		
			Q360		

• Molecule 1: cardiac actin



D1	D2	E3	F4	T5	T6	A7	L8	V9	C10	D11	M12	G13	S14	I15	G16	G17	R18	W19	K18	A19	D20	M21	F22	A23	G24	D25	A26	R27	R28	A29	V30	F31	P32	S33	I34	R35	V36	G37	P38	R39	H40	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223	V224	L225	Y226	E227	G228	P229	A230	A231	S232	Q233	M234	Y235	M236	G237	P238	R239	H240	P101	Q102	G103	G104	V105	L106	E107	G108	M109	G110	M111	P112	K113	A114	Y115	V116	G117	E118	M119	A120	L121	L122	M123	F124	L125	T126	F127	K128	V129	L130	A131	I132	M133	V134	I135	L136	T137	Q138	Y139	W140	D141	M142	L143	Y144	K145	G146	H147	T148	T149	R150	F151	Y152	N153	E154	D155	I156	G157	D158	V159	E160	H161	N162	M163	V164	L165	Y166	E167	G168	P169	A170	L171	P172	H173	A174	Y175	M176	R177	L178	D179	M180	L181	L182	M183	E184	L185	T186	F187	K188	V189	L190	A191	I192	M193	V194	I195	L196	T197	Q198	Y199	W200	D201	M202	L203	Y204	K205	G206	H207	T208	T209	R210	F211	Y212	N213	E214	D215	I216	G217	D218	V219	E220	H221	N222	M223
----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

E241	G301	E361	G302
L242	G303	Y362	G304
D363	T303	D364	T304
P244	M305	E364	M306
G245	Y306	A365	G246
Q246	P307	G366	Q247
V247	G308	P367	V248
L248	I309	S368	L249
T249	A310	H370	T250
I250	D311	H371	I251
G251	R312	R372	G252
M252	M313	K373	M253
E253	Q314	C374	E254
R254	K315	F375	R255
F256	E316		F257
E316	I317		E317
P257	T318		P258
C257	A319		C258
P258	L320		P259
E259	T260		E260
T260	L261		T261
L261	A321		L262
F262	S322		F263
Q263	T324		Q264
Q263	P322		Q264
S265	M325		S266
F266	K326		F267
	L327		
	K328		
	M269		
	I330		
	T330		
	A331		
	P332		
	P333		
	E334		
	R335		
	K336		
	Y337		
	S338		
	V339		
	W340		
	I341		
	G342		
	M283		
	K284		
	S344		
	I345		
	L346		
	A347		
	D288		
	S348		
	L349		
	S350		
	T351		
	F352		
	Q353		
	Y294		
	M354		
	A295		
	M296		
	N297		
	D56		
	E57		
	A58		
	S388		
	L298		
	K359		
	L299		
	S300		
	Q360		

• Molecule 1: cardiac actin



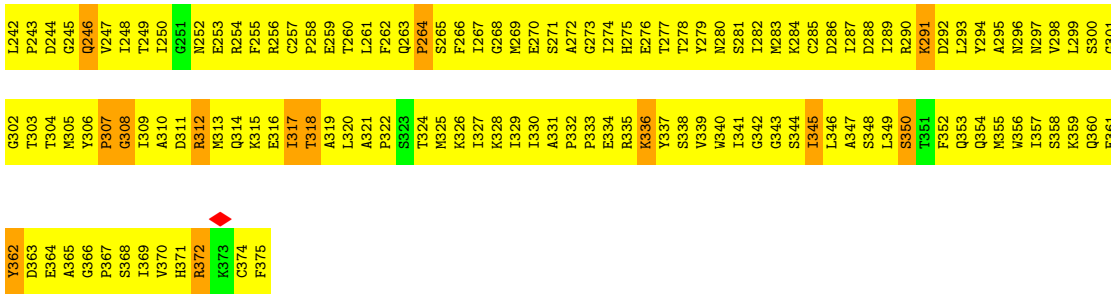
D1	R62	G182	G302	L342	G302	Y362
D2	G63	R183	T303	P243	T303	D363
E3	I64	D184	M304	D244	M304	E364
F4	L65	E185	G305	G245	G305	A365
T5	T66	T186	Y306	Q246	Y306	G366
T6	L67	D187	P307	V247	P307	P367
T7	K68	Y188	G308	I248	G308	S368
A7	Y69	L189	I309	T249	I309	I369
L8	P70	M190	A310	I250	A310	H370
V9	I71	K191	D311	G251	D311	H371
C10	E72	I192	R312	N252	R312	R372
H73	H73	L193	M313	E253	M313	K373
G74	G74	G194	Q314	R254	Q314	C374
I75	I75	A195	K315	F255	K315	F375
I76	I76	R196	E316	R256	E316	
T77	T77	G197	I317	C257	I317	
L16	L16	A198	T318	P258	T318	
W79	W79	S199	A319	E259	A319	
V17	V17	V199	L320	T260	L320	
D80	D80	F200	A321	L261	A321	
D81	D81	V201	P322	F262	P322	
M82	M82	T202	L142	L262	L142	
G83	G83	T203	Y143	P264	Y143	
A204	A204	K84	A144	Q263	A144	
I85	I85	E205	S145	S265	E205	
M86	M86	R206	G146	F266	M86	
D24	D24	E207	R147	L267	D24	
D25	D25	H87	L148	I268	D25	
A26	A26	I208	K328	G268	A26	
P27	P27	V209	I329	M269	P27	
R28	R28	R210	I330	E270	R28	
A29	A29	D211	A331	S271	A29	
V30	V30	L212	P332	A272	V30	
F31	F31	L153	R333	G273	F31	
L94	L94	D154	E334	I274	L94	
R95	R95	S155	K335	H275	R95	
V96	V96	L216	Y337	E276	V96	
A97	A97	C217	S338	T277	A97	
P98	P98	G158	S339	T278	P98	
G36	G36	Y218	W340	Y279	G36	
R37	R37	V159	R39	E280	R37	
E100	E100	A220	H101	S281	E100	
H101	H101	L221	H161	I282	H101	
P102	P102	D222	N162	I283	P102	
T103	T103	F223	V163	M283	T103	
Q41	Q41	G224	G164	K284	Q41	
G42	G42	E224	P164	C285	G42	
L104	L104	N225	I165	G285	L104	
L105	L105	E226	Y166	D286	L105	
T106	T106	M227	E167	I287	T106	
E107	E107	A228	A168	D288	E107	
A108	A108	Y169	Y169	I289	A108	
P109	P109	A170	A230	R290	P109	
L110	L110	L171	A231	K291	L110	
N111	N111	P172	S232	D292	N111	
P112	P112	H173	H173	L293	P112	
D51	D51	A174	S234	Y294	D51	
S52	S52	I175	M115	M354	S52	
K113	K113	I175	G235	A295	K113	
H174	H174	M176	L236	M296	H174	
Y53	Y53	R177	R177	N297	Y53	
V54	V54	L178	K238	V298	V54	
M115	M115	D179	S239	L299	M115	
G55	G55	T120	Y240	S300	G55	
A116	A116	S60	K61	E361	A116	
R116	R116				R116	
E117	E117				E117	
D56	D56				D56	
E57	E57				E57	
K118	K118				K118	
L118	L118				L118	
M119	M119				M119	
T120	T120				T120	
Q121	Q121				Q121	

