



Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 03:07 am GMT

PDB ID : 6GSR
EMDB ID : EMD-0046
Title : Single Particle Cryo-EM map of human Transferrin receptor 1 - H-Ferritin complex at 5.5 Angstrom resolution.
Authors : Testi, C.; Montemiglio, L.C.; Vallone, B.; Des Georges, A.; Boffi, A.; Mancina, F.; Baiocco, P.
Deposited on : 2018-06-15
Resolution : 5.50 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
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) : 2.31.2

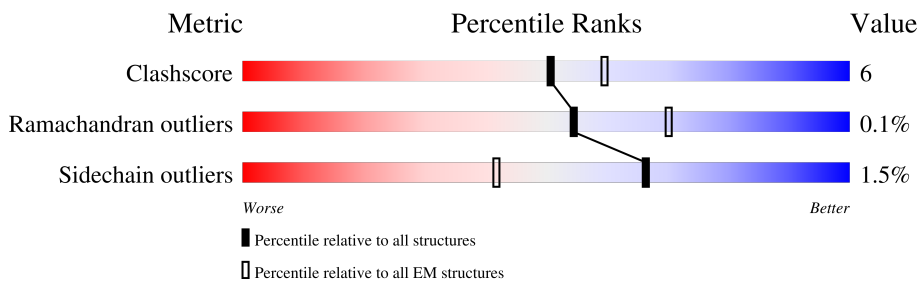
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 5.50 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 ≥ 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	Aa	182	 95% 93% • 5%
1	Ac	182	 95% 93% • 5%
1	Ad	182	 95% 93% • 5%
1	Ae	182	 95% 93% • 5%
1	Af	182	 95% 93% • 5%
1	Ag	182	 95% 93% • 5%
1	Ah	182	 95% 93% • 5%
1	Ai	182	 95% 93% • 5%

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Mol	Chain	Length	Quality of chain
1	Aj	182	95% 93% 5%
1	Ak	182	95% 93% 5%
1	Al	182	95% 93% 5%
1	Am	182	95% 93% 5%
1	An	182	95% 93% 5%
1	Ao	182	95% 93% 5%
1	Ap	182	95% 93% 5%
1	Ar	182	95% 93% 5%
1	As	182	95% 93% 5%
1	At	182	95% 93% 5%
1	Au	182	95% 93% 5%
1	Av	182	95% 93% 5%
1	Aw	182	95% 93% 5%
1	Ax	182	95% 93% 5%
1	Ay	182	95% 93% 5%
1	Az	182	95% 93% 5%
2	Ab	640	99% 97% ..
2	Aq	640	99% 97% ..

2 Entry composition i

There are 2 unique types of molecules in this entry. The entry contains 45308 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 Ferritin heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	Aa	172	1473	931	256	277	9	10	0
1	Ac	172	1473	931	256	277	9	10	0
1	Ad	172	1473	931	256	277	9	10	0
1	Ae	172	1473	931	256	277	9	10	0
1	Af	172	1473	931	256	277	9	10	0
1	Ag	172	1473	931	256	277	9	10	0
1	Ah	172	1473	931	256	277	9	10	0
1	Ai	172	1473	931	256	277	9	10	0
1	Aj	172	1473	931	256	277	9	10	0
1	Ak	172	1473	931	256	277	9	10	0
1	Al	172	1473	931	256	277	9	10	0
1	Am	172	1431	903	244	275	9	10	0
1	An	172	1473	931	256	277	9	10	0
1	Ao	172	1473	931	256	277	9	10	0
1	Ap	172	1473	931	256	277	9	10	0
1	Ar	172	1473	931	256	277	9	10	0
1	As	172	1473	931	256	277	9	10	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	At	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Au	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Av	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Aw	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Ax	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Ay	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		
1	Az	172	Total	C	N	O	S	10	0
			1473	931	256	277	9		

- Molecule 2 is a protein called Transferrin receptor protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	Ab	633	Total	C	N	O	S	0	0
			4994	3201	843	936	14		
2	Aq	633	Total	C	N	O	S	0	0
			5004	3210	843	937	14		

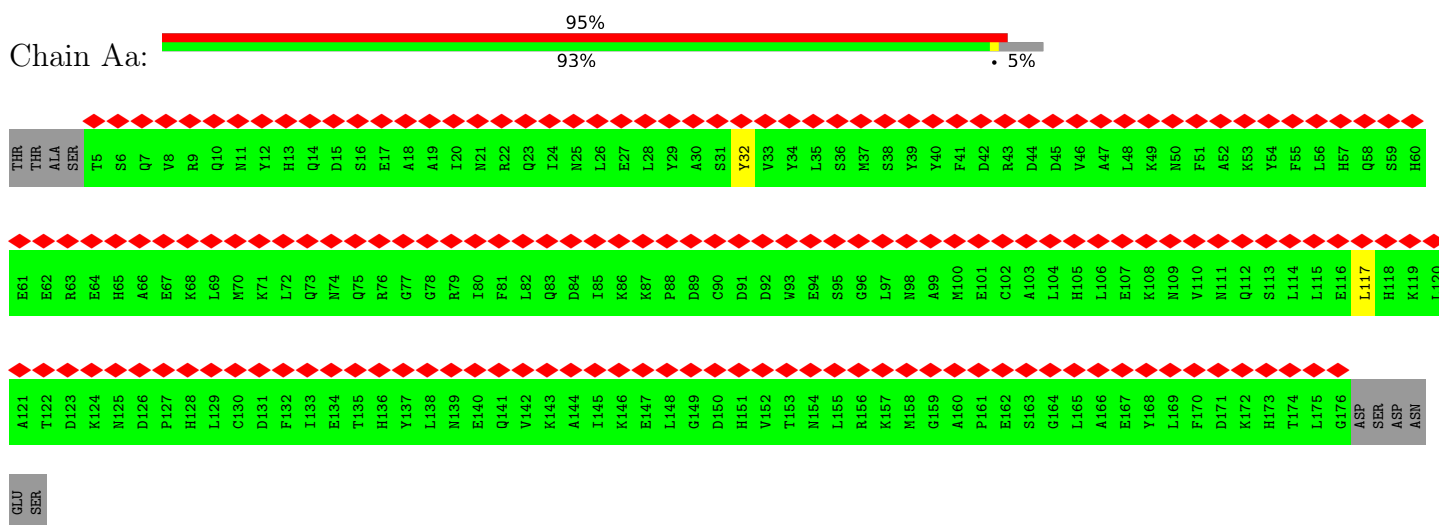
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Ab	142	SER	GLY	conflict	UNP P02786
Aq	142	SER	GLY	conflict	UNP P02786

