



Full wwPDB EM Validation Report ⓘ

Nov 16, 2022 – 05:33 PM JST

PDB ID : 7BR8
EMDB ID : EMD-30159
Title : Epstein-Barr virus, C5 penton vertex, CATC absent.
Authors : Li, Z.; Yu, X.
Deposited on : 2020-03-26
Resolution : 3.80 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:

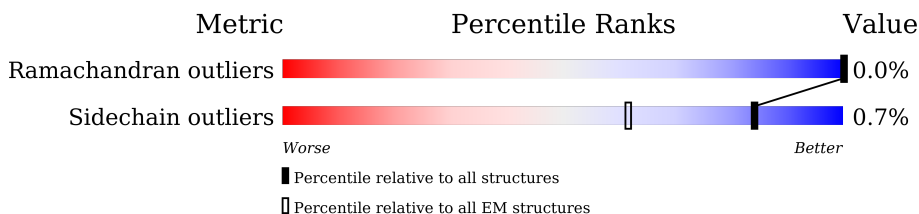
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

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 3.80 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)
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	2	176	
1	Y	176	
1	Z	176	
1	m	176	
1	y	176	
2	S	1381	
2	T	1381	
2	W	1381	
2	l	1381	

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Mol	Chain	Length	Quality of chain
2	x	1381	<p>49% 96%</p>
3	5	364	<p>54% 84% 15%</p>
3	e	364	<p>35% 87% 12%</p>
4	6	301	<p>73% 94%</p>
4	7	301	<p>77% 92% 7%</p>
4	f	301	<p>41% 96%</p>
4	g	301	<p>41% 92% 7%</p>

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 68602 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 Small capsomere-interacting protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	m	71	Total 600	C 381	N 111	O 107	S 1	0	0
1	Y	74	Total 621	C 394	N 114	O 112	S 1	0	0
1	Z	74	Total 621	C 394	N 114	O 112	S 1	0	0
1	2	74	Total 621	C 394	N 114	O 112	S 1	0	0
1	y	74	Total 621	C 394	N 114	O 112	S 1	0	0

- Molecule 2 is a protein called Major capsid protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	S	1333	Total 10491	C 6665	N 1820	O 1946	S 60	0	0
2	T	1323	Total 10398	C 6600	N 1808	O 1929	S 61	0	0
2	W	1331	Total 10463	C 6650	N 1810	O 1944	S 59	0	0
2	x	1325	Total 10404	C 6607	N 1803	O 1935	S 59	0	0
2	l	1251	Total 9883	C 6283	N 1717	O 1824	S 59	0	0

- Molecule 3 is a protein called Triplex capsid protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	e	319	Total 2505	C 1608	N 444	O 446	S 7	0	0
3	5	311	Total 2446	C 1568	N 435	O 436	S 7	0	0

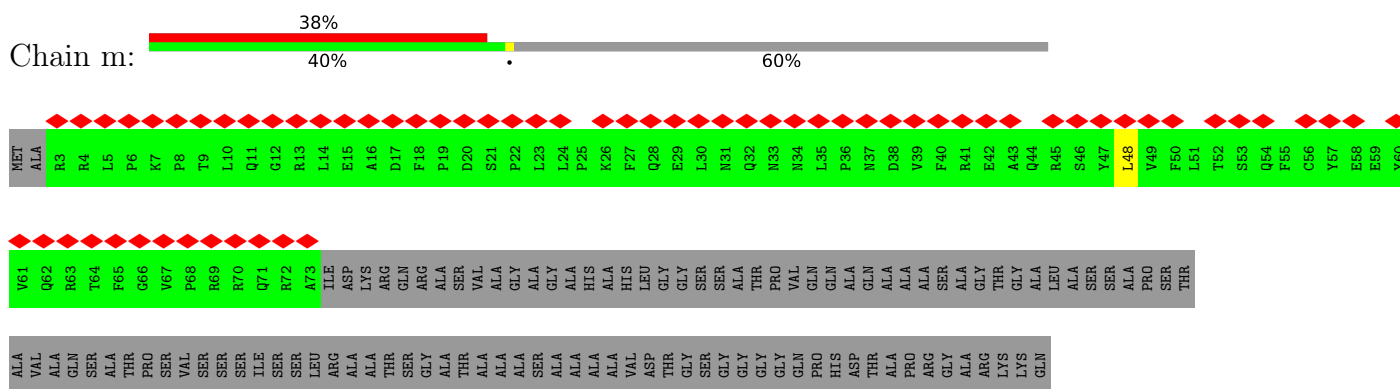
- Molecule 4 is a protein called Triplex capsid protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	f	290	Total 2279	C 1466	N 378	O 419	S 16	0	0
4	g	281	Total 2190	C 1413	N 358	O 401	S 18	0	0
4	6	289	Total 2272	C 1461	N 377	O 418	S 16	0	0
4	7	279	Total 2187	C 1406	N 358	O 405	S 18	0	0

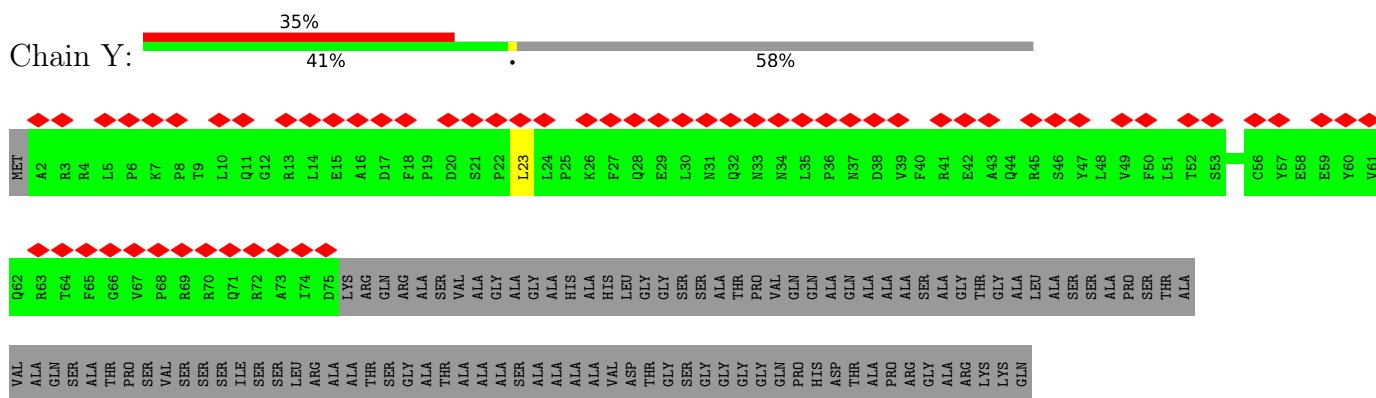
3 Residue-property plots

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.

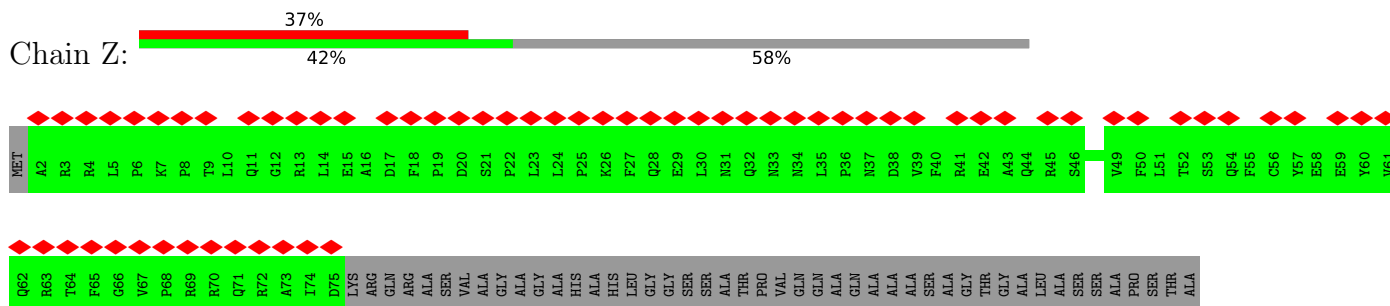
- Molecule 1: Small capsomere-interacting protein