• Molecule 1: cardiac actin



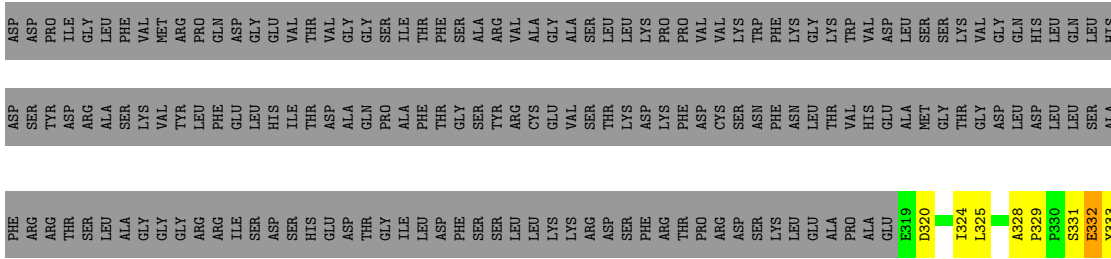
D1	R62	G182	G302	L342	G302	Y362
D2	G63	R183	T303	P243	T303	D363
E3	I64	D184	M304	D244	M304	E364
F4	L65	E185	G305	G245	G305	A365
T5	T66	T186	Y306	Q246	Y306	G366
T6	L67	D187	P307	V247	P307	P367
T7	K68	Y188	G308	I248	G308	S368
A7	Y69	L189	I309	T249	I309	I369
L8	P70	M190	A310	I250	A310	H370
V9	I71	K191	D311	G251	D311	H371
C10	E72	I192	R312	N252	R312	R372
H73	H73	L193	M313	E253	M313	K373
G74	G74	G194	Q314	R254	Q314	C374
I75	I75	A195	K315	F255	K315	F375
I76	I76	R196	E316	R256	E316	
T77	T77	G197	I317	C257	I317	
L16	L16	A198	T318	P258	T318	
W79	W79	S199	A319	E259	A319	
V17	V17	V199	L320	T260	L320	
D80	D80	F200	A321	L261	A321	
D81	D81	V201	P322	F262	P322	
M82	M82	T202	L142	L262	L142	
G83	G83	T203	Y143	P264	Y143	
A204	A204	K84	A144	Q263	A144	
I85	I85	E205	S145	S265	E205	
M86	M86	R206	G146	F266	M86	
D24	D24	E207	R147	L267	D24	
D25	D25	H87	L148	I268	D25	
A26	A26	I208	K328	G268	A26	
P27	P27	V209	I329	M269	P27	
R28	R28	R210	I330	E270	R28	
Y91	Y91	D211	A331	S271	Y91	
A29	A29	L212	P332	A272	A29	
V30	V30	L153	R333	G273	V30	
F31	F31	D154	E334	I274	F31	
L94	L94	S155	K335	H275	L94	
R95	R95	L216	Y337	E276	R95	
V96	V96	C217	S338	T277	V96	
I34	I34	G158	S339	T278	I34	
A97	A97	Y218	W340	Y279	A97	
P98	P98	V159	R39	E280	P98	
G36	G36	E100	H101	S281	G36	
R37	R37	L221	H161	I282	R37	
E100	E100	D222	N162	I283	E100	
H101	H101	F223	V163	M283	H101	
P102	P102	G224	G164	K284	P102	
A108	A108	N225	I165	C285	A108	
Y169	Y169	E226	Y166	D286	Y169	
P109	P109	M227	E167	I287	P109	
L110	L110	A228	A168	D288	L110	
N111	N111	Y169	Y169	I289	N111	
P112	P112	A170	A230	R290	P112	
D51	D51	L171	A231	K291	D51	
S52	S52	P172	S232	D292	S52	
K113	K113	H173	H173	L293	K113	
H174	H174	A174	S234	Y294	H174	
Y53	Y53	I175	M115	M354	Y53	
V54	V54	I175	G235	A295	V54	
M115	M115	M176	L236	M296	M115	
G55	G55	R177	R177	N297	G55	
A116	A116	L178	K238	V298	A116	
R116	R116	D179	S239	L299	R116	
E117	E117	T120	Y240	S300	E117	
D56	D56	S60	K61	E361	D56	
E57	E57				E57	
K118	K118				K118	
L118	L118				L118	
M119	M119				M119	
T120	T120				T120	
Q121	Q121				Q121	





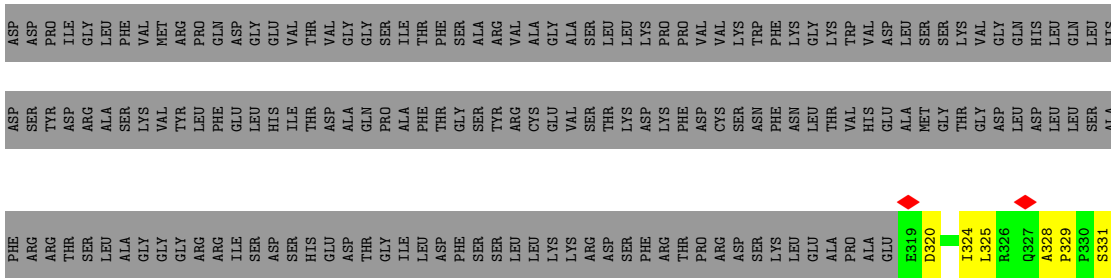
• Molecule 2: Myosin-binding protein C, cardiac-type