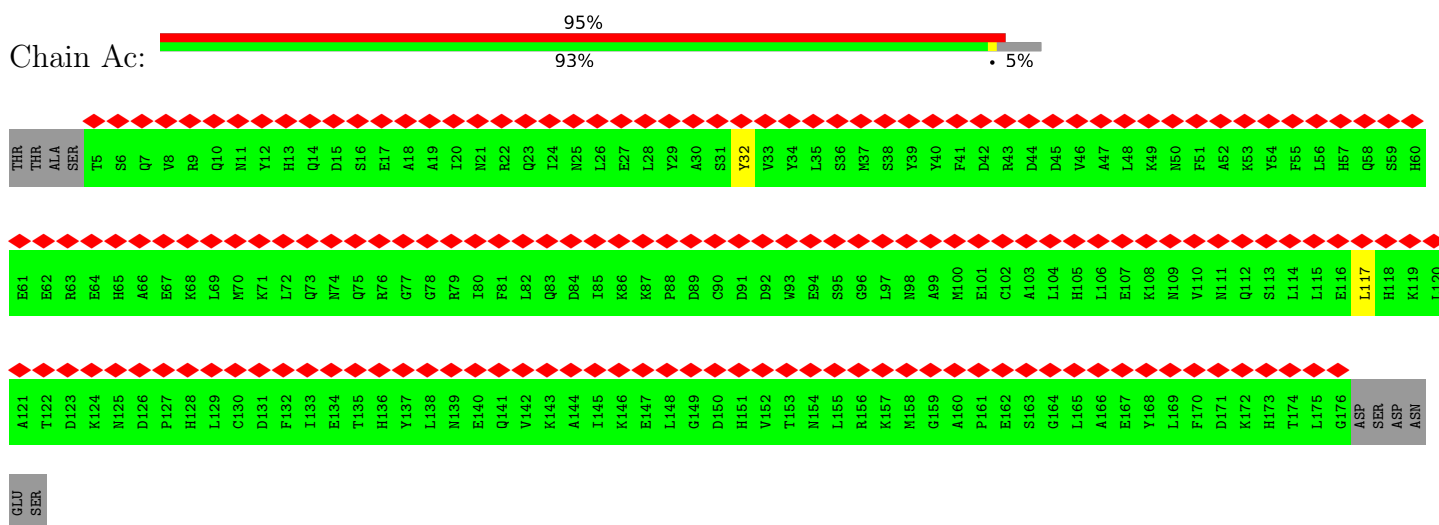
3 Residue-property plots i

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

- Molecule 1: Ferritin heavy chain

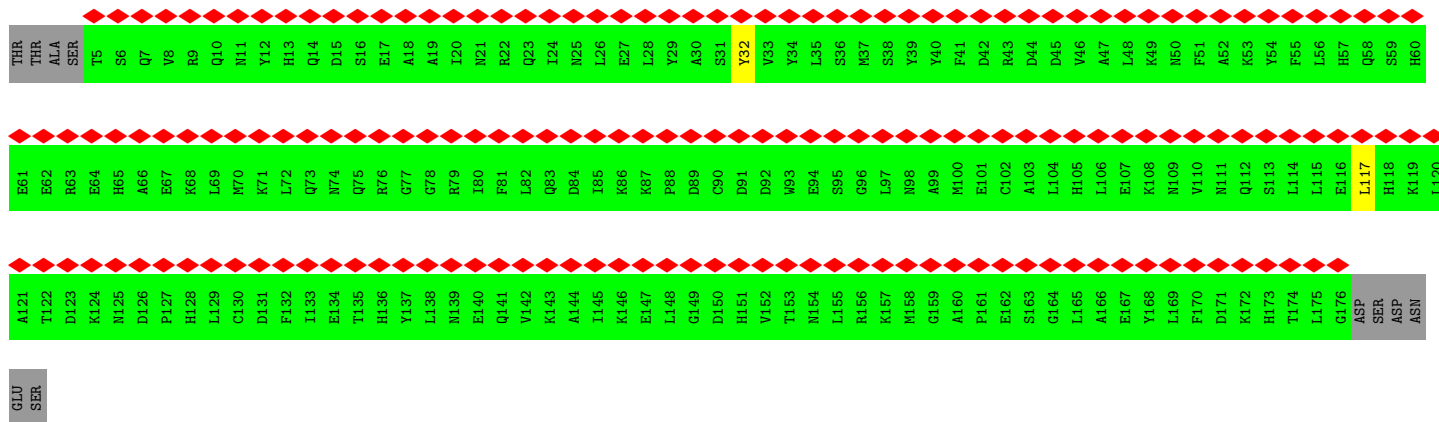


- Molecule 1: Ferritin heavy chain

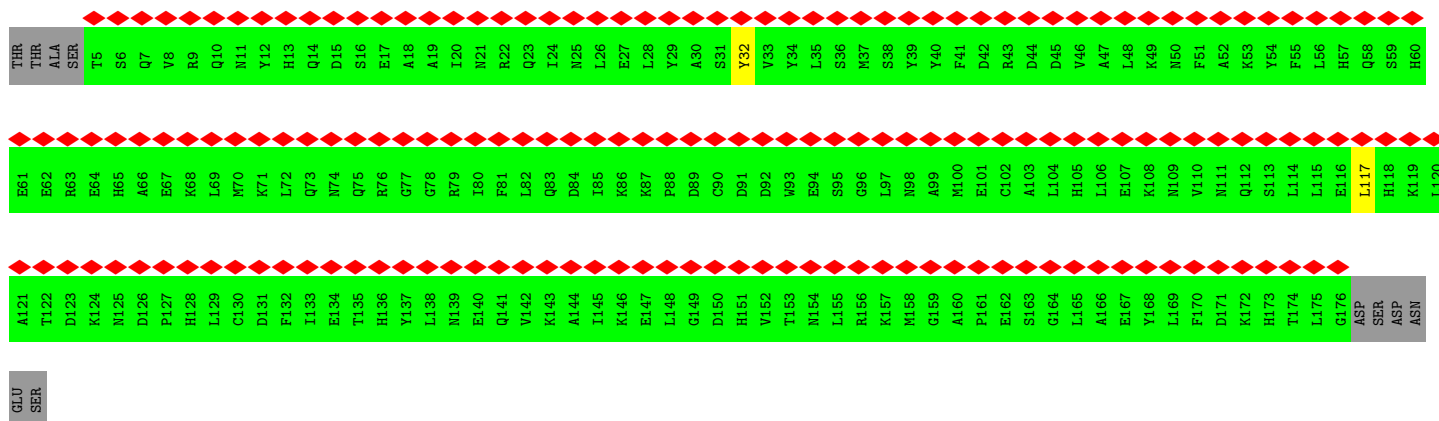


- Molecule 1: Ferritin heavy chain

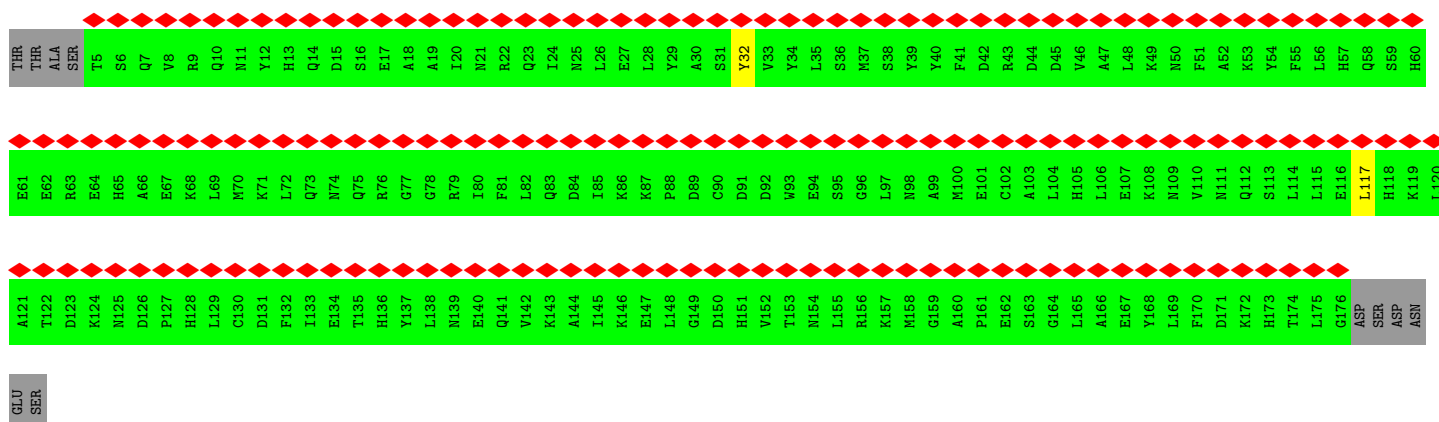




• Molecule 1: Ferritin heavy chain

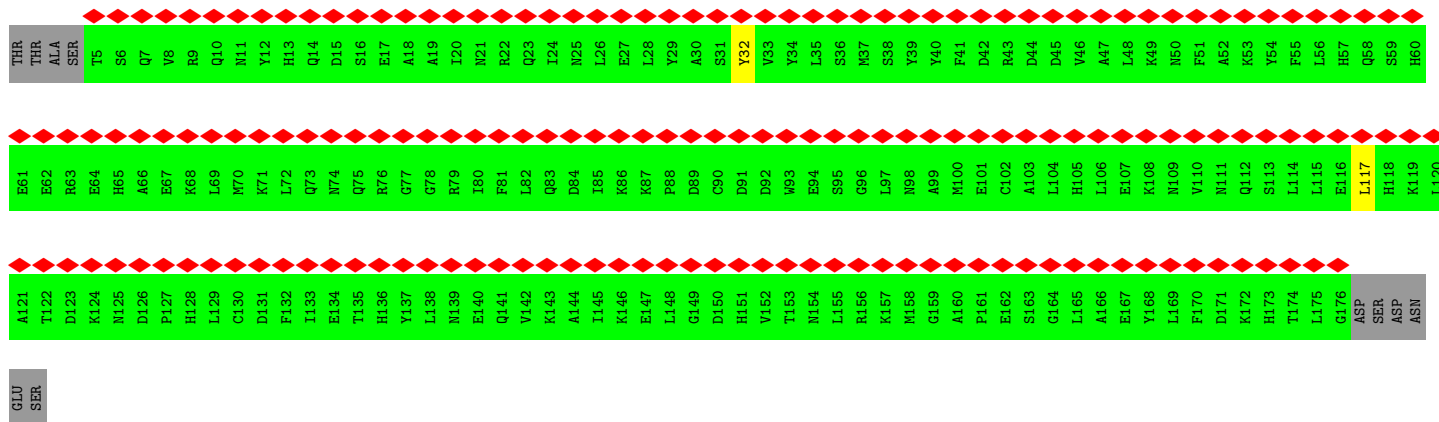


• Molecule 1: Ferritin heavy chain