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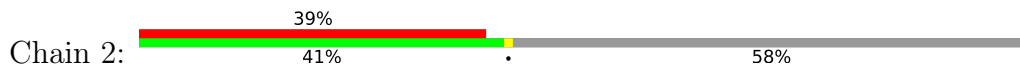


- Molecule 1: Small capsomere-interacting protein



VAL	ALA	GLN	SER	ALA	THR	PRO	SER	VAL	SER	SER	SER	SER	SER	ILE	SER	SER	LEU	ARG	ALA	ALA	THR	ALA	THR	GLY	ALA	ALA	THR	VAL	ASP	GLY	GLY	GLY	GLY	GLN	PRO	HIS	ASP	THR	ALA	ALA	PRO	ARG	GLY	ALA	ARG	LYS	LYS	GLN
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• Molecule 1: Small capsomere-interacting protein



MET	A2	R3	R4	L5	P6	K7	P8	T9	Q11	G12	G13	L14	E15	A16	D17	F18	P19	D20	S21	P22	L23	L24	P25	K26	F27	Q28	E29	L30	N31	Q32	N33	N34	L35	P36	N37	D38	V39	F40	R41	E42	E43	A44	A45	S46	Y47	L48	L49	F50	L51	T52	S53	C56	Y57	Y60	V61	Q62
R63	T64	F65	G66	V67	P68	R69	R70	R72	R73	I74	D75	ARG	GLN	ARG	ALA	VAL	ALA	GLY	ALA	GLY	HIS	HIS	HIS	LEU	GLY	GLY	SER	ALA	THR	PRO	VAL	GLN	GLN	ALA	ALA	ALA	ARG	GLY	ALA	ARG	LYS	SER	SER	ALA	PRO	THR	THR	ALA	VAL							

ALA	GLN	SER	ALA	THR	PRO	SER	VAL	SER	SER	SER	ILE	SER	SER	LEU	ARG	ALA	ALA	THR	SER	GLY	ALA	THR	ALA	VAL	ALA	ALA	ALA	ALA	VAL	ASP	THR	GLY	SER	GLY	GLY	GLY	GLY	GLN	PRO	ALA	ALA	ALA	ARG	GLY	ALA	ARG	LYS	GLN
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• Molecule 1: Small capsomere-interacting protein



MET	A2	R3	R4	L5	P6	K7	P8	T9	L10	Q11	G12	R13	L14	E15	A16	D17	F18	P19	D20	S21	P22	L23	L24	P25	K26	F27	Q28	E29	L30	N31	Q32	N33	N34	L35	P36	N37	D38	V39	F40	R41	E42	E43	Q44	R45	S46	Y47	L48	V49	F50	L51	T52	S53	Q54	F55	C56	Y57	Y60	V61
Q62	R63	T64	F65	G66	V67	P68	R69	R70	R72	R73	I74	D75	LYS	ARC	GLN	ARG	ALA	SER	VAL	ALA	GLY	ALA	GLY	HIS	HIS	LEU	GLY	GLY	SER	SER	ALA	THR	PRO	VAL	GLN	GLN	ALA	ALA	ALA	ARG	GLY	ALA	ARG	LYS	GLY	ALA	ALA	SER	SER	ALA	PRO	THR	THR	ALA				

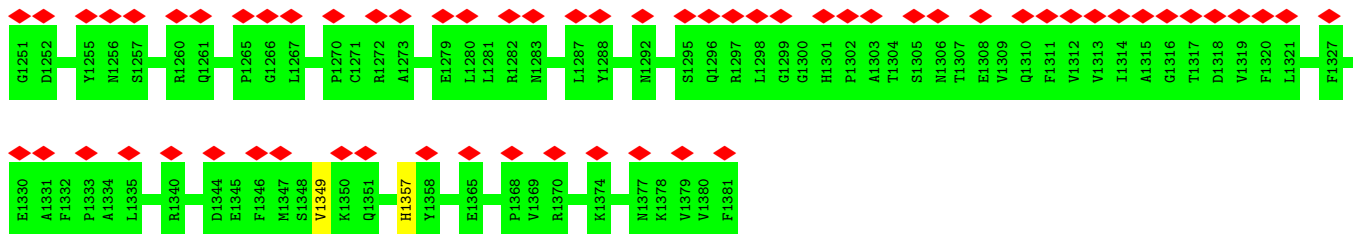
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• Molecule 2: Major capsid protein