Chain G: 5% 11% . 82%



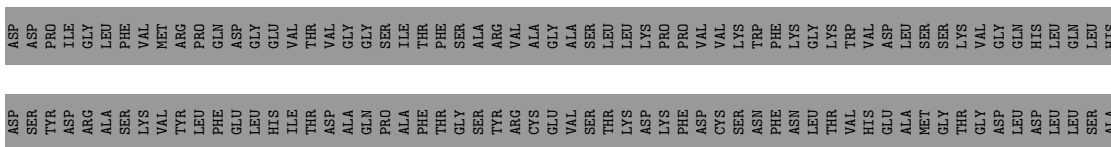
• Molecule 2: Myosin-binding protein C, cardiac-type

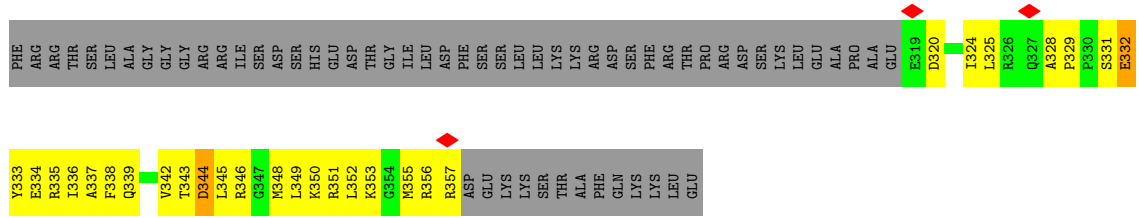
Chain H: 5% 11% . 82%



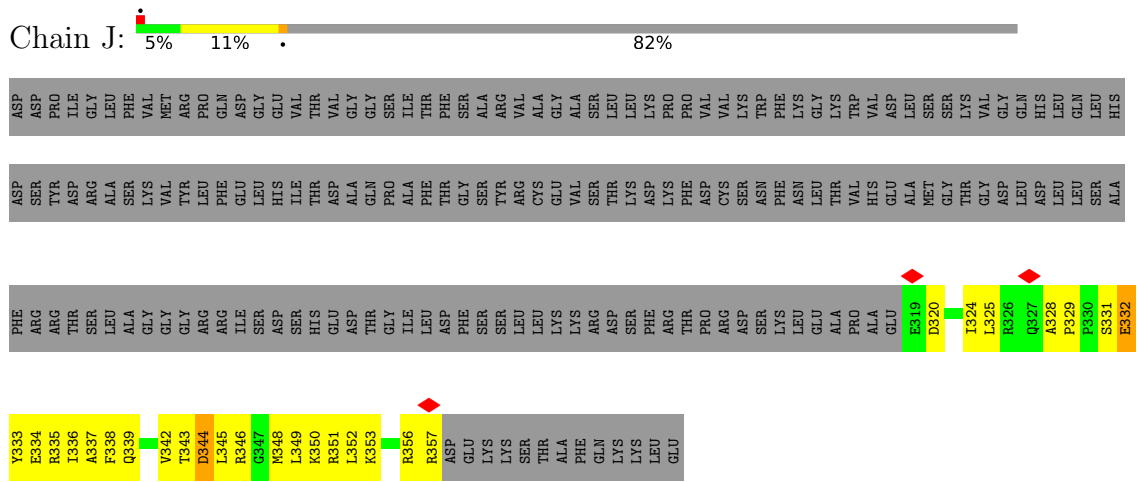
• Molecule 2: Myosin-binding protein C, cardiac-type

Chain I: 5% 12% . 82%

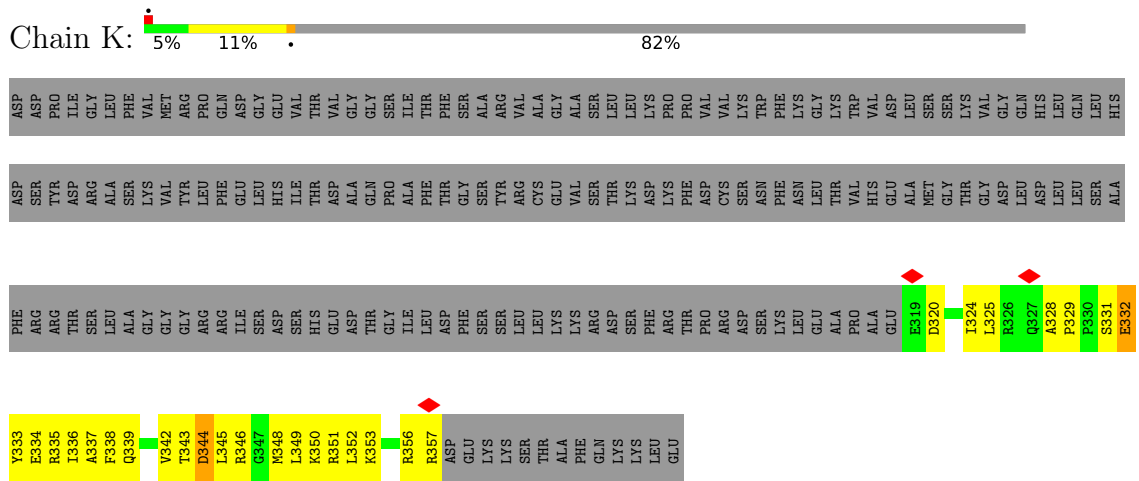




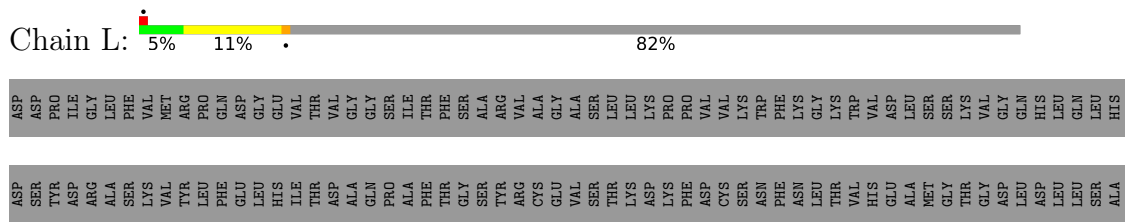
• Molecule 2: Myosin-binding protein C, cardiac-type