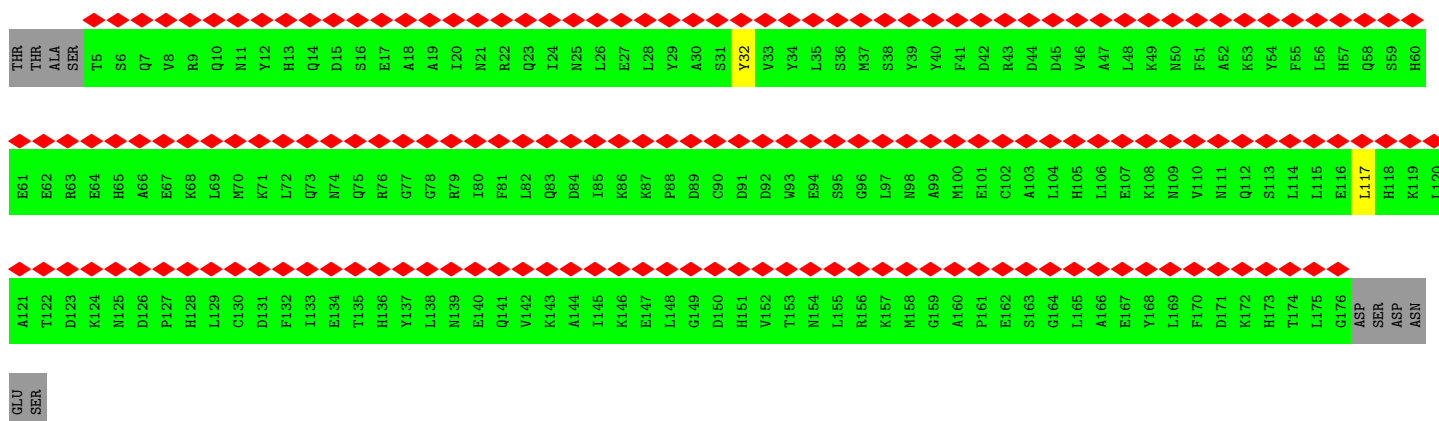


• Molecule 1: Ferritin heavy chain

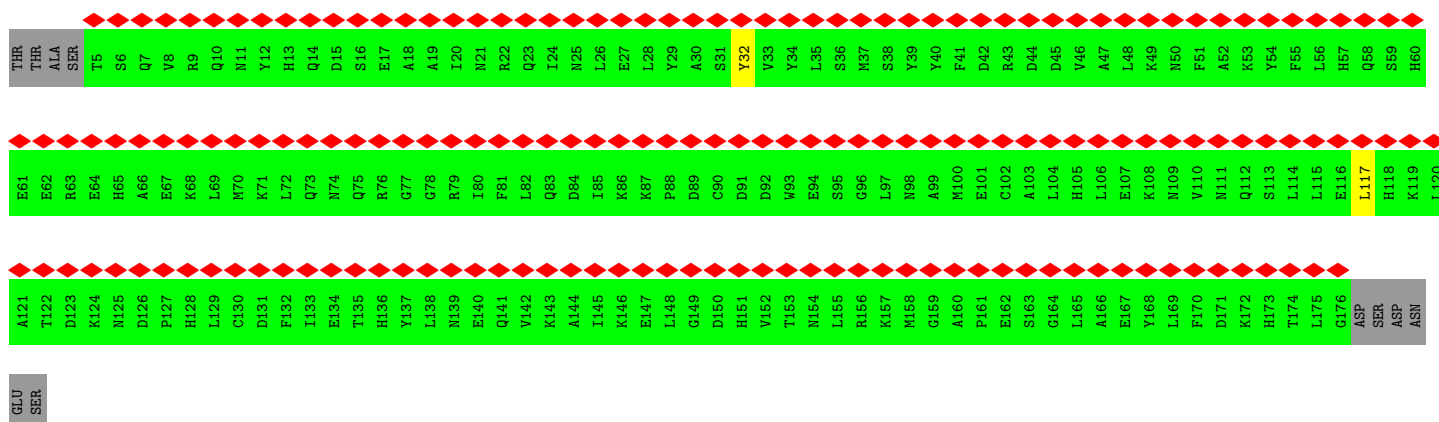




• Molecule 1: Ferritin heavy chain

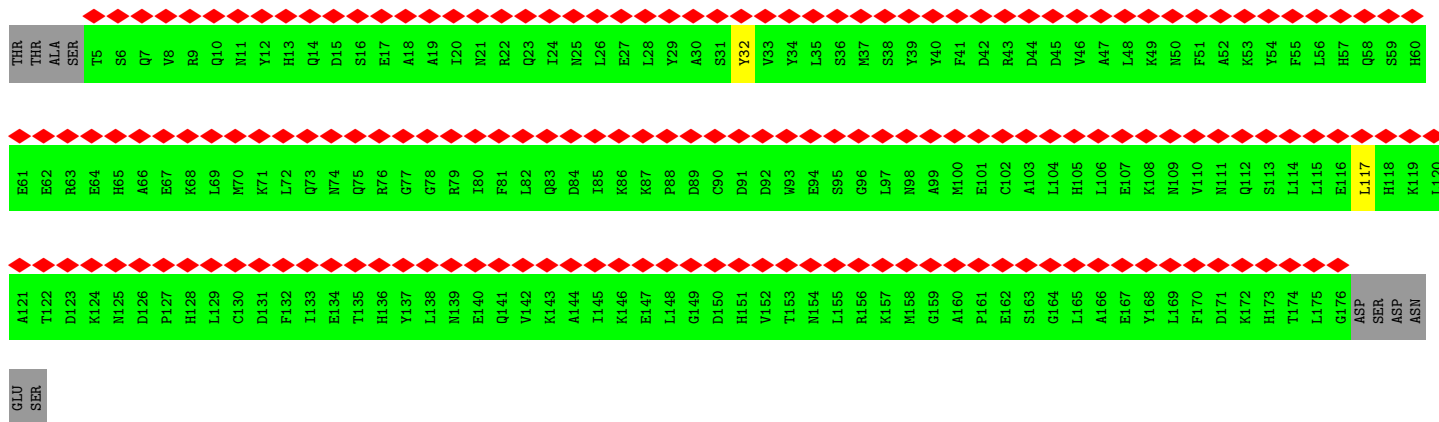


• Molecule 1: Ferritin heavy chain

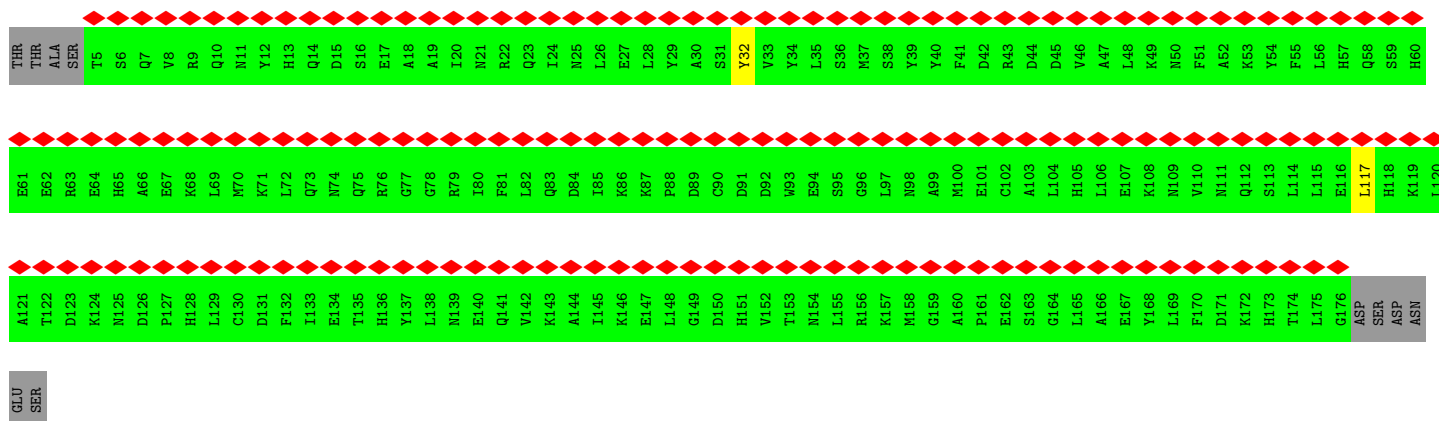


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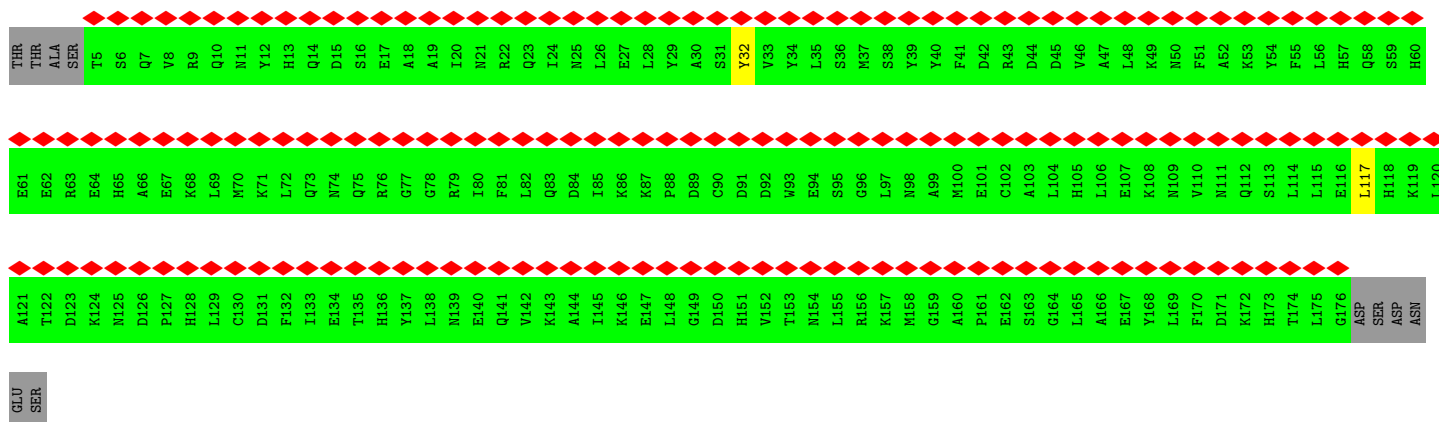




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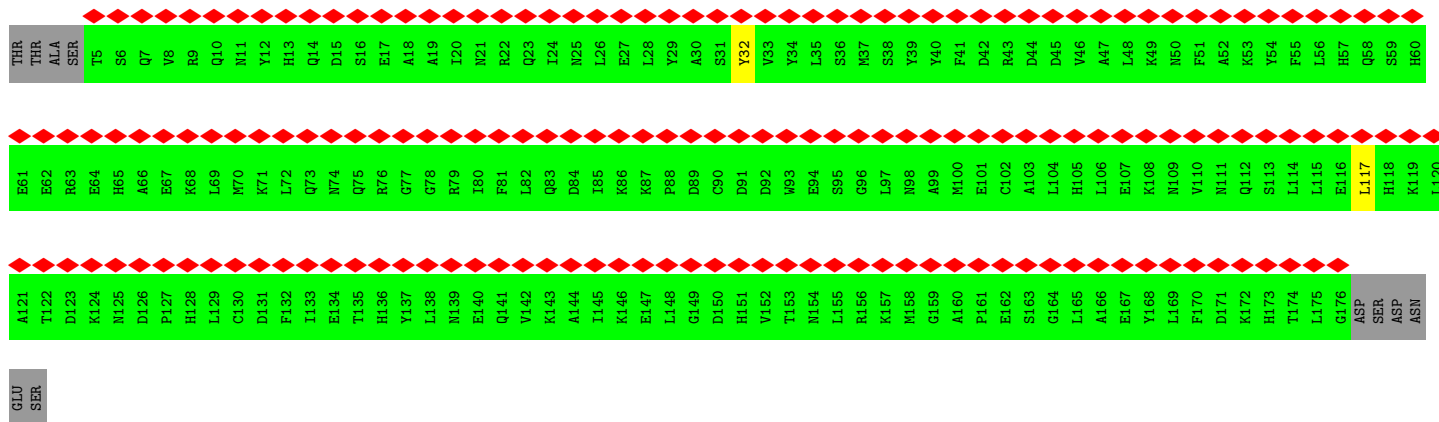