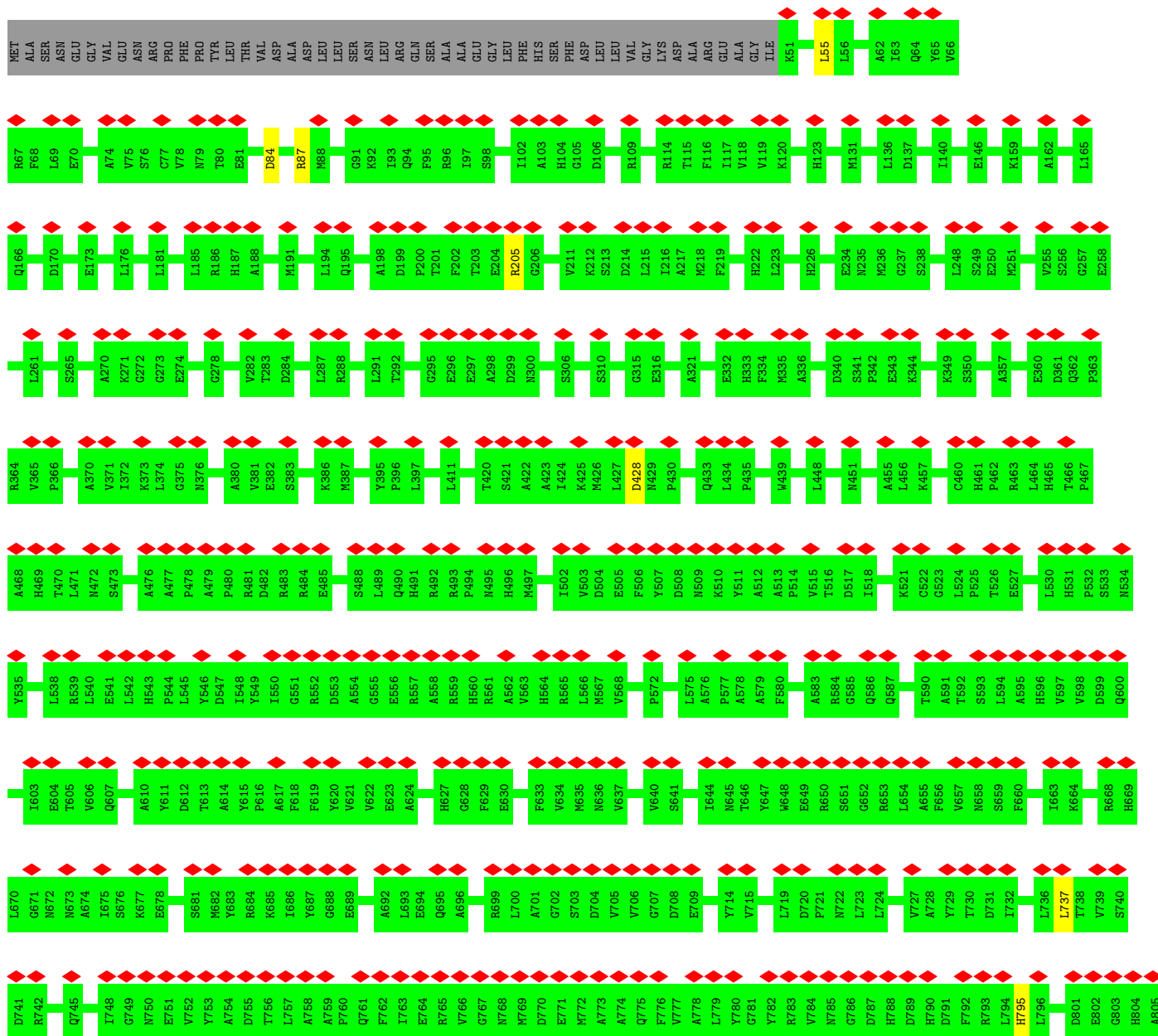


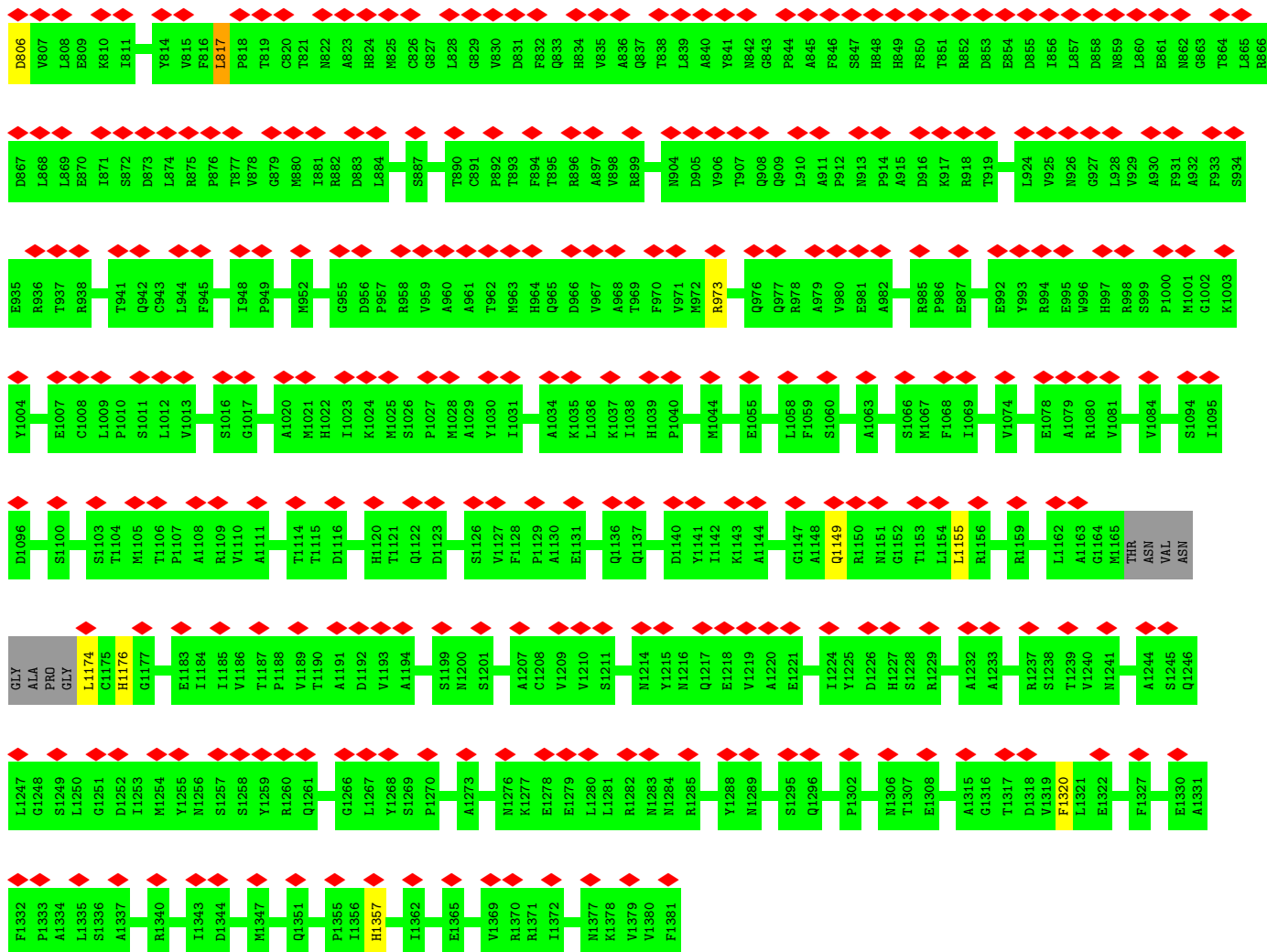
MET	ALA	SER	ASN	E5	E8	P13	Y14	L15	T20	V17	D18	A19	D20	L21	L22	L28	R26	A29	S36	F37	D38	L39	L40	V41	G42	K43	D44	A45	R46	E47	I50	L55	L56	G57	V68	A62	I63	Q64	Y65	V66	R67	F68	L69	E70	T71	L73	A74	N79	T80
E81	F82	K83	S86	R87	D90	G91	K92	I93	Q94	F95	S98	I102	A103	H104	G105	S111	R114	T115	F116	K120	K124	T129	S134	M135	L136	D137	I140	E146	Y151	A152	K159	A162	F68	L165	V169	D170	E173	L181	S182	V183									
R186	H187	L194	A198	D199	P200	T201	F202	T203	E204	F207	V211	K212	S213	D214	L215	M218	F219	E225	L230	A233	E234	S238	G239	F240	S241	Q242	L248	S249	A253	A254	V255	S256	G257	K262	G263	V264	S265	T268	T269	A270	K271	G272	G273	E274					
F280	D284	L287	R288	L291	T292	G295	E296	E297	A298	D299	N300	Q301	I302	M303	G304	P305	S306	S307	Y308	A309	V312	V313	R314	G315	E316	M317	T320	S323	Y324	G325	R326	V327	M328	R329	E332	M335	A336	R337	I338	V339	D340	E343	K344	ALA	GLY	SER	THR	LYS	SER

ASP	LEU	PRO	ALA	VAL	ALA	ALA	GLY	VAL	GLU	ASP	GLN	PRO	R364	R365	R366	R367	R368	R369	R370	R371	A378	V379	A380	V381	E382	S383	K386	N389	D390	S393	L397	N398	R399	R400	M401	F407	L411	M414	M415	P416	T420	S421	A422	A423	I424	K425	D428	M429	P430									
Q433	L434	P435	V436	E437	K443	M444	M445	L448	M454	A455	L456	K457	V458	L459	C460	H461	P462	R463	L464	H465	T466	H469	T470	L471	M472	S473	A476	A477	P478	A479	P480	R481	D482	R483	R484	E485	T486	Y487	S488	L489	Q490	H491	R492	R493	H496	M497	M498	V499	L500	I502	V503							
D504	E505	F506	Y507	D508	N509	K510	Y511	A512	A513	P514	V515	T516	D517	I518	K521	C522	G523	T524	P525	L526	E527	D528	F529	L530	H531	N534	Y535	L538	R539	L540	L542	H543	Y546	D547	I548	Y549	I550	E485	R551	D553	A554	G555	E556	R557	A558	R559	H560	R561	A562	V563	H564	R565	V568					
L571	P572	T573	P574	L575	A579	F580	Q581	E582	A583	R584	G585	Q586	Q587	T590	A591	T592	S593	L594	T526	E527	D528	F529	L530	H531	N534	Y535	L538	R539	L540	L542	H543	Y546	D547	I548	Y549	I550	E485	R551	D553	A554	G555	E556	R557	A558	R559	H560	R561	A562	V563	H564	R565	V568						
V634	M635	N636	V637	P638	L639	V640	S641	L642	C643	I644	N645	T646	Y647	W648	E649	S651	G652	R653	L654	A655	F656	V657	N658	S659	F660	I663	K664	F665	I666	C667	R668	H669	L670	G671	N672	N673	A674	I675	S676	K677	E678	A679	F680	S681	M682	Y683	R684	K685	I686	E689	A692	L693	E694	Q695	A696			
L697	M698	R699	L700	A701	G702	S703	D704	V705	W706	G707	D708	E709	G712	Q713	Y714	V715	C716	A717	L718	L719	D720	P721	N722	L723	L724	P725	P726	V727	A728	Y729	T730	D731	T732	F733	Y734	H735	L736	L737	T738	V739	S740	D741	R742	A743	P744	G682	Y683	R684	K685	I686	E689	A692	L693	E694	Q695	A696		
A758	A759	P760	Q761	F762	I763	E764	R765	V766	G767	N768	W769	D770	E771	W772	A773	A774	Q775	F776	V777	A778	L779	Y780	G781	Y782	R783	W784	M785	G786	D787	H788	D789	H790	D791	F792	R793	L794	H795	L796	G797	P798	Y799	W800	D801	E802	G803	H804	A805	D806	N807	L808	E809	K810	L811	W815	F816	L817	P818	T819
C820	T821	H822	A823	H824	H825	L828	G829	B830	D831	F832	Q833	H834	W835	A836	Q837	T838	L839	A840	Y841	H842	G843	F844	G845	H846	H847	H848	H849	F850	T851	H852	E854	D855	L856	T857	L857	D858	N859	L860	E861	H862	G863	T864	L865	R866	D867	L868	L869	E870	L871	S872	D873	L874	H875	H876	P876	H880	L881	R882
D883	L884	S885	A886	S887	F888	T889	C891	P892	R896	A897	W898	R899	V900	S901	V902	D903	N904	D905	V906	T907	L910	A911	P912	N913	D916	K917	R918	T919	E920	Q921	T922	V923	L924	V925	N926	G927	L928	V929	A930	F931	A932	F933	S934	E935	R936	T937	R938	A939	V940	T941	H875	H876	P876	H880	L881	R882		
I948	P949	F950	H951	N952	F953	Y954	G955	D956	P957	R958	V959	A960	A961	T962	M963	H964	Q965	D966	V967	A968	V971	M972	R973	N974	P975	Q976	Q977	R978	A979	V980	E981	A982	R885	P886	E987	E992	Y993	R994	E995	W996	H997	R998	S999	P1000	M1001	G1002	R1003	Y1004	E1007	C1008	L1009	P1010	L1011	L1012	V1013			
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P1107	A1108	R1109	V1110	A1111	D1116	M1117	H1120	T1121	Q1122	D1123	S1126	V1127	A1130	E1131	M1135	Q1136	Y1137	V1138	M1139	D1140	Y1141	I1142	K1143	G1147	A1148	GLN	ASN	ARG	THR	LEU	LEU	ARG	ASP	PRO	ARG	THR	TVR	LEU	ALA	GLY	MET	THR	ASN	VAL	ASN	GLY	ALA	PRO	PRO	GLY	L1174	C1175	H1176					
G1177	Q1178	Q1179	A1180	E1183	I1184	I1185	V1186	T1187	P1188	V1189	D1192	V1193	A1194	K1198	S1199	R1203	A1206	V1210	S1211	C1212	E1213	N1214	Y1215	N1216	Q1217	E1218	V1219	A1220	L1223	I1224	Y1225	D1226	H1227	S1228	R1229	A1232	A1233	R1237	S1238	T1239	V1240	N1241	A1244	S1245	Q1246	L1247	G1248	S1249	L1250									