• Molecule 2: Myosin-binding protein C, cardiac-type



• Molecule 2: Myosin-binding protein C, cardiac-type





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

● Molecule 2: Myosin-binding protein C, cardiac-type



D151	D152	P153	I154	G155	L156	F157	V158	M159	R160	P161	Q162	D163	G164	E165	V166	T167	V168	G169	G170	P231	S171	I172	T173	F174	S175	A176	R177	V178	A179	G180	ALA	SER	PHE	GLN	LEU	LEU	K185	P186	F187	V188	V189	K190	W191	F192	K193	G194	K195	W196	V197	D198	L199	S200	S201	K202	V203	G204	Q205	H206	L207	Q208	L209	H210
D211	S212	Y213	D214	R215	A216	S217	K218	V219	L220	L221	F222	E223	L224	H225	I226	T227	D228	A229	Q230	P231	A232	F233	T234	G235	S236	Y237	R238	C239	E240	V241	S242	T243	K244	D245	K246	F247	D248	C249	S250	N251	F252	N253	L254	T255	V256	H257	E258	ALA	MET	GLY	THR	GLY	ASP	LEU	LEU	LEU	LEU	LEU	LEU	ALA		

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

● Molecule 2: Myosin-binding protein C, cardiac-type



D151	D152	P153	I154	G155	L156	F157	V158	M159	R160	P161	Q162	D163	G164	E165	V166	T167	V168	G169	G170	P231	S171	I172	T173	F174	S175	A176	R177	V178	A179	G180	ALA	SER	PHE	GLN	LEU	LEU	K185	P186	F187	V188	V189	K190	W191	F192	K193	G194	K195	W196	V197	D198	L199	S200	S201	K202	V203	G204	Q205	H206	L207	Q208	L209	H210
D211	S212	Y213	D214	R215	A216	S217	K218	V219	L220	L221	F222	E223	L224	H225	I226	T227	D228	A229	Q230	P231	A232	F233	T234	G235	S236	Y237	R238	C239	E240	V241	S242	T243	K244	D245	K246	F247	D248	C249	S250	N251	F252	N253	L254	T255	V256	H257	E258	ALA	MET	GLY	THR	GLY	ASP	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ALA	

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

● Molecule 2: Myosin-binding protein C, cardiac-type



D151	D152	P153	I154	G155	L156	F157	V158	M159	R160	P161	Q162	D163	G164	E165	V166	T167	V168	G169	G170	P231	S171	I172	T173	F174	S175	A176	R177	V178	A179	G180	ALA	SER	PHE	GLN	LEU	LEU	K185	P186	F187	V188	V189	K190	W191	F192	K193	G194	K195	W196	V197	D198	L199	S200	S201	K202	V203	G204	Q205	H206	L207	Q208	L209	H210
D211	S212	Y213	D214	R215	A216	S217	K218	V219	L220	L221	F222	E223	L224	H225	I226	T227	D228	A229	Q230	P231	A232	F233	T234	G235	S236	Y237	R238	C239	E240	V241	S242	T243	K244	D245	K246	F247	D248	C249	S250	N251	F252	N253	L254	T255	V256	H257	E258	ALA	MET	GLY	THR	GLY	ASP	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ALA	

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

SER  
GLU  
TYR  
GLU  
ARG  
ILE  
ALA  
PHE  
GLN  
TYR  
GLY  
VAL  
THR  
ASP  
LEU  
ARG  
GLY  
MET  
LEU  
LYS  
ARG  
LEU  
LYS  
GLY  
MET  
ARG  
ARG  
ASP  
GLU  
LYS  
LYS  
SER  
THR  
ALA  
PHE  
GLN  
LYS  
LYS  
LEU  
GLU

- Molecule 3: tropomyosin model

Chain S:  100%

There are no outlier residues recorded for this chain.

- Molecule 3: tropomyosin model

Chain T:  100%

There are no outlier residues recorded for this chain.

- Molecule 3: tropomyosin model

Chain U:  100%

There are no outlier residues recorded for this chain.

- Molecule 3: tropomyosin model

Chain V:  100%

There are no outlier residues recorded for this chain.

## 4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=-166.7°, rise=27.4 Å, axial sym=C1	Depositor
Number of segments used	9710	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 ( $e^-/\text{Å}^2$ )	34	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	10.978	Depositor
Minimum map value	-4.043	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	0.728	Depositor
Map size (Å)	122.395004, 117.015, 305.315	wwPDB
Map dimensions	91, 87, 227	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.345, 1.345, 1.345	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
1	B	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
1	C	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
1	D	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
1	E	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
1	F	0.52	1/2995 (0.0%)	1.00	16/4057 (0.4%)
2	G	0.52	0/336	0.77	0/449
2	H	0.52	0/336	0.77	0/449
2	I	0.52	0/336	0.77	0/449
2	J	0.52	0/336	0.77	0/449
2	K	0.52	0/336	0.77	0/449
2	L	0.52	0/336	0.77	0/449
2	M	0.51	0/837	0.70	0/1134
2	N	0.51	0/837	0.70	0/1134
2	O	0.51	0/837	0.70	0/1134
2	P	0.51	0/837	0.70	0/1134
2	Q	0.51	0/837	0.70	0/1134
2	R	0.51	0/837	0.70	0/1134
All	All	0.52	6/25008 (0.0%)	0.93	96/33840 (0.3%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	G	0	1
2	H	0	1
2	I	0	1
2	J	0	1
2	K	0	1
2	L	0	1
2	M	0	2

*Continued on next page...*

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
2	N	0	2
2	O	0	2
2	P	0	2
2	Q	0	2
2	R	0	2
All	All	0	18

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	38	PRO	N-CD	5.21	1.55	1.47
1	B	38	PRO	N-CD	5.21	1.55	1.47
1	A	38	PRO	N-CD	5.19	1.55	1.47
1	E	38	PRO	N-CD	5.17	1.55	1.47
1	F	38	PRO	N-CD	5.15	1.55	1.47

The worst 5 of 96 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	144	ALA	N-CA-CB	20.91	139.38	110.10
1	E	144	ALA	N-CA-CB	20.90	139.36	110.10
1	B	144	ALA	N-CA-CB	20.89	139.35	110.10
1	A	144	ALA	N-CA-CB	20.89	139.34	110.10
1	F	144	ALA	N-CA-CB	20.86	139.31	110.10

There are no chirality outliers.