• Molecule 1: Ferritin heavy chain

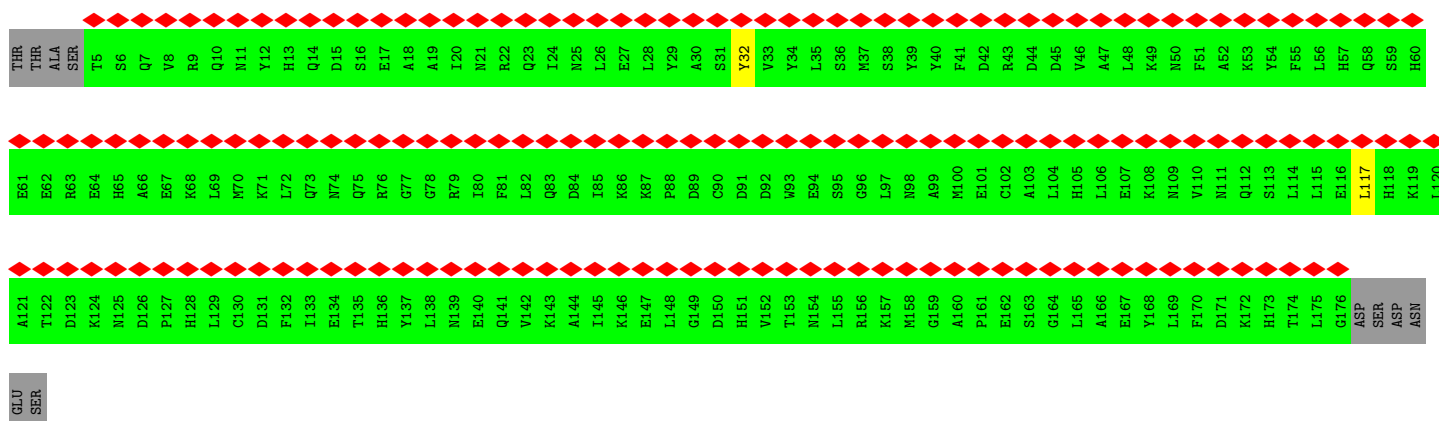


• Molecule 1: Ferritin heavy chain

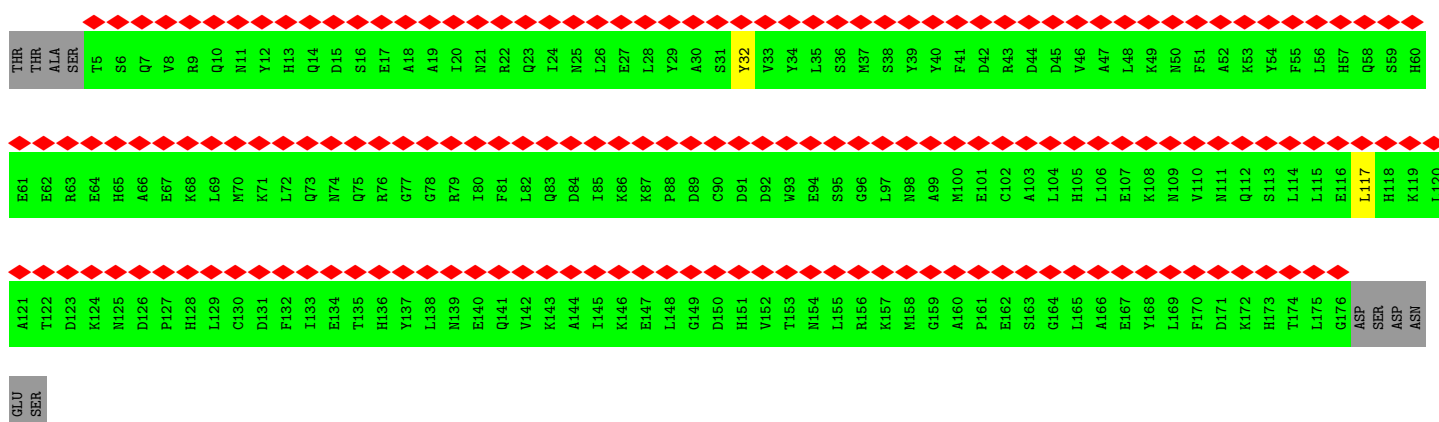




• Molecule 1: Ferritin heavy chain

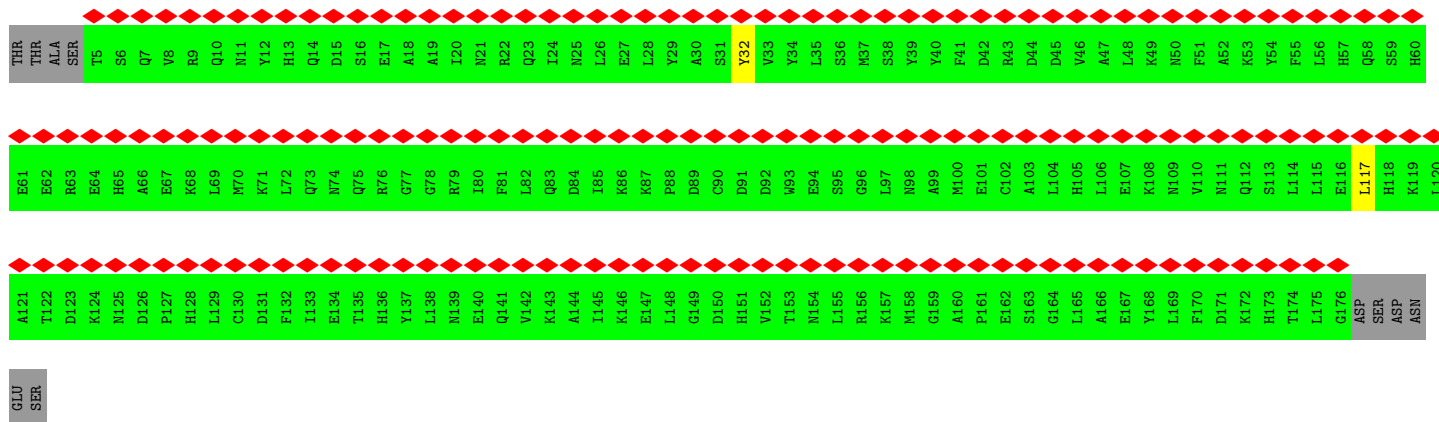


• Molecule 1: Ferritin heavy chain

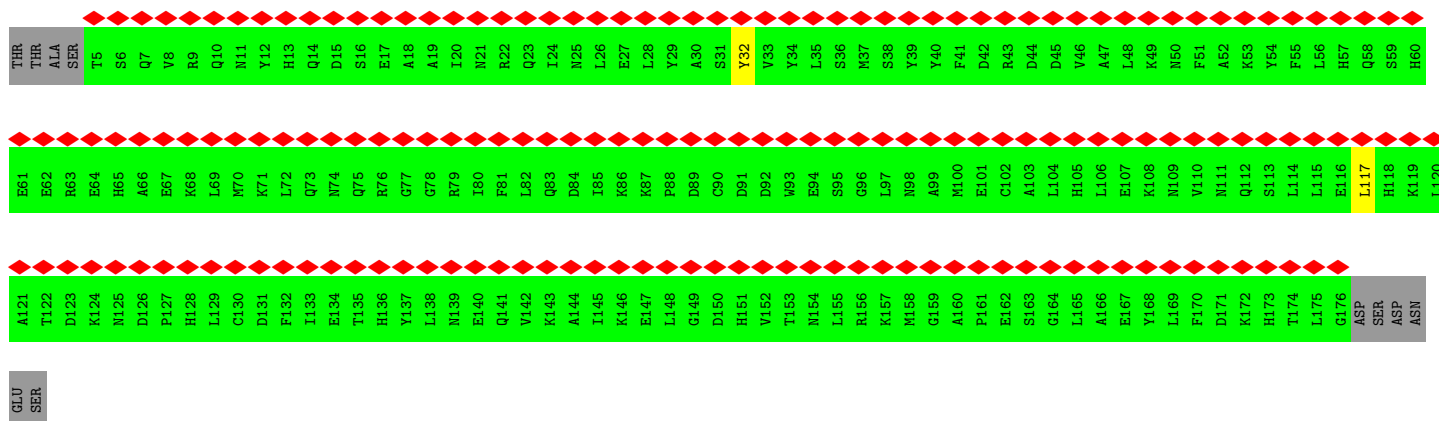


• Molecule 1: Ferritin heavy chain

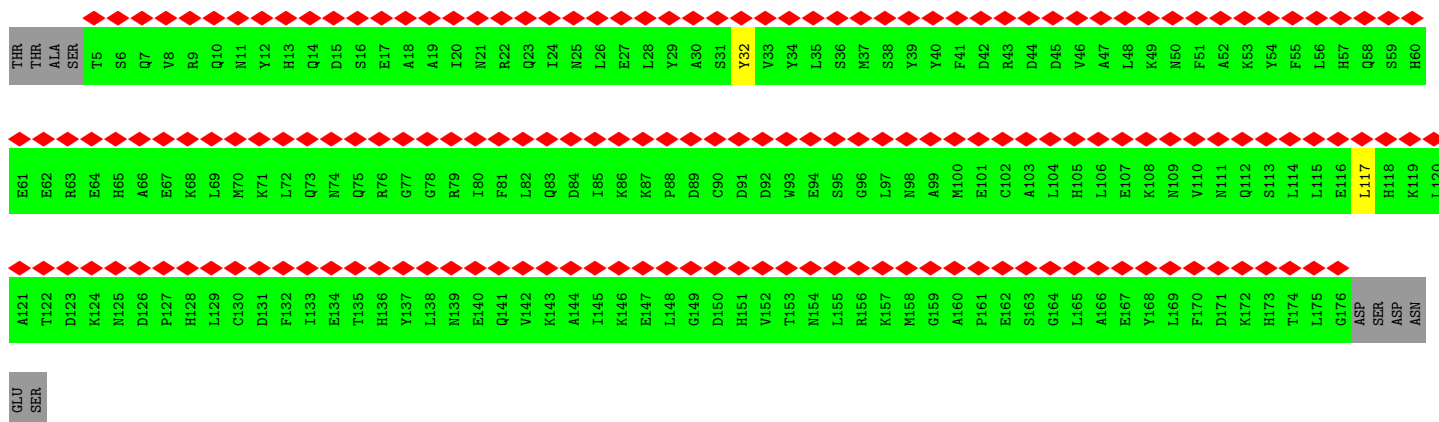




• Molecule 1: Ferritin heavy chain

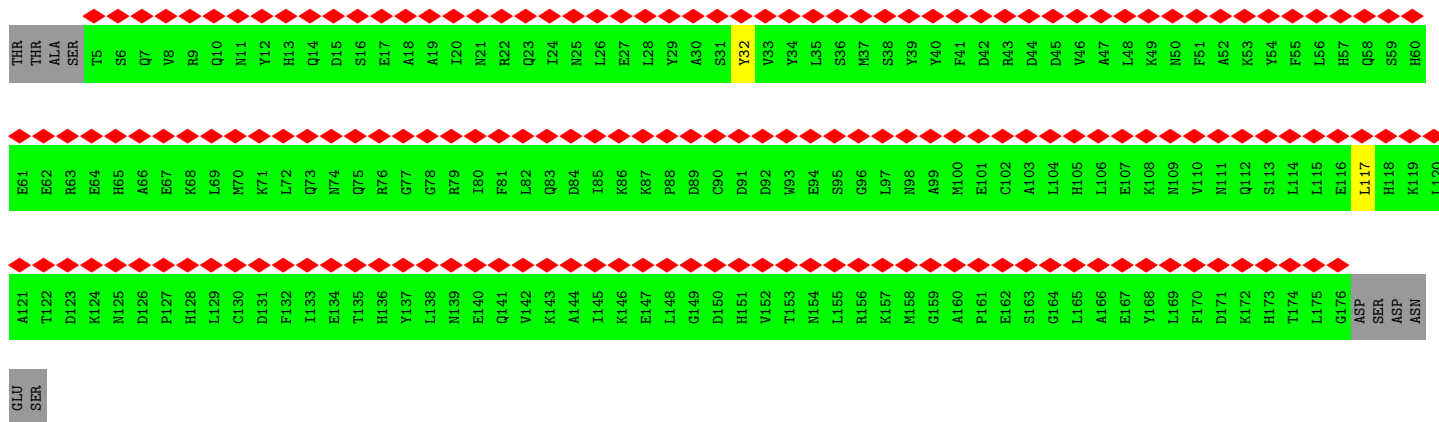


• Molecule 1: Ferritin heavy chain

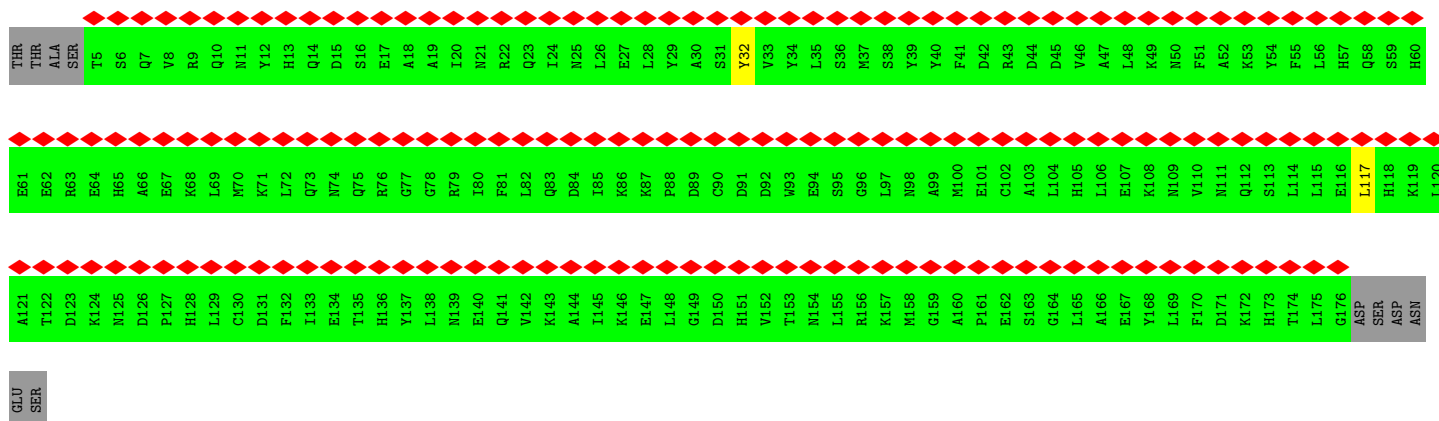


• Molecule 1: Ferritin heavy chain

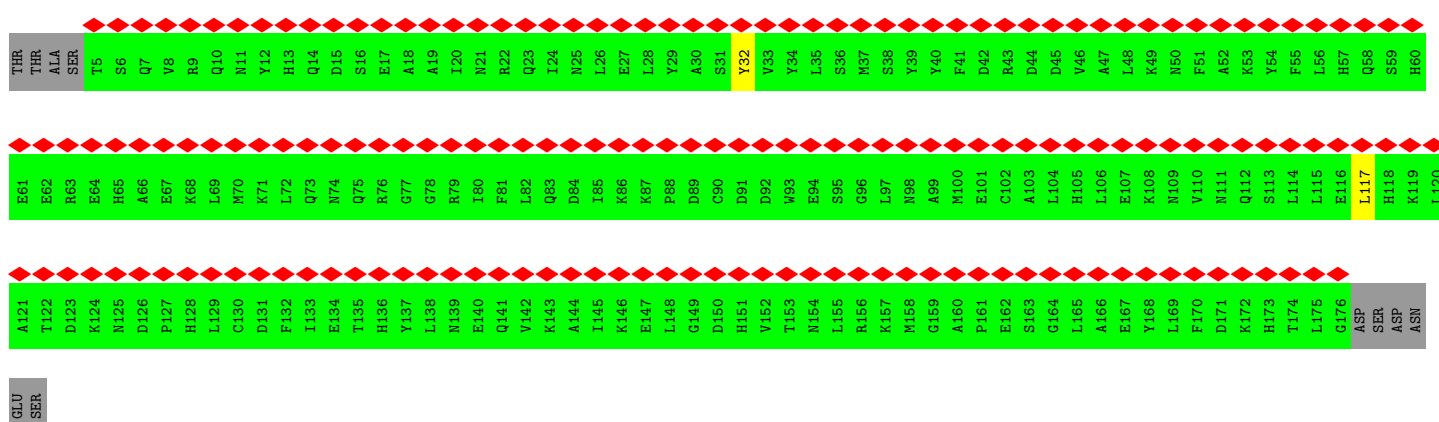




• Molecule 1: Ferritin heavy chain



• Molecule 1: Ferritin heavy chain



• Molecule 1: Ferritin heavy chain



G661	G662	G663	E664	K665	T666	D667	R668	F669	V670	M671	K672	K673	L674	N675	D676	R677	V678	M679	R680	V681	I682	Y683	H684	F685	L686	S687	P688	Y689	V690	S691	P692	K693	E694	S695	P696	F697	R698	H699	V700	F701	W702	G703	S704	G705	S706	H707	T708	L709	P710	A711	L712	L713	E714	N715	L716	K717	L718	R719	K720
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Q721	N722	N723	G724	A725	F726	N727	E728	T729	L730	F731	R732	N733	Q734	L735	A736	L737	A738	T739	W740	T741	I742	Q743	G744	A745	A746	N747	A748	L749	S750	G751	D752	W753	D755	I756	ASP	ASN	GLU	PHE
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• Molecule 2: Transferrin receptor protein 1