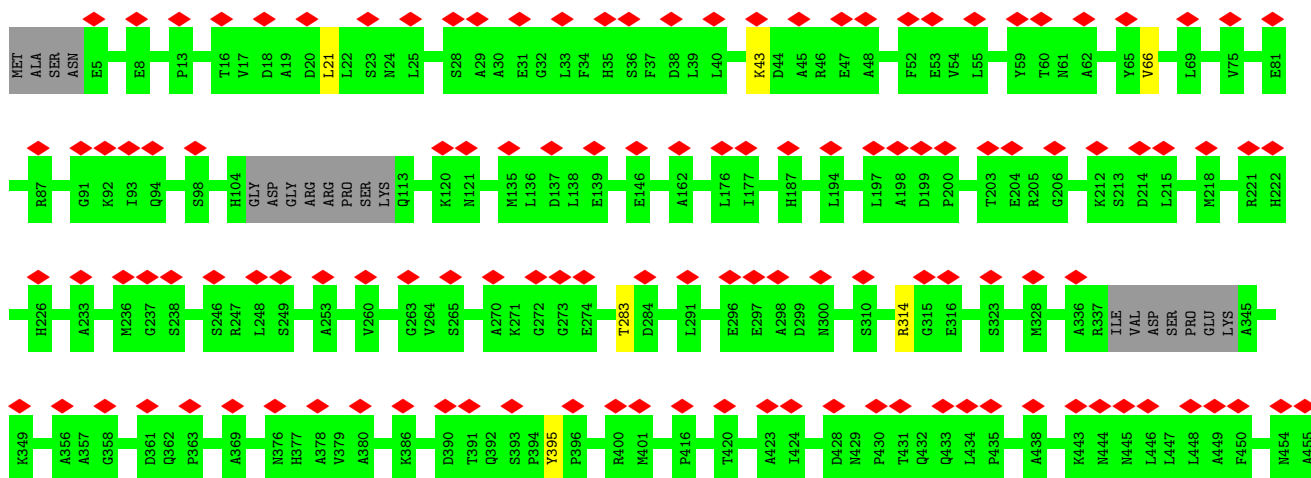
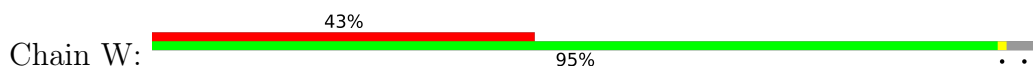