5 of 18 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	G	344	ASP	Peptide
2	H	344	ASP	Peptide
2	I	344	ASP	Peptide
2	J	344	ASP	Peptide
2	K	344	ASP	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	A	2932	0	2894	1606	0
1	B	2932	0	2894	1615	0
1	C	2932	0	2894	1672	0
1	D	2932	0	2894	1679	0
1	E	2932	0	2894	1609	0
1	F	2932	0	2894	1611	0
2	G	330	336	335	91	0
2	H	330	336	335	92	0
2	I	330	336	335	94	0
2	J	330	336	335	91	0
2	K	330	336	335	92	0
2	L	330	336	335	95	0
2	M	816	0	777	144	0
2	N	816	0	777	141	0
2	O	816	0	777	145	0
2	P	816	0	777	140	0
2	Q	816	0	777	144	0
2	R	816	0	777	145	0
3	S	674	0	134	0	0
3	T	675	0	137	0	0
3	U	675	0	137	0	0
3	V	675	0	137	0	0
All	All	27167	2016	24581	10648	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 206.

The worst 5 of 10648 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:79:TRP:O	1:F:83:GLU:HG3	1.32	1.30
1:F:223:PHE:O	1:F:227:MET:HG2	1.31	1.29
1:D:79:TRP:O	1:D:83:GLU:HG3	1.32	1.29
1:A:79:TRP:O	1:A:83:GLU:HG3	1.32	1.28
1:B:79:TRP:O	1:B:83:GLU:HG3	1.32	1.27

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
1	B	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
1	C	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
1	D	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
1	E	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
1	F	373/375 (100%)	263 (70%)	99 (26%)	11 (3%)	4	29
2	G	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	H	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	I	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	J	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	K	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	L	37/220 (17%)	29 (78%)	8 (22%)	0	100	100
2	M	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
2	N	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
2	O	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
2	P	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
2	Q	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
2	R	100/220 (46%)	89 (89%)	11 (11%)	0	100	100
All	All	3060/4890 (63%)	2286 (75%)	708 (23%)	66 (2%)	10	35

5 of 66 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	12	ASN
1	A	237	GLU
1	B	12	ASN
1	B	237	GLU

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	C	12	ASN

### 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	A	318/318 (100%)	308 (97%)	10 (3%)	40 62
1	B	318/318 (100%)	308 (97%)	10 (3%)	40 62
1	C	318/318 (100%)	308 (97%)	10 (3%)	40 62
1	D	318/318 (100%)	308 (97%)	10 (3%)	40 62
1	E	318/318 (100%)	308 (97%)	10 (3%)	40 62
1	F	318/318 (100%)	308 (97%)	10 (3%)	40 62
2	G	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	H	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	I	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	J	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	K	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	L	34/189 (18%)	33 (97%)	1 (3%)	42 64
2	M	89/189 (47%)	86 (97%)	3 (3%)	37 60
2	N	89/189 (47%)	86 (97%)	3 (3%)	37 60
2	O	89/189 (47%)	86 (97%)	3 (3%)	37 60
2	P	89/189 (47%)	86 (97%)	3 (3%)	37 60
2	Q	89/189 (47%)	86 (97%)	3 (3%)	37 60
2	R	89/189 (47%)	86 (97%)	3 (3%)	37 60
All	All	2646/4176 (63%)	2562 (97%)	84 (3%)	42 61

5 of 84 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	317	ILE

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
2	N	246	LYS
1	F	372	ARG
2	L	332	GLU
2	P	241	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 36 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	162	ASN
2	R	257	HIS
1	F	360	GLN
2	O	257	HIS
1	C	137	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](#)

There are no ligands in this entry.

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

There are no such residues in this entry.

### 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-25918. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

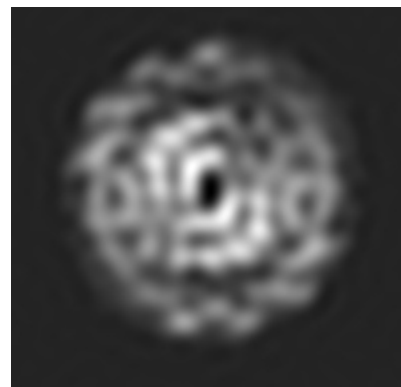
#### 6.1.1 Primary map



X



Y

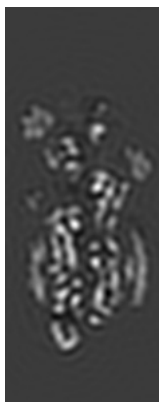


Z

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

### 6.2 Central slices [i](#)

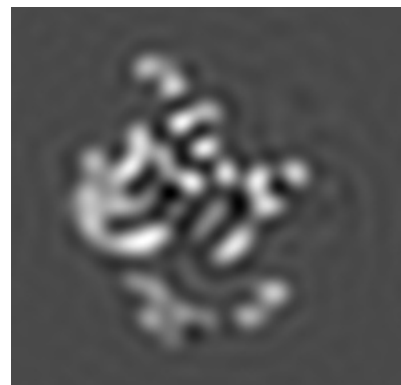
#### 6.2.1 Primary map



X Index: 45



Y Index: 43



Z Index: 113

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: 40



Y Index: 38

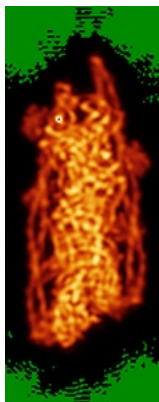


Z Index: 60

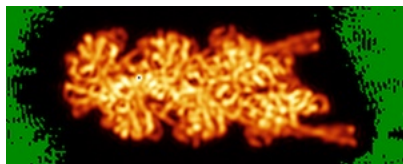
The images above show the largest variance slices of the map in three orthogonal directions.