R121	L122	Y123	W124	D125	D126	L127	K128	R129	K130	L131	S132	E133	K134	L135	D136	S137	T138	D139	F140	T141	S142	T143	I144	K145	L146	L147	N148	E149	N150	S151	Y152	W153	Y154	R155	E156	A157	G158	S159	Q160	K161	D162	E163	N164	L165	A166	L167	Y168	V169	N170	Q172	F173	R174	E175	F176	K177	L178	S179	K180
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V181	V182	R183	D184	K185	H186	F187	V188	K189	I190	Q191	V192	K193	D194	S195	A196	Q197	N198	S199	V200	I201	I202	V203	D204	K205	N206	G207	R208	L209	V210	Y211	L212	V213	E214	N215	P216	G217	G218	Y219	V220	A221	Y222	S223	K224	A225	A226	T227	V228	T229	G230	K231	L232	V233	H234	A235	N236	F237	K238	T239	K240
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K241	D242	F243	E244	N245	L246	Y247	T248	R249	V250	M251	G252	S253	L254	V255	L256	V257	R258	A259	G260	K261	I262	T263	F264	A265	E266	K267	V268	A269	N270	A271	E272	S273	L274	M275	A276	I277	G278	V279	L280	I281	Y282	M283	D284	Q285	A286	K287	F288	P289	L290	V291	N292	A293	E294	L295	S296	F297	F298	G299	H300
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A301	H302	L303	G304	T305	D306	D307	P308	Y309	T310	P311	G312	F313	P314	S315	PHE	ASN	HIS	T319	Q320	A321	P322	P323	S324	R325	S326	S327	G328	L329	P330	N331	I332	P333	V334	Q335	T336	I337	S338	R339	A340	A341	A342	E343	K344	L345	F346	G347	N348	M349	E350	G351	D352	C353	P354	S355	D356	W357	K358	L359	D360
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S361	T362	C363	R364	M365	V366	T367	S368	E369	S370	K371	N372	V373	K374	L375	T376	V377	S378	N379	V380	L381	K382	E383	L384	K385	S386	L387	N388	F389	L390	G391	V392	L393	K394	G395	F396	V397	E398	P399	D400	H401	Y402	V403	V404	V405	A406	A407	Q408	R409	D410	A411	W412	G413	P414	G415	A416	A417	K418	S419	G420
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V421	G422	T423	A424	L425	L426	L427	K428	L429	A430	Q431	M432	F433	A434	D435	M436	V437	L438	K439	D440	G441	Q442	Q443	P444	S445	R446	S447	L448	L449	F450	A451	S452	M453	K454	A455	G456	D457	E458	G459	S460	V461	A462	A463	T464	E465	A466	L467	E468	G469	V470	L471	S472	S473	L474	H475	L476	K477	F478	L480
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Y481	L482	M483	L484	D485	K486	A487	V488	L489	G490	Y491	S492	M493	F494	K495	V496	S497	A498	A499	P500	L501	L502	Y503	T504	L505	L506	E507	K508	T509	M510	Q511	N512	V513	K514	H515	P516	V517	T518	G519	O520	F521	L522	Y523	O524	D525	K526	V527	W528	A529	M530	K531	V532	E533	K534	L535	G536	T537	D538	N539	A540
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A541	F542	P543	F544	L545	A546	Y547	S548	G549	I550	P551	A552	V553	S554	F555	C556	F557	C558	E559	D560	T561	D562	Y563	P564	Y565	L566	G567	T568	T569	M570	D571	T572	Y573	K574	E575	L576	I577	E578	R579	I580	F581	E582	L583	N584	K585	V586	A587	R588	A589	S590	A591	E592	V593	A594	G595	O596	F597	V598	I599	K600
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L601	T602	H603	D604	V605	E606	L607	N608	L609	D610	Y611	E612	R613	L614	N615	S616	Q617	L618	L619	S620	F621	V622	R623	D624	L625	N626	Q627	V628	R629	A630	D631	L632	K633	E634	M635	G636	L637	S638	L639	Q640	H641	L642	L643	S644	R645	A646	R647	D648	F649	F650	R651	A652	T653	S654	R655	N656	L657	T658	D659	F660
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G661	M662	A663	E664	K665	T666	D667	R668	F669	V670	M671	K672	K673	L674	N675	D676	R677	V678	M679	R680	V681	I682	Y683	H684	F685	L686	S687	P688	Y689	V690	S691	P692	K693	E694	S695	P696	F697	R698	H699	V700	F701	W702	G703	S704	G705	S706	H707	T708	L709	P710	A711	L712	L713	E714	N715	L716	K717	L718	R719	K720
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Q721	N722	N723	G724	A725	F726	N727	E728	T729	L730	F731	R732	N733	Q734	L735	A736	L737	A738	T739	W740	T741	I742	Q743	G744	A745	A746	N747	A748	L749	S750	G751	D752	W753	D755	I756	ASP	ASN	GLU	PHE
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4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	25870	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 ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.358	Depositor
Minimum map value	-0.090	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.024	Depositor
Recommended contour level	0.128	Depositor
Map size (Å)	340.48, 340.48, 340.48	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.33, 1.33, 1.33	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	Aa	0.32	0/1530	0.50	0/2057
1	Ac	0.32	0/1530	0.50	0/2057
1	Ad	0.32	0/1530	0.50	0/2057
1	Ae	0.32	0/1530	0.50	0/2057
1	Af	0.32	0/1530	0.50	0/2057
1	Ag	0.32	0/1530	0.50	0/2057
1	Ah	0.32	0/1530	0.50	0/2057
1	Ai	0.32	0/1530	0.50	0/2057
1	Aj	0.32	0/1530	0.50	0/2057
1	Ak	0.32	0/1530	0.50	0/2057
1	Al	0.32	0/1530	0.50	0/2057
1	Am	0.32	0/1486	0.50	0/2004
1	An	0.32	0/1530	0.50	0/2057
1	Ao	0.32	0/1530	0.50	0/2057
1	Ap	0.32	0/1530	0.50	0/2057
1	Ar	0.32	0/1530	0.50	0/2057
1	As	0.32	0/1530	0.50	0/2057
1	At	0.32	0/1530	0.50	0/2057
1	Au	0.32	0/1530	0.50	0/2057
1	Av	0.32	0/1530	0.50	0/2057
1	Aw	0.32	0/1530	0.50	0/2057
1	Ax	0.32	0/1530	0.50	0/2057
1	Ay	0.32	0/1530	0.50	0/2057
1	Az	0.32	0/1530	0.50	0/2057
2	Ab	0.35	0/5110	0.51	0/6927
2	Aq	0.35	0/5121	0.51	0/6942
All	All	0.33	0/46907	0.50	0/63184

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	Aa	1473	0	1447	0	0
1	Ac	1473	0	1447	0	0
1	Ad	1473	0	1447	0	0
1	Ae	1473	0	1447	0	0
1	Af	1473	0	1447	0	0
1	Ag	1473	0	1447	0	0
1	Ah	1473	0	1447	0	0
1	Ai	1473	0	1447	0	0
1	Aj	1473	0	1447	0	0
1	Ak	1473	0	1447	0	0
1	Al	1473	0	1447	0	0
1	Am	1431	0	1377	0	0
1	An	1473	0	1447	0	0
1	Ao	1473	0	1447	0	0
1	Ap	1473	0	1447	0	0
1	Ar	1473	0	1447	0	0
1	As	1473	0	1447	0	0
1	At	1473	0	1447	0	0
1	Au	1473	0	1447	0	0
1	Av	1473	0	1447	0	0
1	Aw	1473	0	1447	0	0
1	Ax	1473	0	1447	0	0
1	Ay	1473	0	1447	0	0
1	Az	1473	0	1447	0	0
2	Ab	4994	0	4937	0	0
2	Aq	5004	0	4957	0	0
All	All	45308	0	44552	0	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 6.

There are no clashes within the asymmetric unit.

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	Aa	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ac	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ad	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ae	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Af	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ag	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ah	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ai	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Aj	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ak	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Al	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Am	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	An	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ao	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ap	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ar	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	As	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	At	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Au	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Av	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Aw	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ax	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Ay	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
1	Az	180/182 (99%)	177 (98%)	3 (2%)	0	100	100
2	Ab	629/640 (98%)	604 (96%)	22 (4%)	3 (0%)	29	69

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	Aq	629/640 (98%)	605 (96%)	21 (3%)	3 (0%)	29	69
All	All	5578/5648 (99%)	5457 (98%)	115 (2%)	6 (0%)	54	85

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	Ab	325	ARG
2	Aq	325	ARG
2	Ab	154	PRO
2	Ab	289	PRO
2	Aq	154	PRO
2	Aq	289	PRO

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	Aa	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ac	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ad	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ae	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Af	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ag	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ah	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ai	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Aj	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ak	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Al	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Am	155/162 (96%)	153 (99%)	2 (1%)	69	82
1	An	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ao	163/162 (101%)	161 (99%)	2 (1%)	71	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	Ap	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ar	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	As	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	At	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Au	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Av	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Aw	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ax	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Ay	163/162 (101%)	161 (99%)	2 (1%)	71	84
1	Az	163/162 (101%)	161 (99%)	2 (1%)	71	84
2	Ab	540/549 (98%)	527 (98%)	13 (2%)	49	69
2	Aq	542/549 (99%)	530 (98%)	12 (2%)	52	71
All	All	4986/4986 (100%)	4913 (98%)	73 (2%)	66	80

All (73) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	Aa	32	TYR
1	Aa	117	LEU
2	Ab	251	ASN
2	Ab	325	ARG
2	Ab	367	THR
2	Ab	383	GLU
2	Ab	398	GLU
2	Ab	402	TYR
2	Ab	446	ARG
2	Ab	457	ASP
2	Ab	491	THR
2	Ab	518	THR
2	Ab	527	ASN
2	Ab	631	ASP
2	Ab	664	GLU
1	Ac	32	TYR
1	Ac	117	LEU
1	Ad	32	TYR
1	Ad	117	LEU
1	Ae	32	TYR
1	Ae	117	LEU

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Mol	Chain	Res	Type
1	Af	32	TYR
1	Af	117	LEU
1	Ag	32	TYR
1	Ag	117	LEU
1	Ah	32	TYR
1	Ah	117	LEU
1	Ai	32	TYR
1	Ai	117	LEU
1	Aj	32	TYR
1	Aj	117	LEU
1	Ak	32	TYR
1	Ak	117	LEU
1	Al	32	TYR
1	Al	117	LEU
1	Am	32	TYR
1	Am	117	LEU
1	An	32	TYR
1	An	117	LEU
1	Ao	32	TYR
1	Ao	117	LEU
1	Ap	32	TYR
1	Ap	117	LEU
2	Aq	251	ASN
2	Aq	325	ARG
2	Aq	367	THR
2	Aq	398	GLU
2	Aq	402	TYR
2	Aq	446	ARG
2	Aq	457	ASP
2	Aq	491	THR
2	Aq	518	THR
2	Aq	527	ASN
2	Aq	631	ASP
2	Aq	664	GLU
1	Ar	32	TYR
1	Ar	117	LEU
1	As	32	TYR
1	As	117	LEU
1	At	32	TYR
1	At	117	LEU
1	Au	32	TYR
1	Au	117	LEU

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Mol	Chain	Res	Type
1	Av	32	TYR
1	Av	117	LEU
1	Aw	32	TYR
1	Aw	117	LEU
1	Ax	32	TYR
1	Ax	117	LEU
1	Ay	32	TYR
1	Ay	117	LEU
1	Az	32	TYR
1	Az	117	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	Aa	112	GLN
2	Ab	148	ASN
2	Ab	215	ASN
2	Ab	300	HIS
2	Ab	626	ASN
2	Ab	721	GLN
1	Ac	112	GLN
1	Ad	112	GLN
1	Ae	112	GLN
1	Af	112	GLN
1	Ag	112	GLN
1	Ah	112	GLN
1	Ai	112	GLN
1	Aj	112	GLN
1	Ak	112	GLN
1	Al	112	GLN
1	Am	112	GLN
1	An	112	GLN
1	Ao	112	GLN
1	Ap	112	GLN
2	Aq	148	ASN
2	Aq	215	ASN
2	Aq	300	HIS
2	Aq	626	ASN
2	Aq	721	GLN
1	Ar	112	GLN
1	As	112	GLN
1	At	112	GLN

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Mol	Chain	Res	Type
1	Au	112	GLN
1	Av	112	GLN
1	Aw	112	GLN
1	Ax	112	GLN
1	Ay	112	GLN
1	Az	112	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.