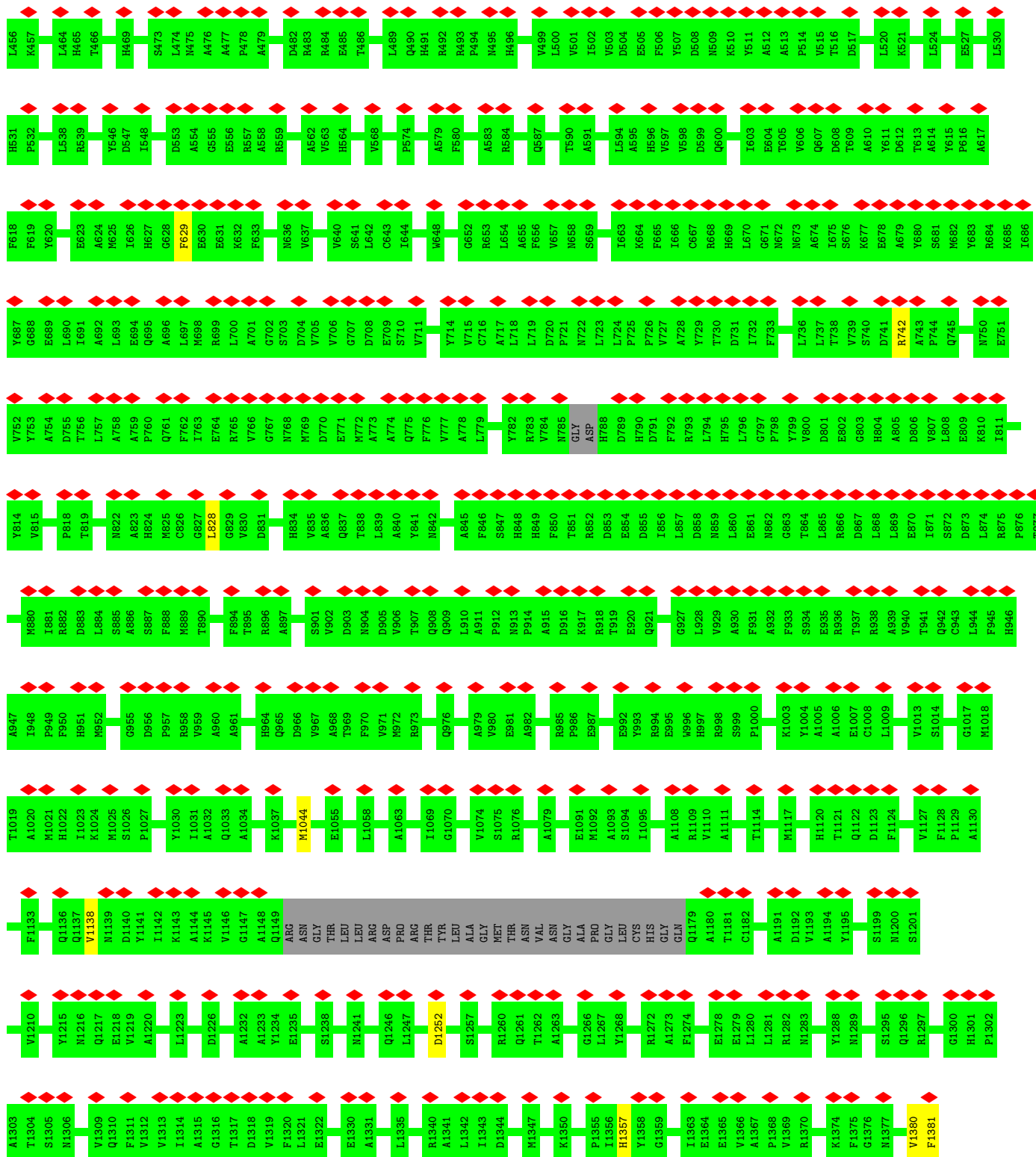
• Molecule 2: Major capsid protein





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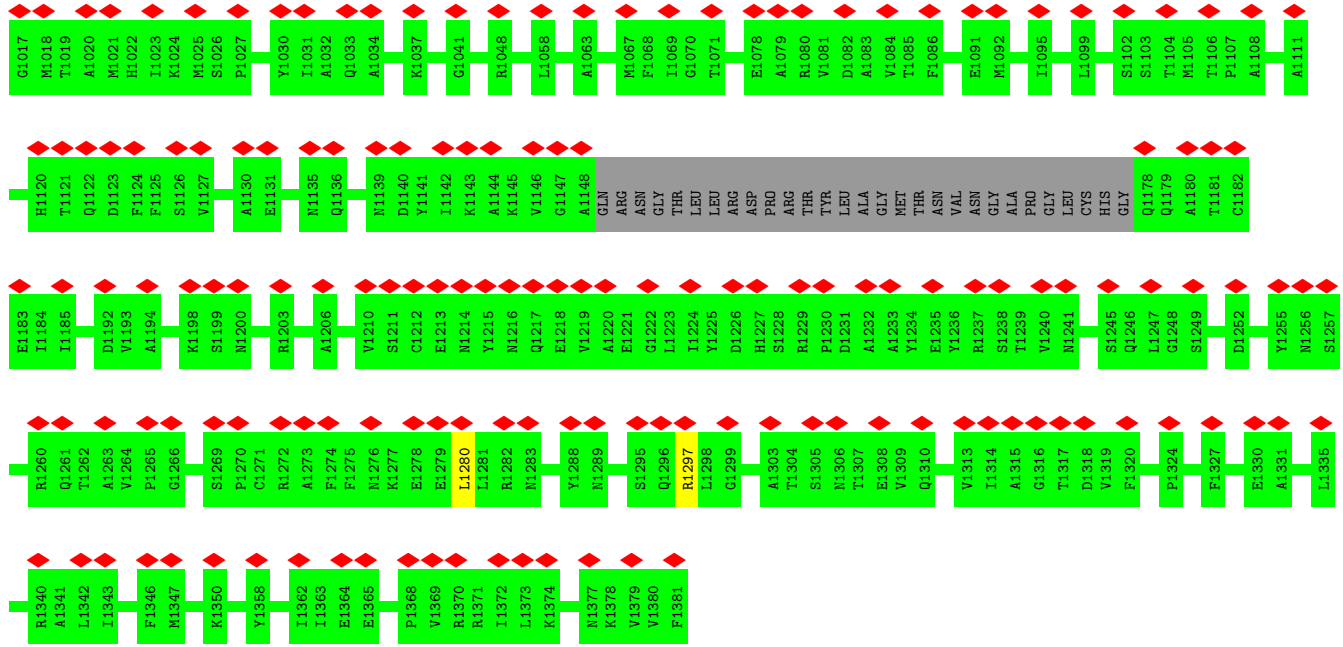




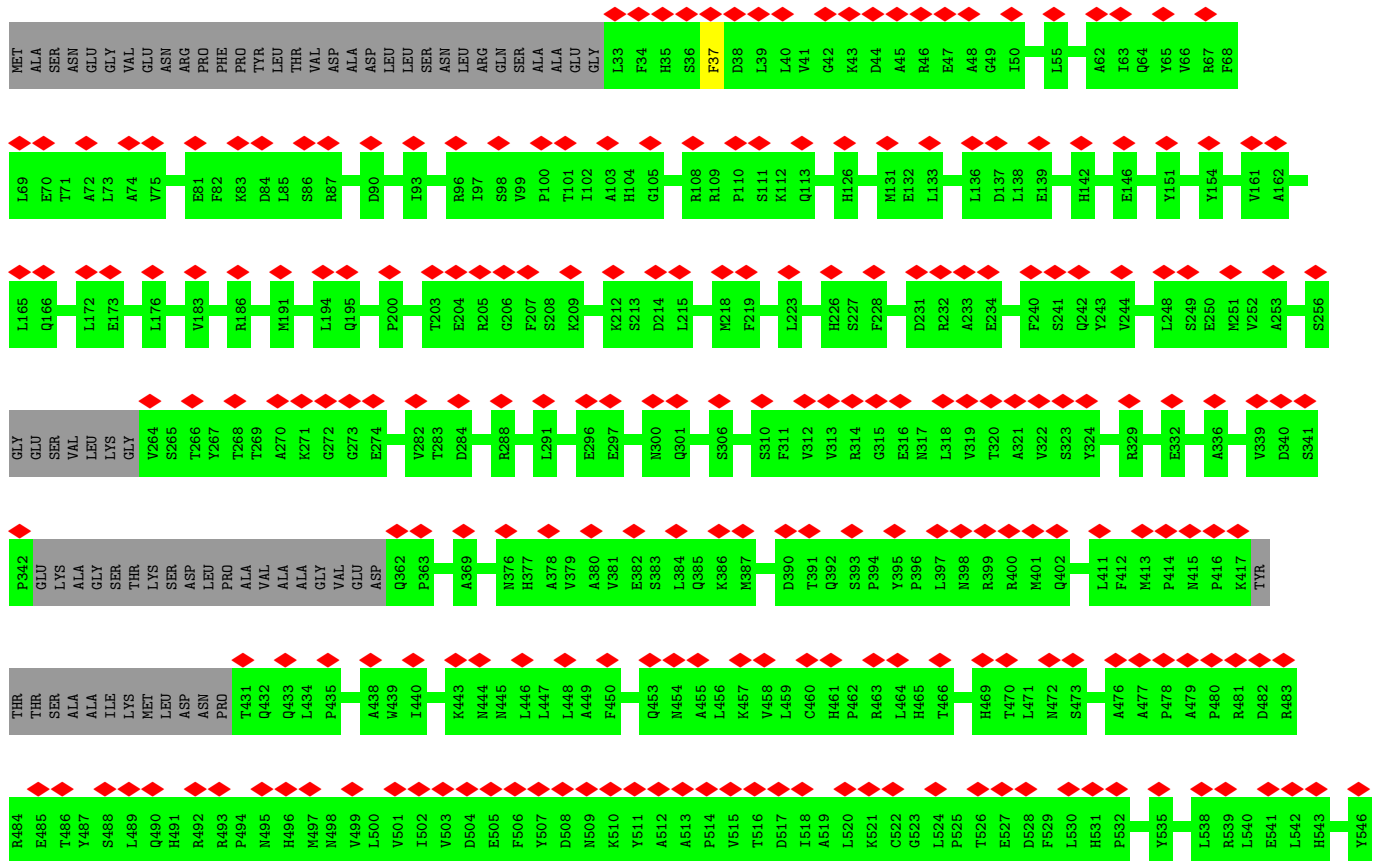
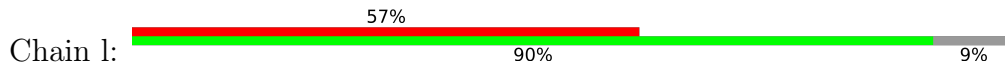
- Molecule 2: Major capsid protein