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

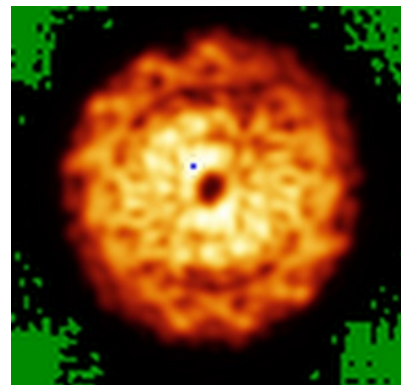
### 6.4.1 Primary map



X



Y



Z

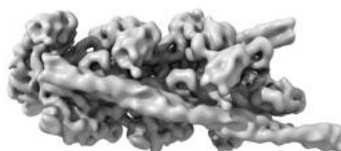
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

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

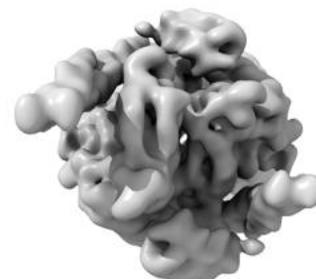
### 6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.728. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

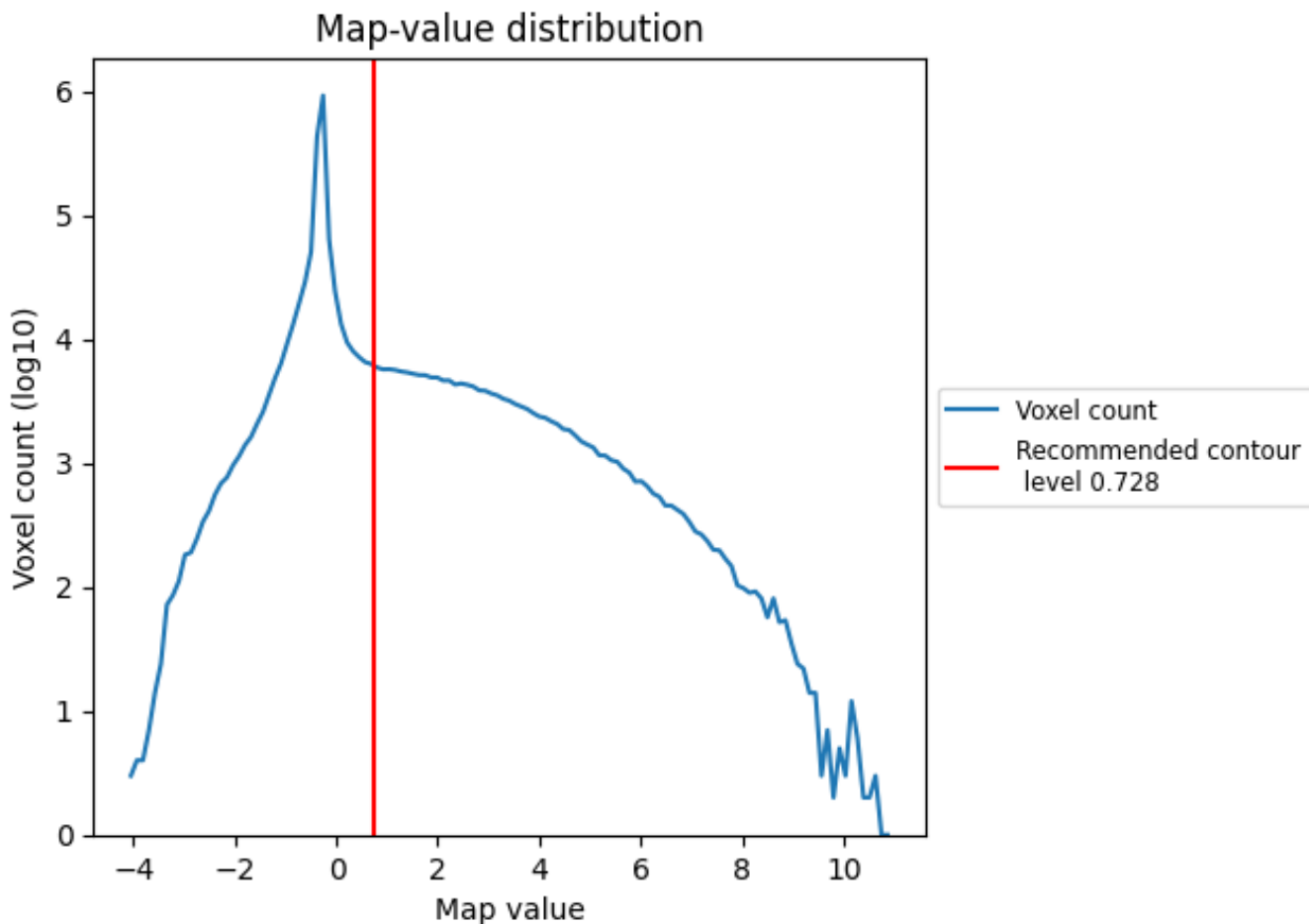
## 6.6 Mask visualisation [i](#)

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.