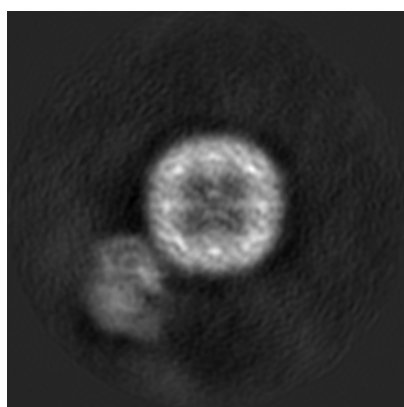
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0046. These allow visual inspection of the internal detail of the map and identification of artifacts.

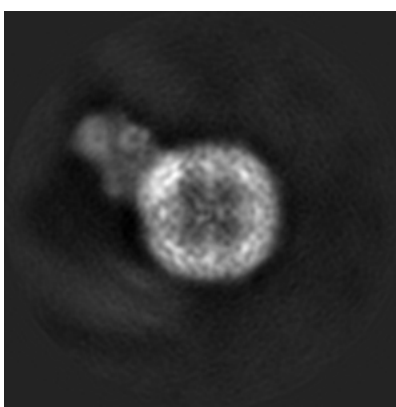
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

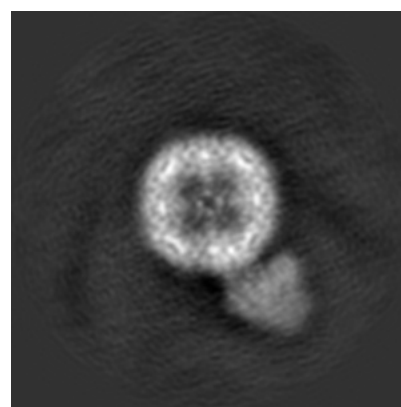
6.1.1 Primary map



X



Y

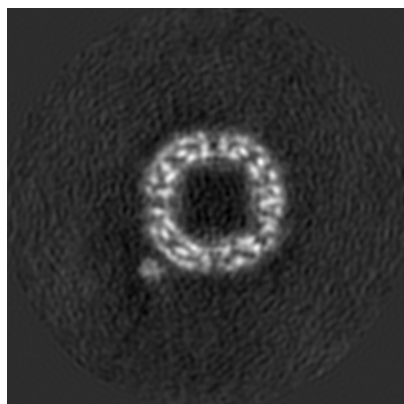


Z

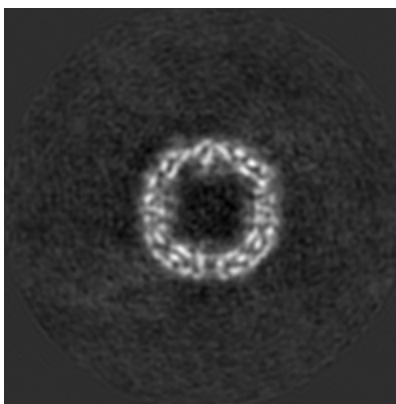
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

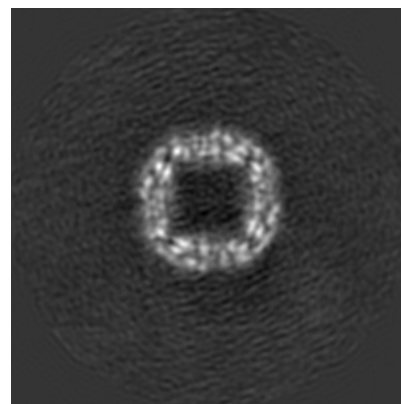
6.2.1 Primary map



X Index: 128



Y Index: 128

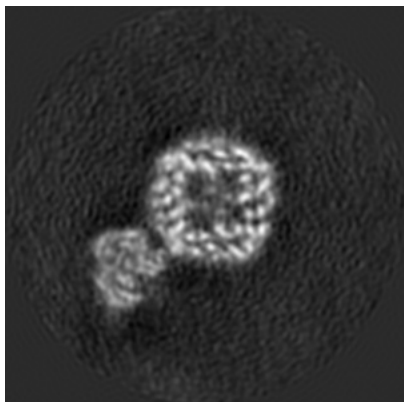


Z Index: 128

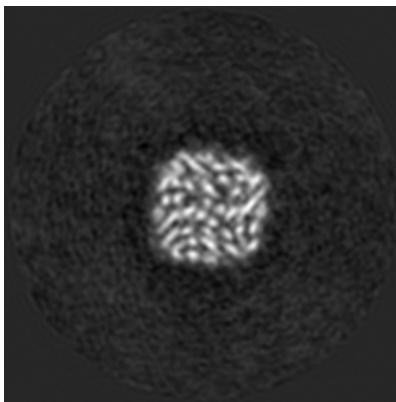
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

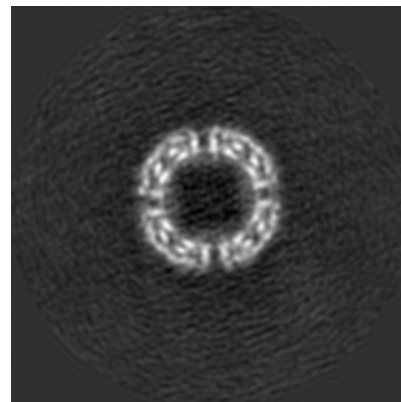
6.3.1 Primary map



X Index: 151



Y Index: 162

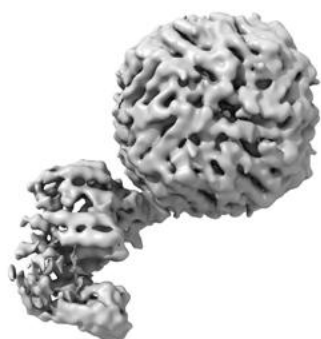


Z Index: 131

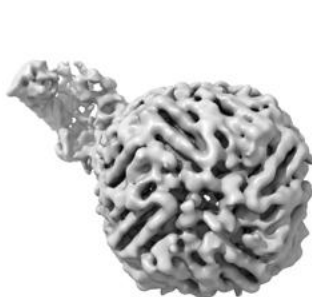
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

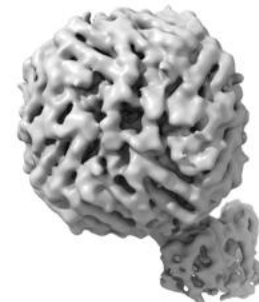
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.128. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

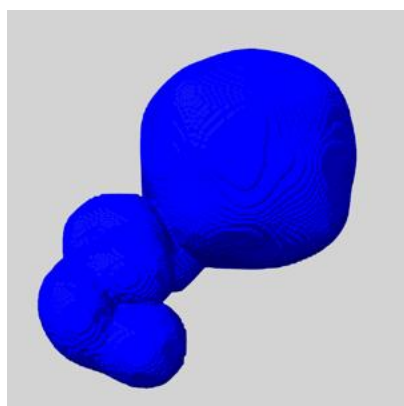
6.5 Mask visualisation [i](#)

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

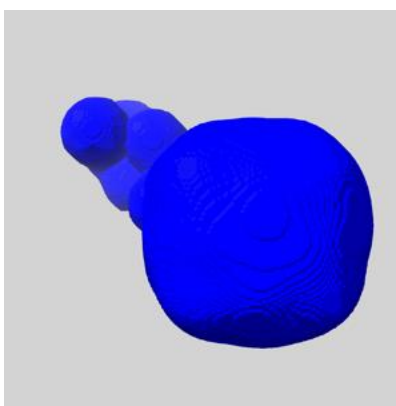
A mask typically either:

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

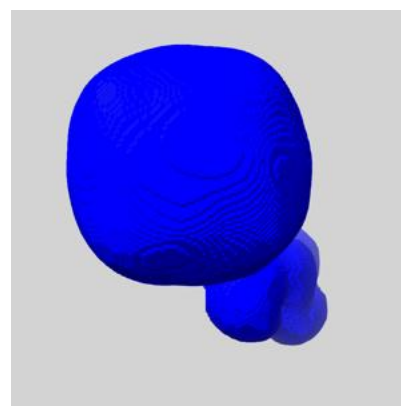
6.5.1 emd_0046_msk_1.map [i](#)