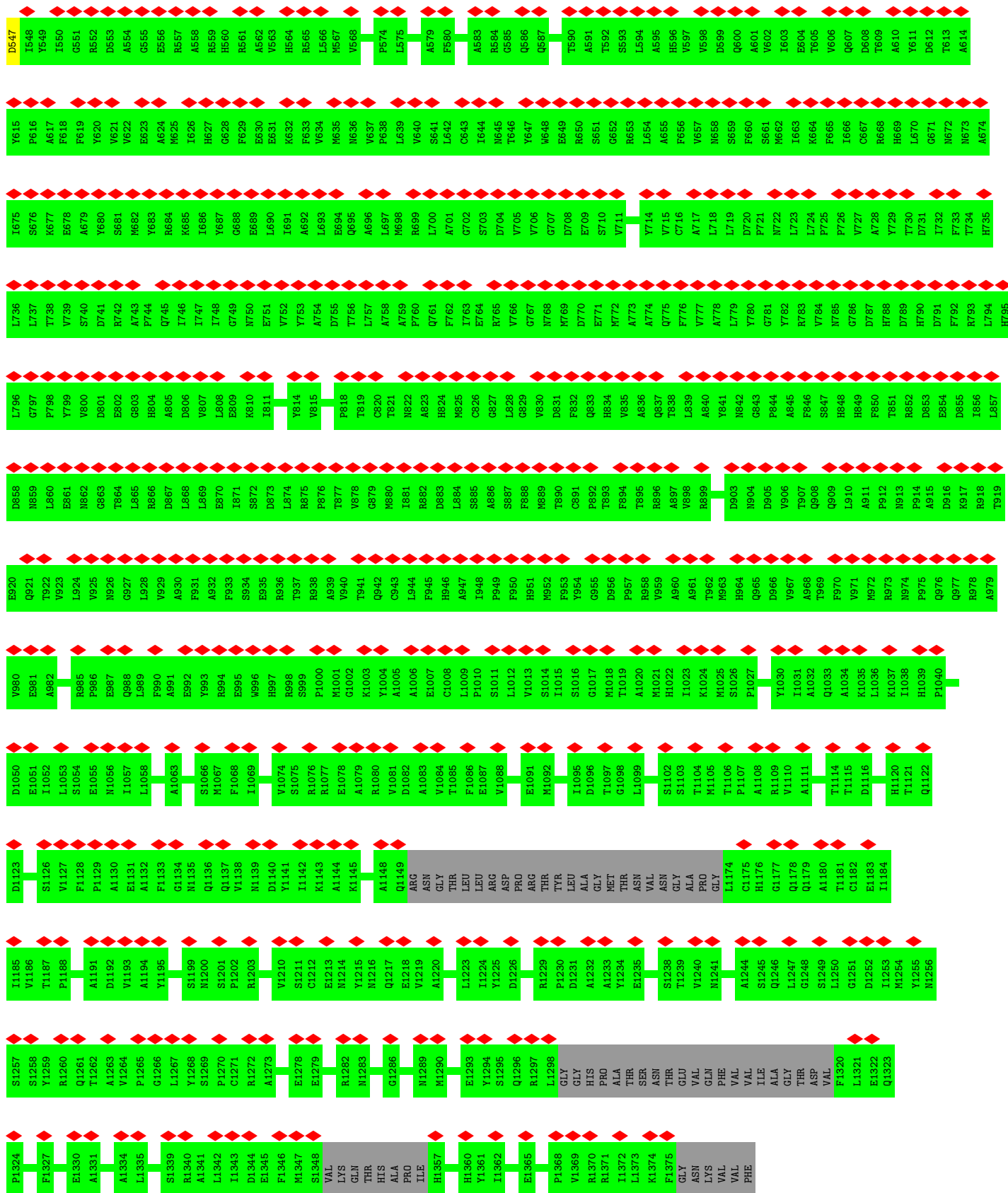


MET	ALA	SER	ASN	GLY	VAL	GLU	ASN	PRO	PHE	THR	LEU	VAL	ASP	ALA	ASP	LEU	LEU	SER	SER	ASN	LEU	ARG	GLN	S28	A29	A30	E31	G32	L33	F34	H35	S36	F37	L40	V41	G42	K43	D44	A45	R46	E47	G48	G49	N61	Y65	L69	A72	V78	N79	T80								
E81	A198	S310	F311	V312	V313	R314	M328	E332	H333	A336	R337	D340	E343	K344	A345	G346	S347	E234	N235	M236	G237	S238	G239	I227	S134	D137	L138	H142	G257	E258	L261	K262	G263	V264	S265	A270	K271	G272	G273	L172	I177	V183	H187	A188	P189	L194	Q195											
A198	D199	P200	T201	E204	R205	G206	K212	S213	D214	R221	H226	F229	R232	A233	E234	N235	M236	G237	S238	G239	Q242	S249	A253	G257	E258	L261	K262	G263	V264	S265	A270	K271	G272	G273	D284	L287	L291	G295	E296	E297	A298	D299	N300															
S310	F311	V312	V313	R314	M328	E332	H333	A336	R337	D340	E343	K344	A345	G346	S347	T348	K349	S350	A356	A357	G358	V359	E360	D361	Q362	P363	R364	A369	N376	A380	L384	Q385	K386	D390	S393	L397	N398	R399	Y406	L411	F412	P416																
K417	Y418	T419	T420	S421	A422	A423	M426	L427	D428	M429	P430	T431	Q432	Q433	L434	P435	A438	V441	M442	K443	M444	M445	L448	A449	F450	M454	A455	L456	K457	H461	P462	R463	L464	H465	T466	H469	T470	S473	L474	M475	A476	A477	P478	A479	D482	R483	R484	E485	T486	Y487								
S488	L489	R492	R493	P494	M495	H496	V499	L500	V501	L502	V503	D504	E505	F506	Y507	D508	N509	K510	V511	A512	S513	P514	V515	D516	L517	L518	A519	L520	K521	L524	E527	D528	F529	L530	Y535	L538	R539	L540	E541	L542	Y546	D547	L548	Y549	L550	G551	R552	D553	A554	G555	E556	R557						
A558	R559	A562	V563	H564	V568	G569	P572	L573	P574	L575	A579	F580	A583	R584	G585	Q586	Q587	F588	E589	T590	A891	T592	S593	L594	A595	H596	V597	V598	D599	D600	L603	E604	D607	D608	T609	A610	T613	A614	V615	P616	A617	F618	F619	E623	A624	M625	L626	H627	G628	F629								
E630	E631	R632	F633	M636	V637	P638	L639	V640	S641	L642	C643	L644	M645	M648	E649	R650	S651	G652	R653	L654	A655	F656	V657	M658	S659	L663	R664	F665	L666	C667	R668	H669	L670	G671	H672	H673	A674	S676	K677	E678	A679	V680	S681	H682	V683	R684	K685	L686	E689	L690	M691	A692	L693					
A696	L697	M698	R699	L700	A701	G702	S703	V705	V706	G707	L708	E709	S710	V711	G712	Q713	V714	V715	C716	A717	L718	L719	D720	F721	M722	L723	L724	P725	F726	V727	A728	V729	T730	D731	L732	F733	T734	H735	L736	L737	T738	V739	S740	R742	A743	P744	Q745	L746	L747	L748	G749	M750	E751	V752	Y753	A754	D755	
T756	L757	A758	R759	F760	Q761	F762	I763	E764	R765	V766	G767	M768	M769	D770	E771	M772	Q775	F776	V777	A778	L779	Y780	G781	Y782	R783	V784	M785	G786	D787	H788	D789	H790	D791	F792	R793	L794	H795	L796	G797	V800	E802	D803	H804	A805	D806	V807	L808	E809	K810	L811	F812	L813	Y814	V815	F816	L817		
P818	T819	C820	T821	M822	A823	H824	M825	C826	G827	L828	G829	V830	D831	H834	V835	A836	Q837	T838	L839	R840	Y841	N842	G843	P844	A845	Q846	F847	S848	H849	F850	T851	D852	D853	E854	D855	L856	L857	D858	M859	L860	E861	M862	G863	T864	L865	R866	D867	L868	L869	E870	L871	I872	S873	D874	L875	L876	P877	T877
M880	T881	R882	D883	L884	S885	A886	S887	F888	F894	T895	R896	A897	S901	V902	D903	N904	D905	V906	T907	Q908	Q909	L910	A911	P912	N913	P914	A915	D916	Q917	P918	T919	E920	Q921	T922	Y923	L924	G927	A930	F931	A932	F933	S934	E935	R936	T937	F938	T941	Q942	C943	L944	F945	V1013	S1014	I1015	S1016			
P949	F950	H951	M952	F953	Y954	G955	D956	P957	R958	A961	T962	M963	H964	Q965	D966	Y967	A968	T969	V970	V971	N972	A973	N974	P975	Q976	P977	R978	A979	E981	A982	P985	P986	E987	E992	E995	M996	H997	R998	S999	P1000	K1003	Y1004	E1007	C1008	L1009	P1010	S1011	L1012	V1013	S1014	I1015	S1016						