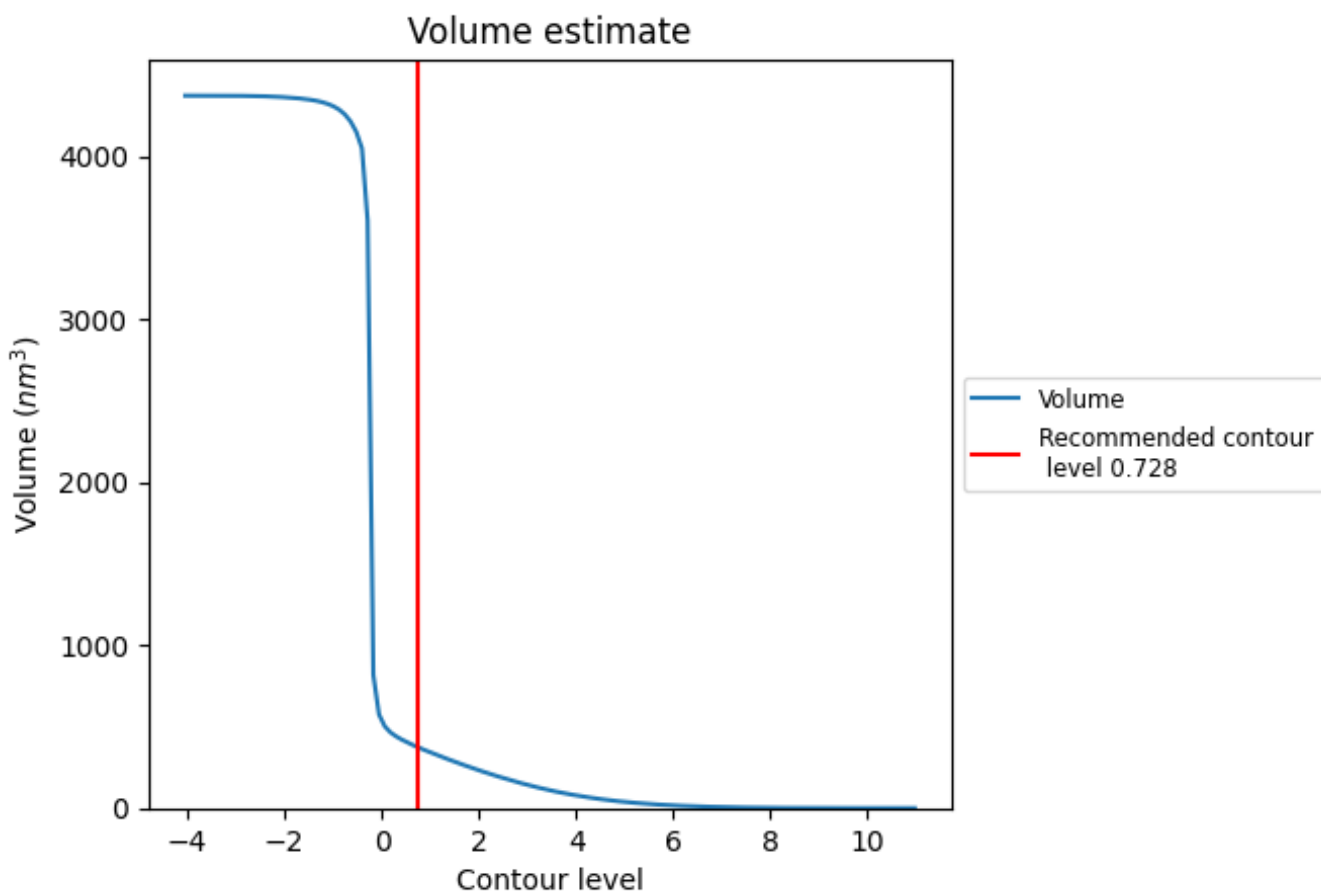
### 7.1 Map-value distribution [i](#)



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 376 nm<sup>3</sup>; this corresponds to an approximate mass of 340 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](#)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

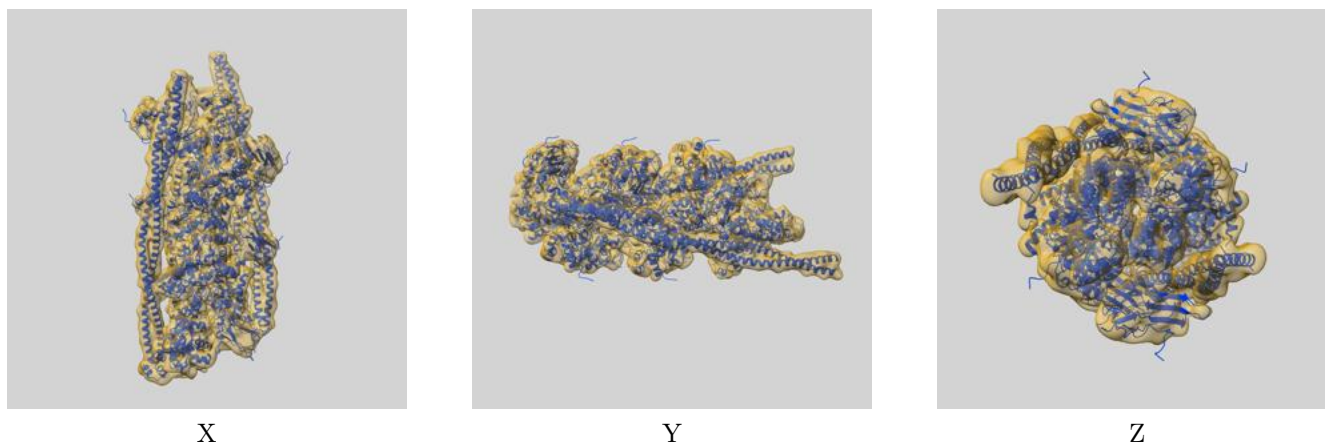
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

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

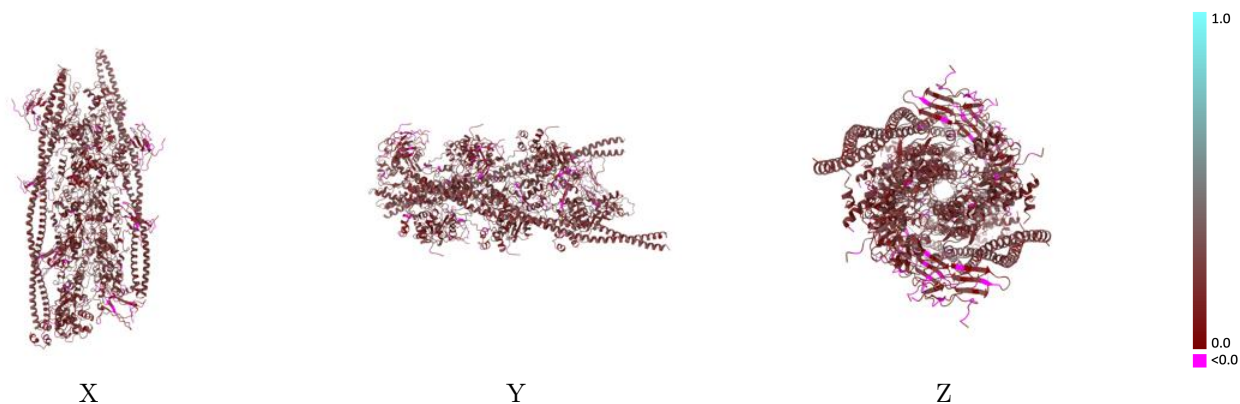
This section contains information regarding the fit between EMDB map EMD-25918 and PDB model 7TJ7. Per-residue inclusion information can be found in section 3 on page 6.