X



Y

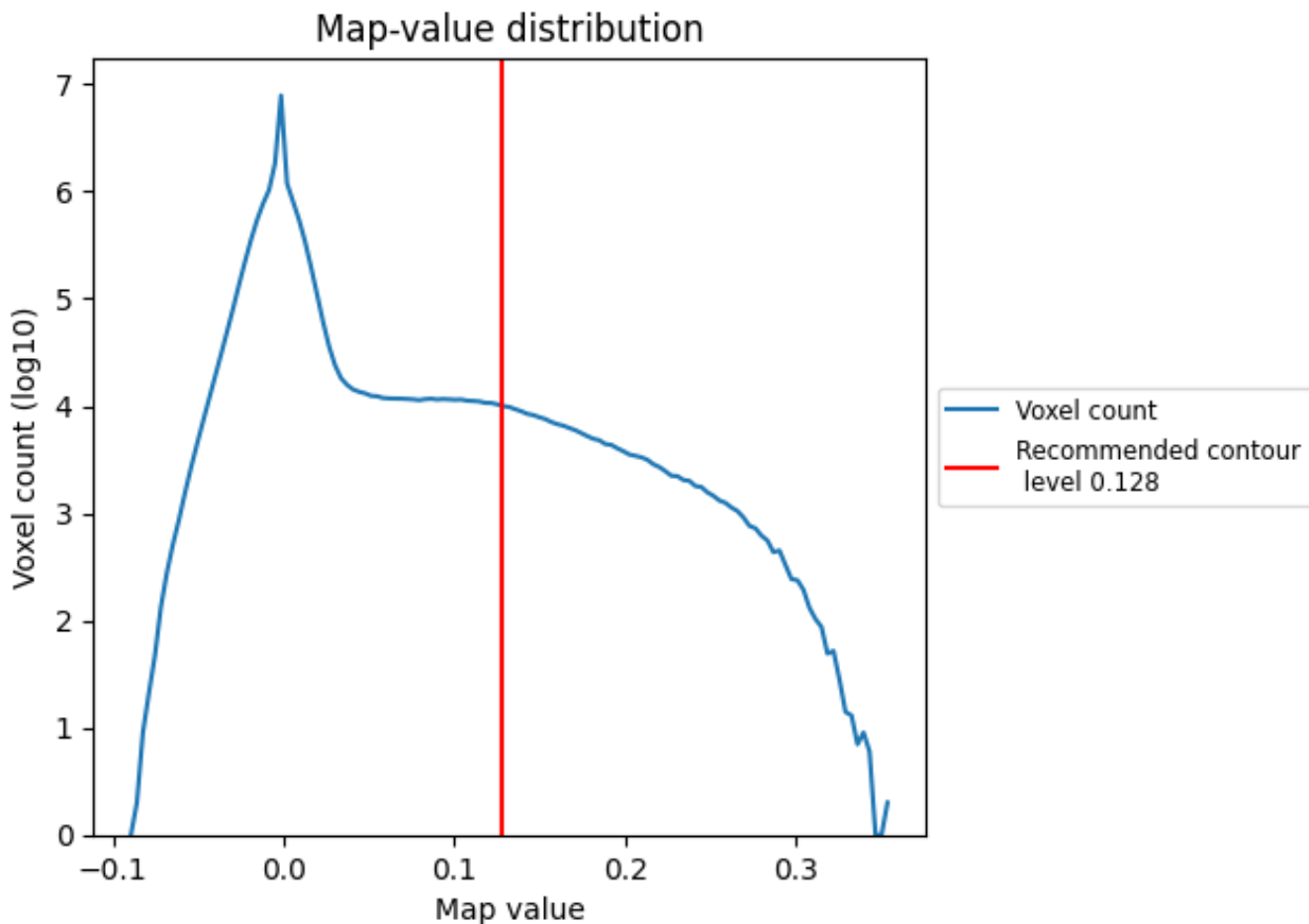


Z

7 Map analysis [i](#)

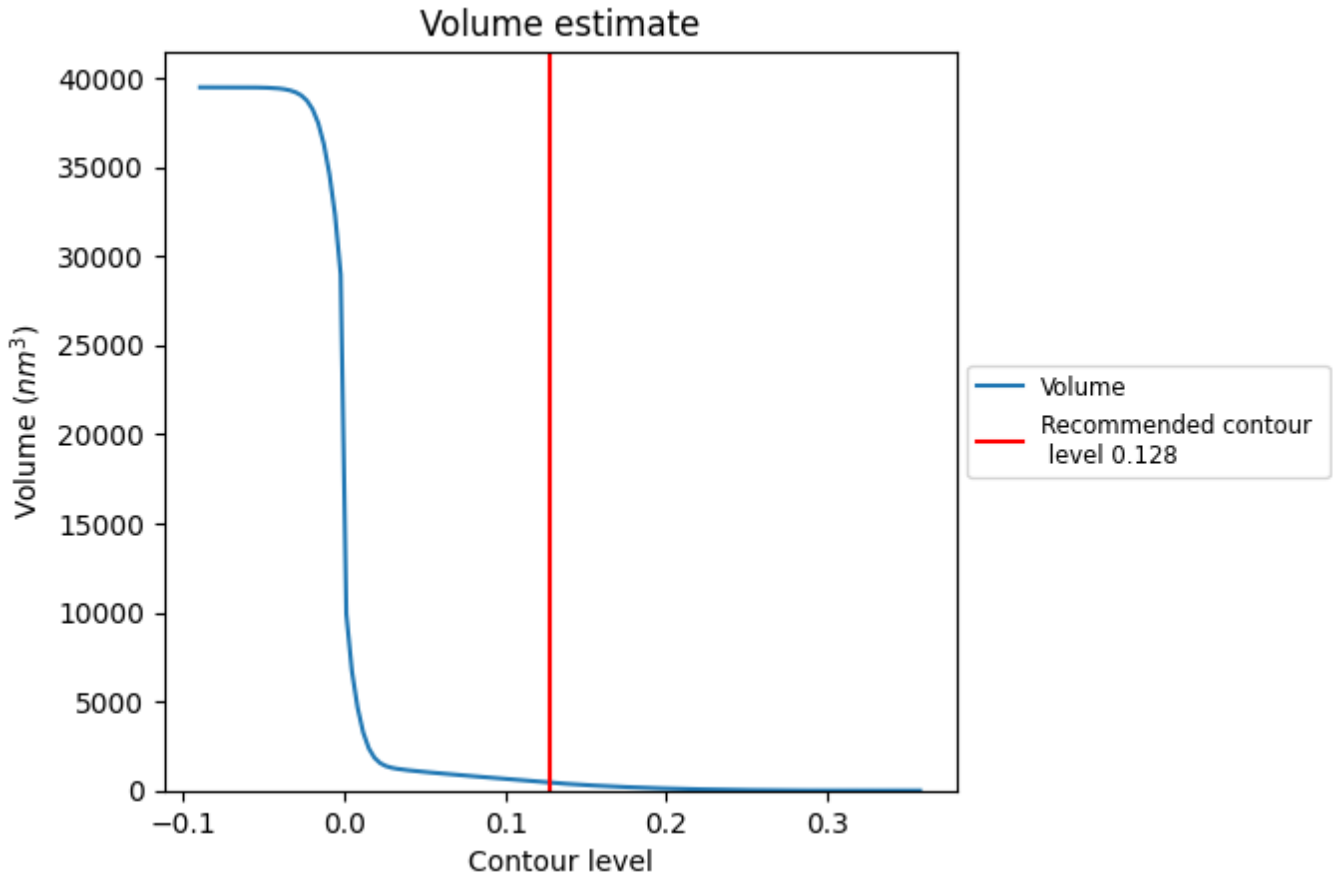
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

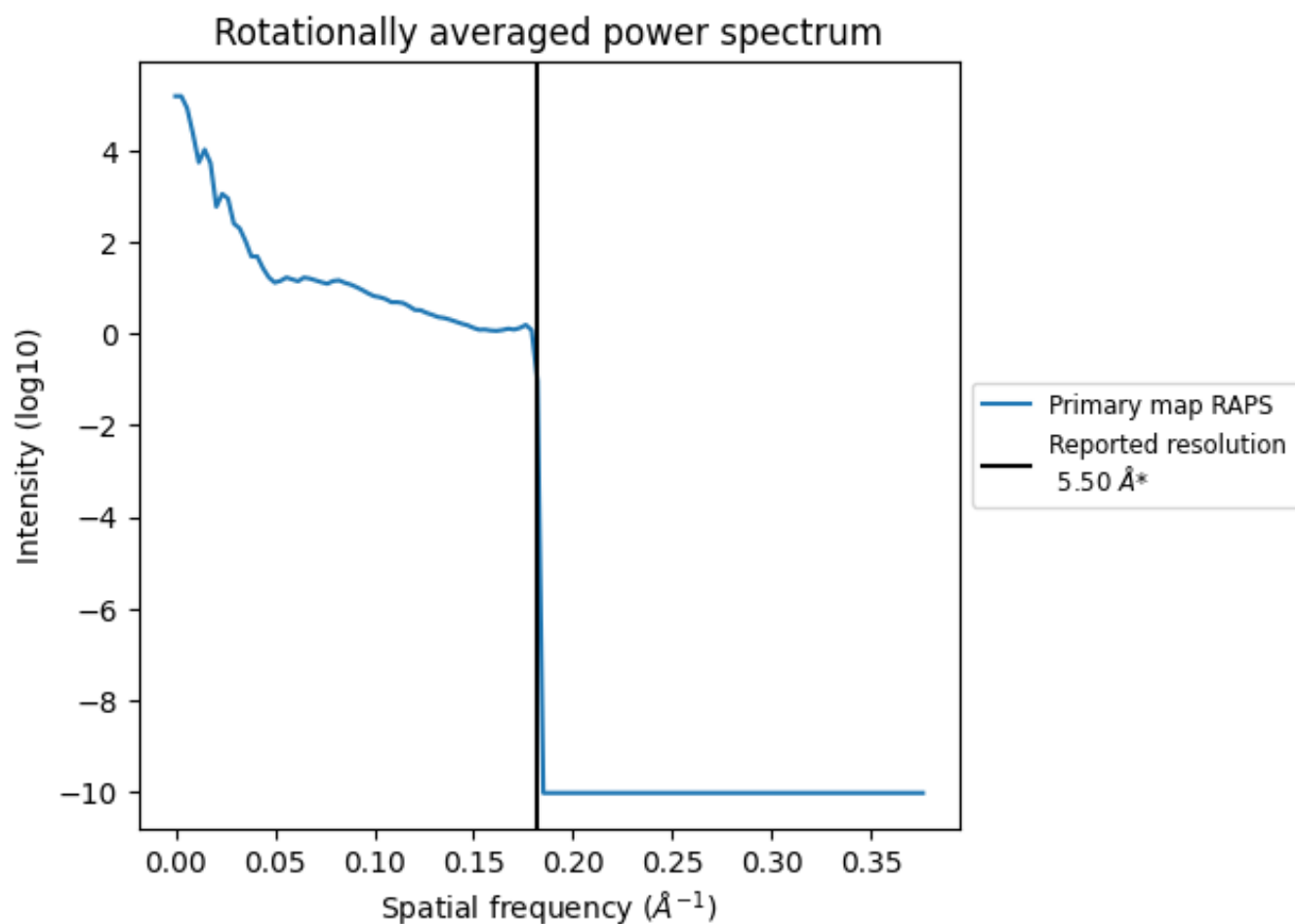
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 444 nm³; this corresponds to an approximate mass of 401 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 [\(i\)](#)

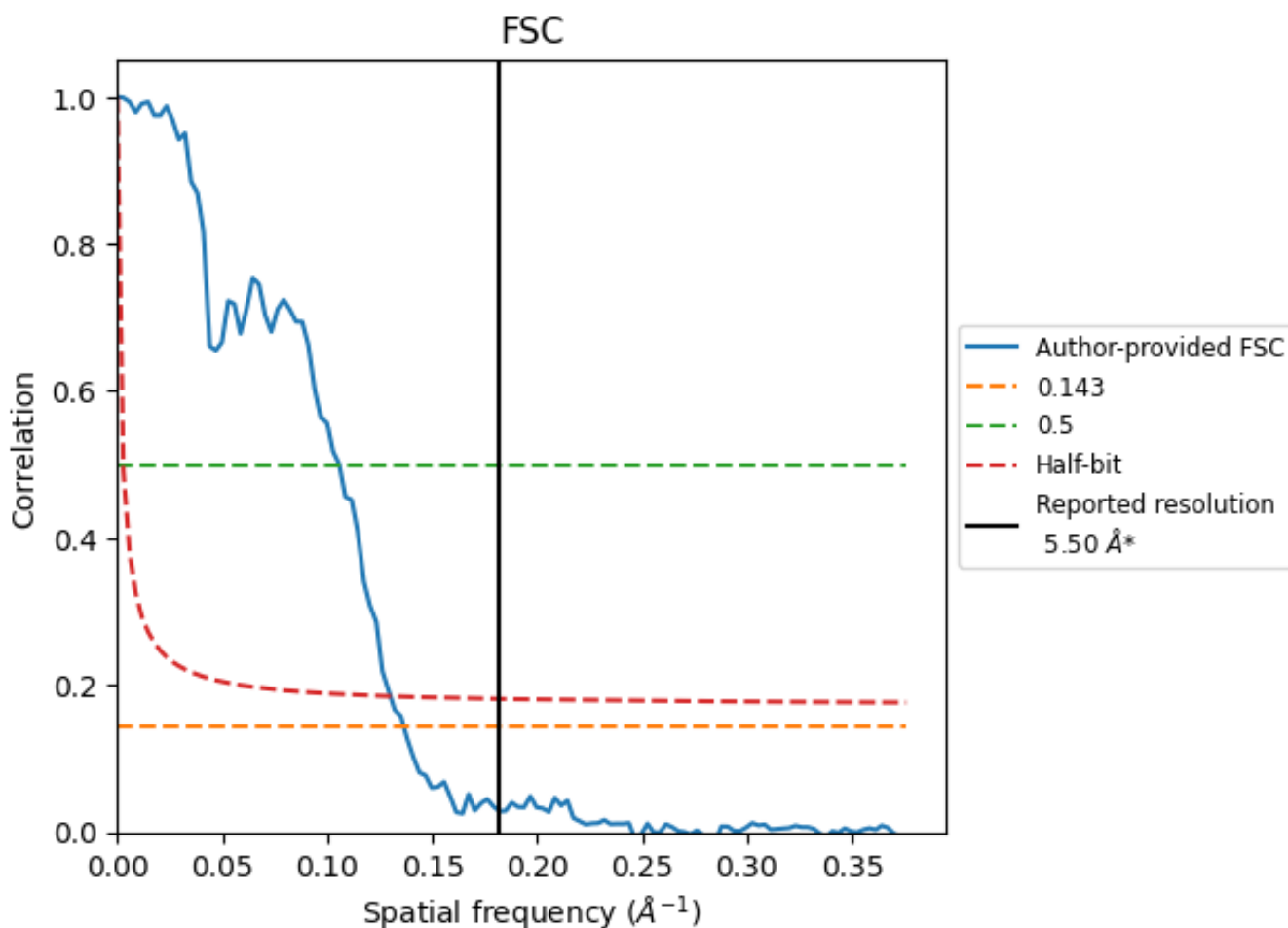


*Reported resolution corresponds to spatial frequency of 0.182 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.182 Å⁻¹