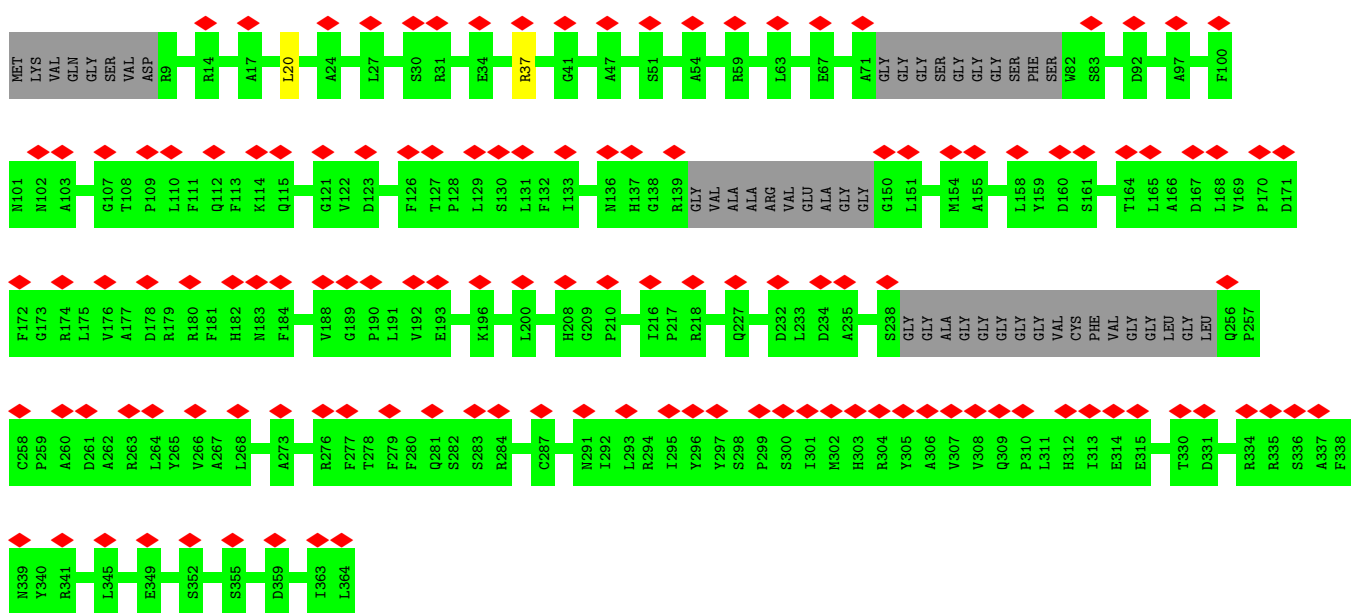
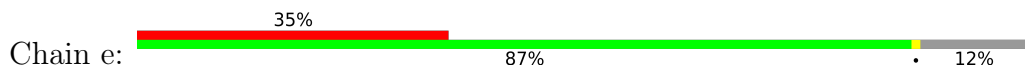


● Molecule 2: Major capsid protein

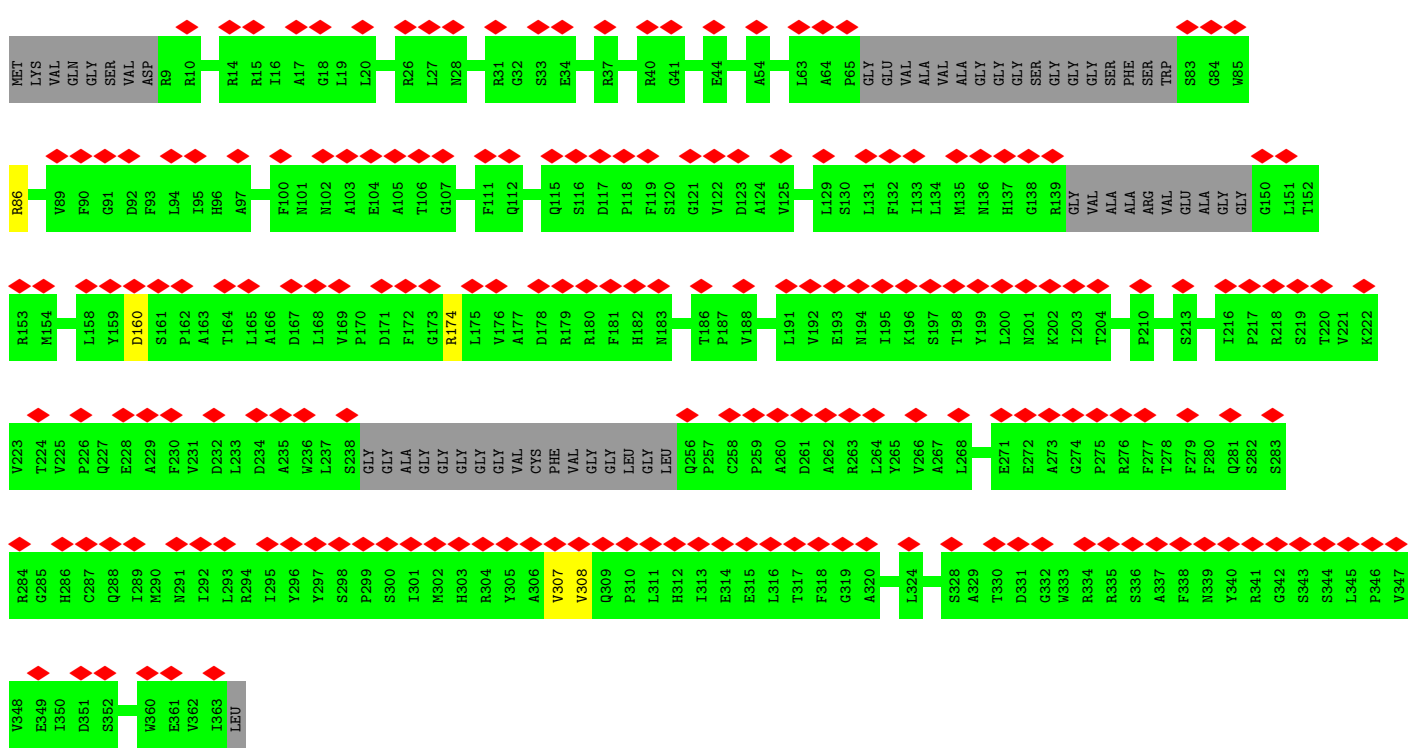
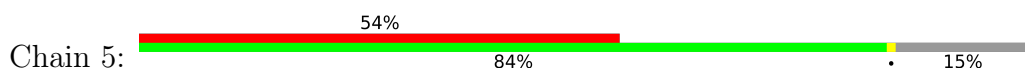