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



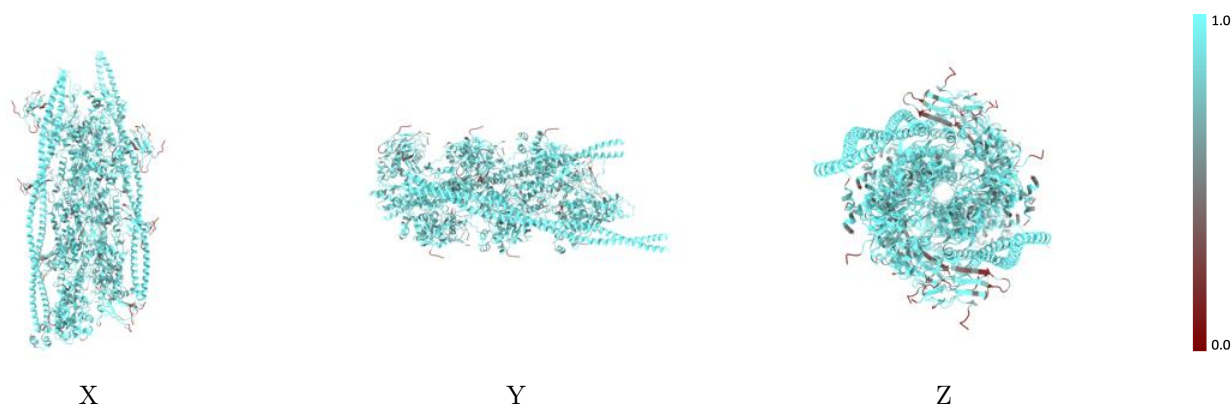
The images above show the 3D surface view of the map at the recommended contour level 0.728 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



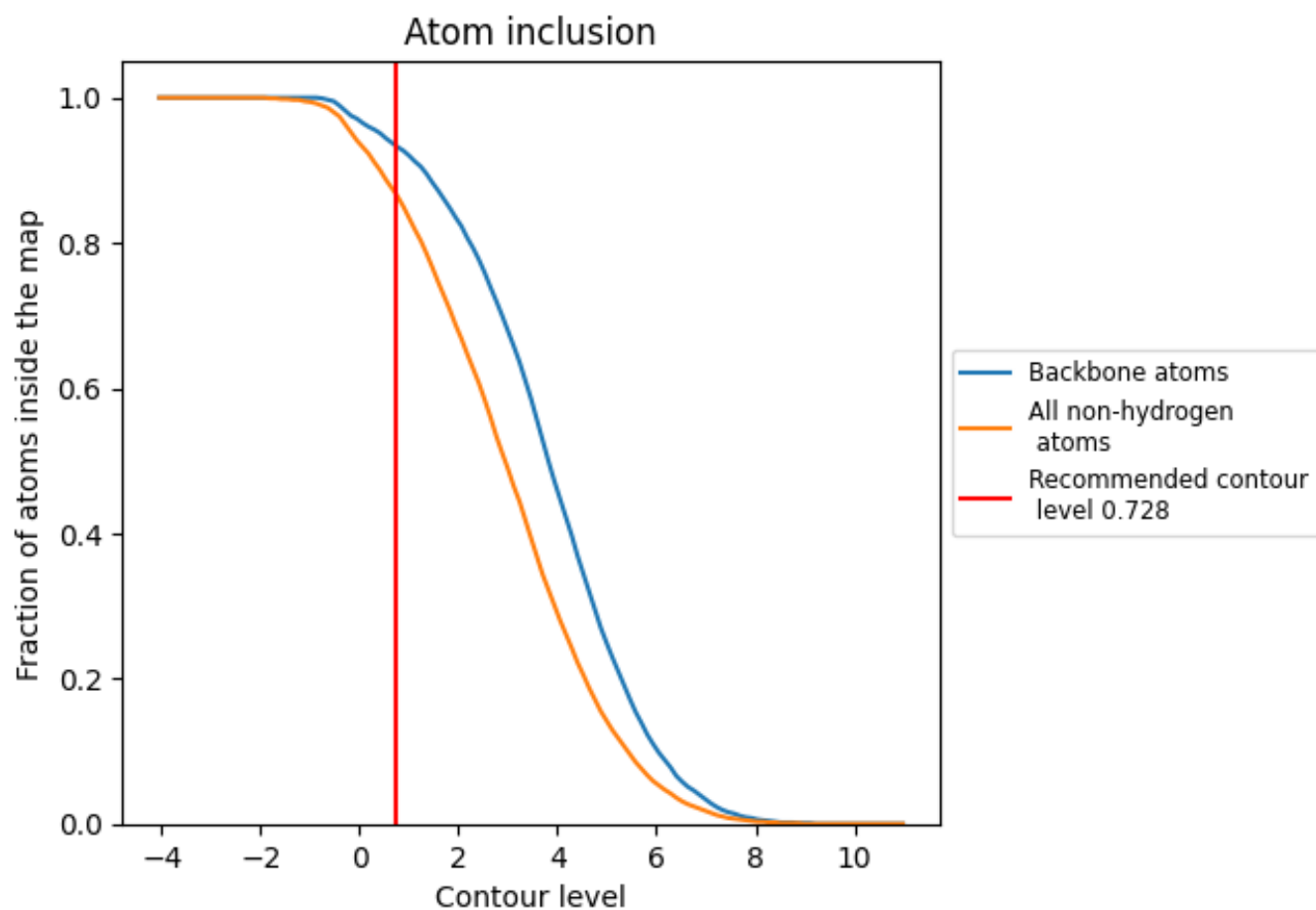
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.728).















































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 87% 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 (0.728) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8680	 0.1960
A	 0.8910	 0.2140
B	 0.8930	 0.2140
C	 0.8910	 0.2130
D	 0.8920	 0.2160
E	 0.8910	 0.2150
F	 0.8940	 0.2140
G	 0.8440	 0.1460
H	 0.8380	 0.1490
I	 0.8320	 0.1420
J	 0.8320	 0.1490
K	 0.8290	 0.1460
L	 0.8480	 0.1470
M	 0.6870	 0.1210
N	 0.6820	 0.1200
O	 0.6810	 0.1220
P	 0.6760	 0.1150
Q	 0.6800	 0.1200
R	 0.6770	 0.1210
S	 0.9930	 0.2540
T	 0.9940	 0.2550
U	 0.9940	 0.2530
V	 0.9930	 0.2540