8.2 Resolution estimates [i](#)

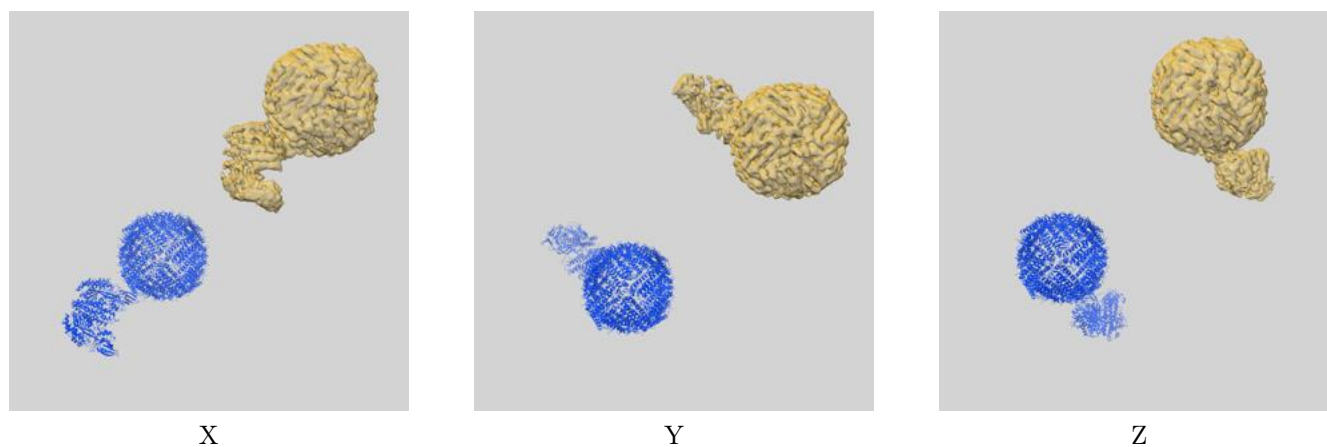
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	5.50	-	-
Author-provided FSC curve	7.33	9.45	7.69
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 7.33 differs from the reported value 5.5 by more than 10 %

9 Map-model fit [i](#)

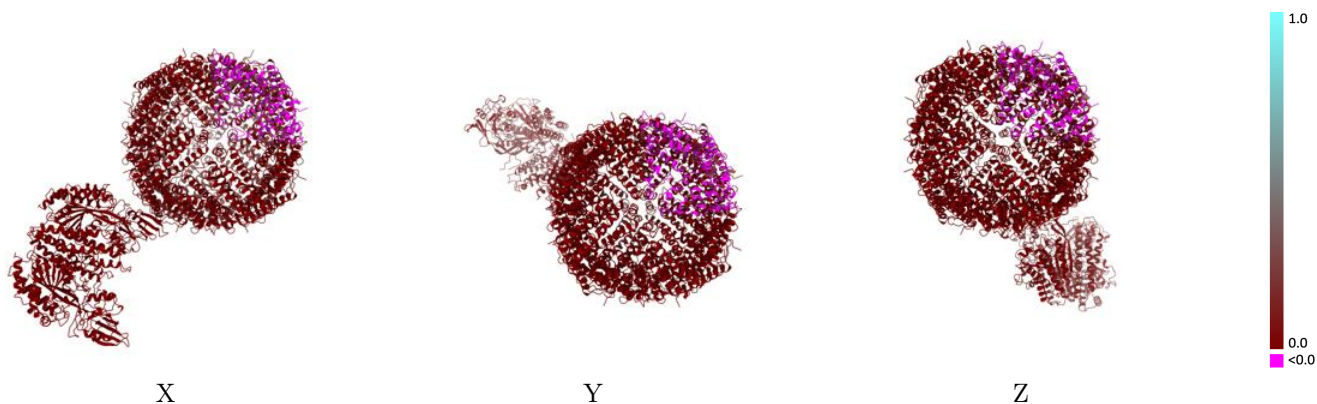
This section contains information regarding the fit between EMDB map EMD-0046 and PDB model 6GSR. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



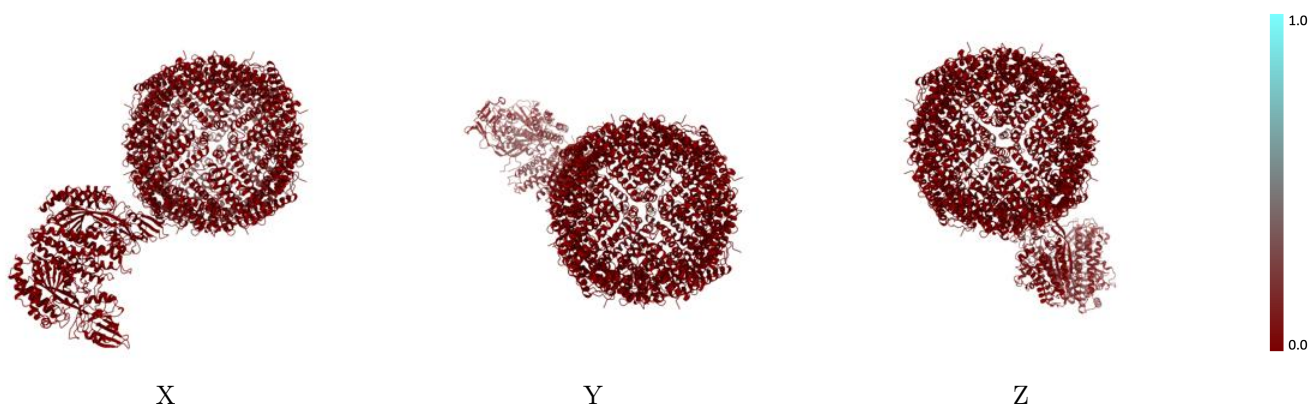
The images above show the 3D surface view of the map at the recommended contour level 0.128 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



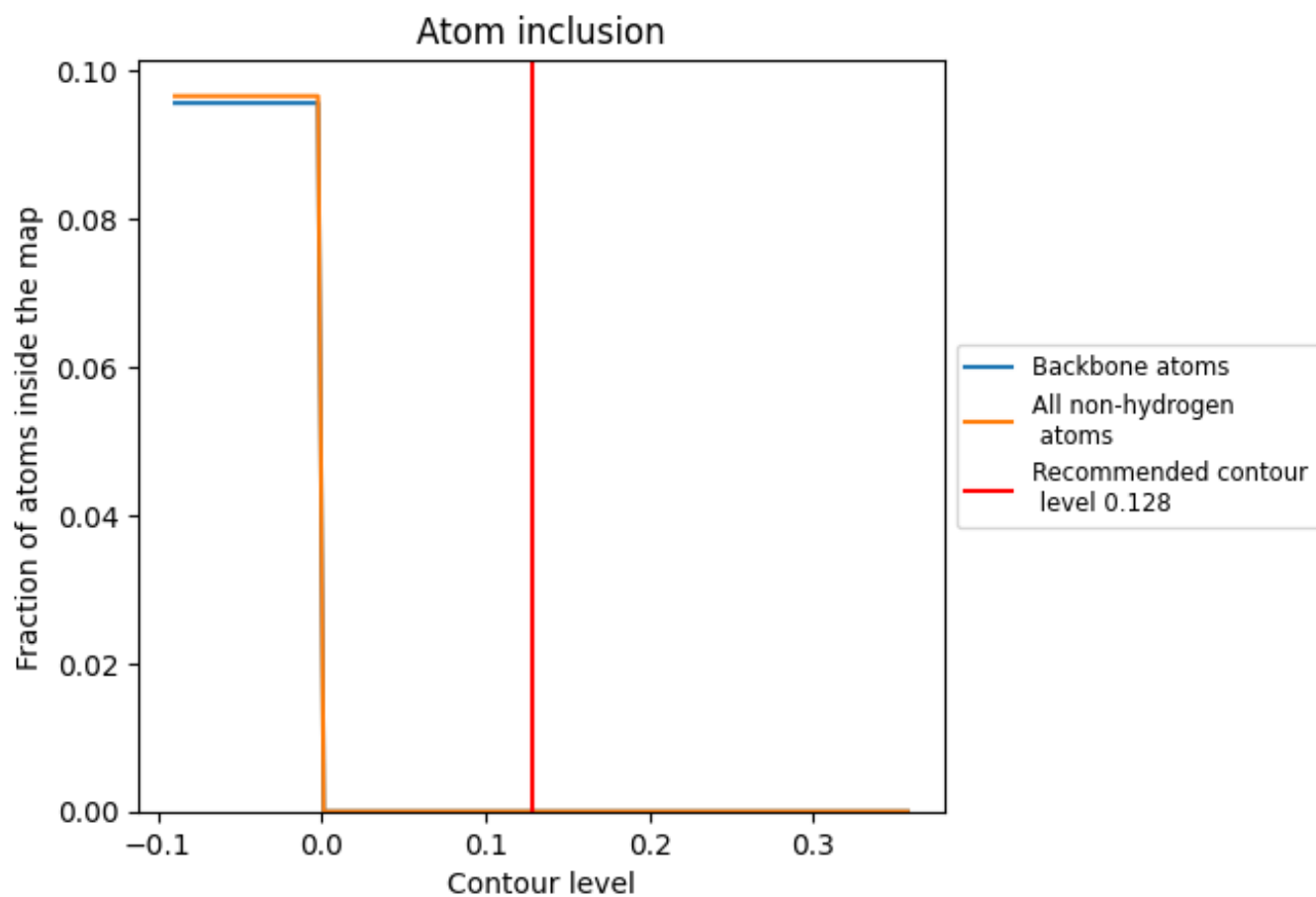
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.128).























































9.4 Atom inclusion [i](#)



At the recommended contour level, 0% of all backbone atoms, 0% 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 (0.128) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.0000	 0.0010
Aa	 0.0000	 0.0020
Ab	 0.0000	 0.0000
Ac	 0.0000	 0.0000
Ad	 0.0000	 0.0030
Ae	 0.0000	 0.0060
Af	 0.0000	 0.0000
Ag	 0.0000	 0.0000
Ah	 0.0000	 0.0000
Ai	 0.0000	 0.0000
Aj	 0.0000	 0.0000
Ak	 0.0000	 0.0100
Al	 0.0000	 0.0010
Am	 0.0000	 0.0000
An	 0.0000	 0.0000
Ao	 0.0000	 0.0000
Ap	 0.0000	 -0.0020
Aq	 0.0000	 0.0000
Ar	 0.0000	 0.0000
As	 0.0000	 0.0000
At	 0.0000	 0.0000
Au	 0.0000	 0.0000
Av	 0.0000	 0.0010
Aw	 0.0000	 0.0000
Ax	 0.0000	 0.0090
Ay	 0.0000	 0.0000
Az	 0.0000	 0.0000