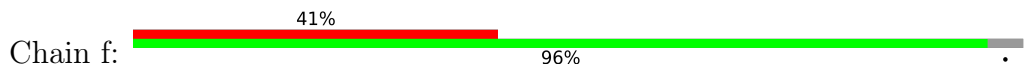
• Molecule 3: Triplex capsid protein 1

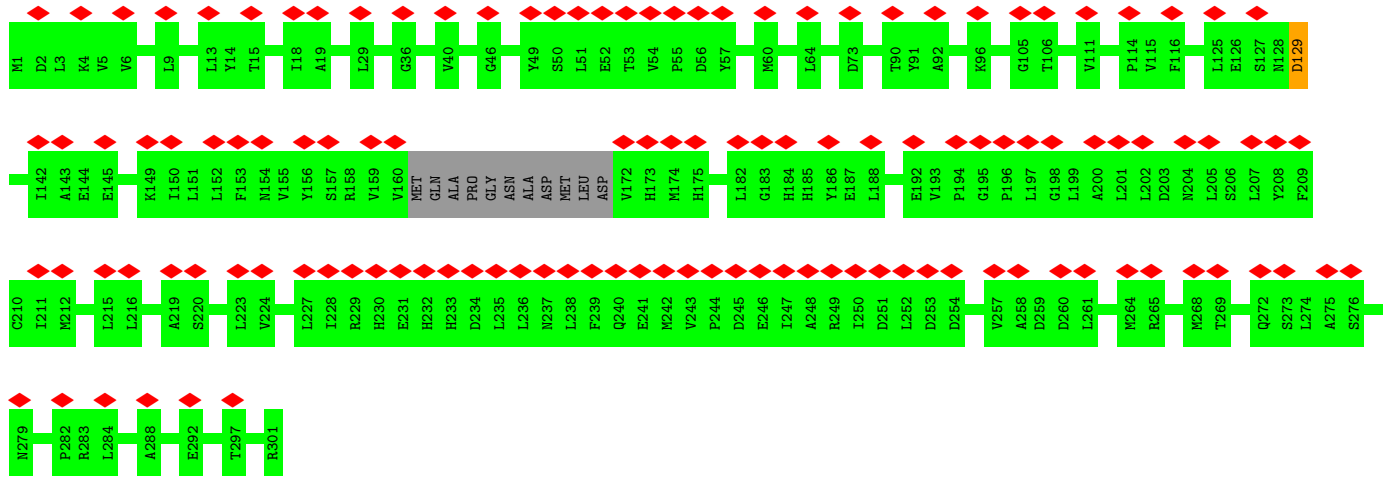


• Molecule 3: Triplex capsid protein 1

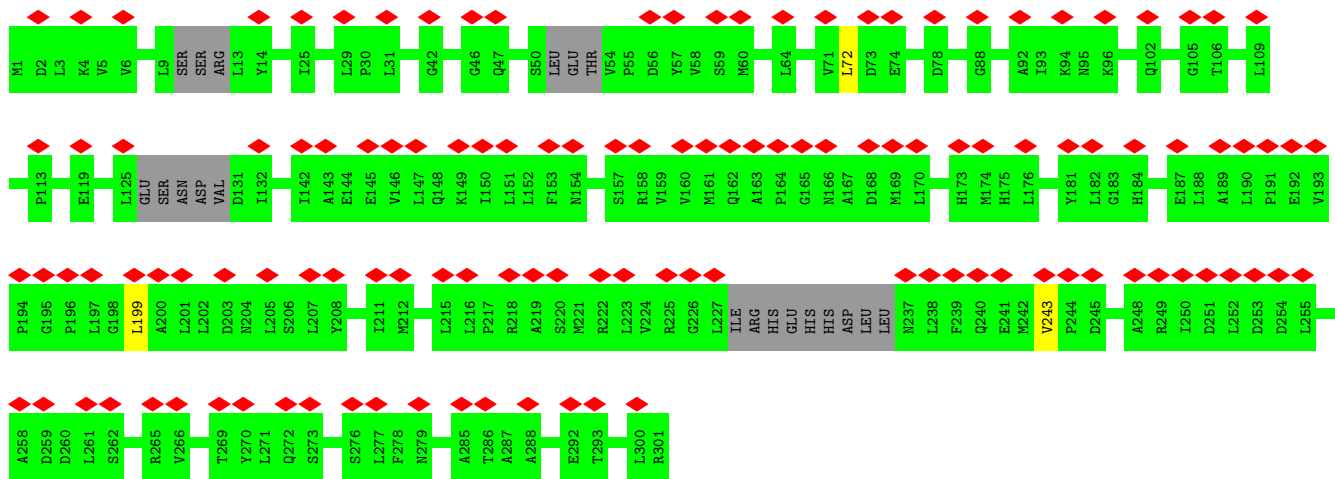
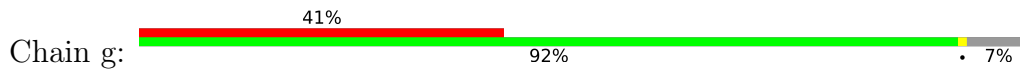


• Molecule 4: Triplex capsid protein 2

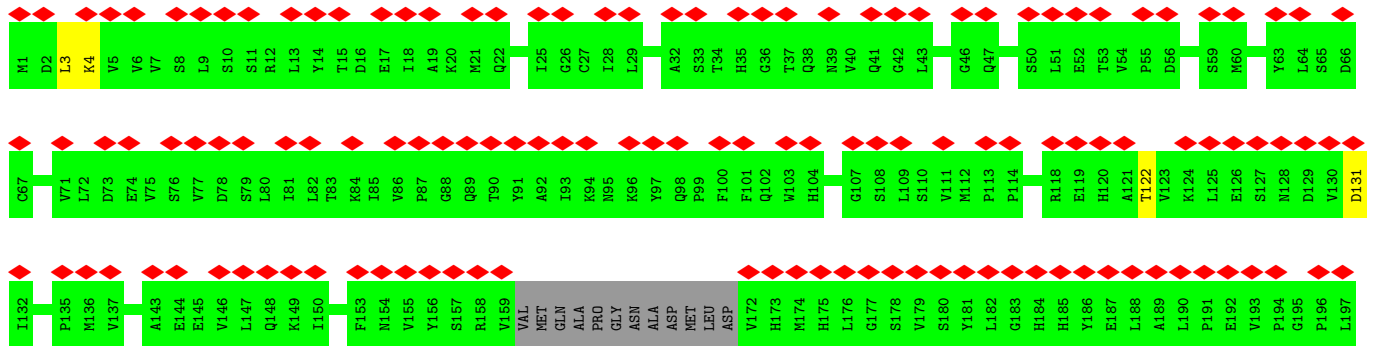
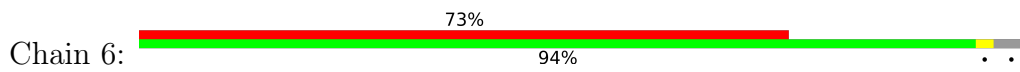


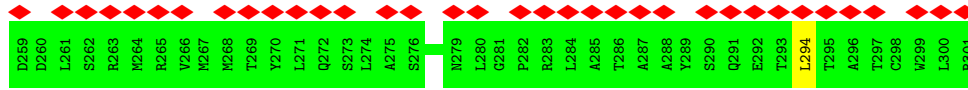
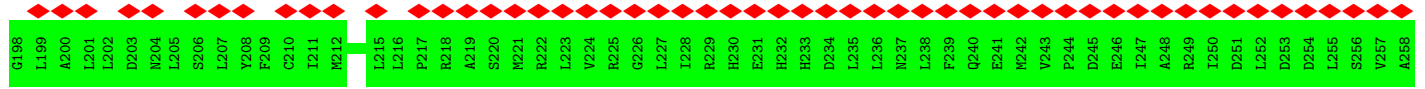


• Molecule 4: Triplex capsid protein 2

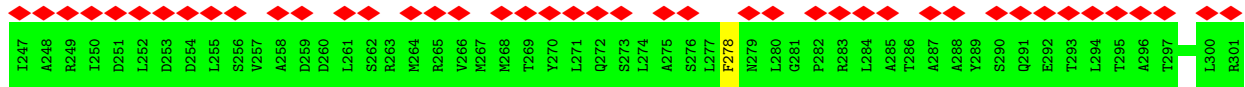
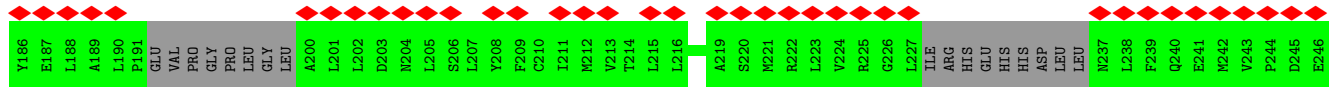
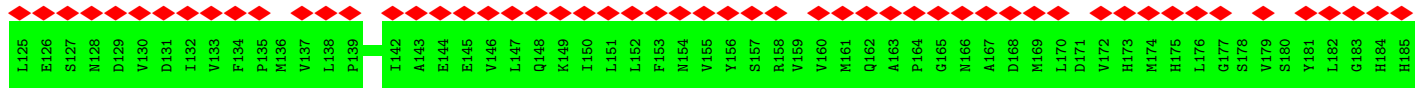
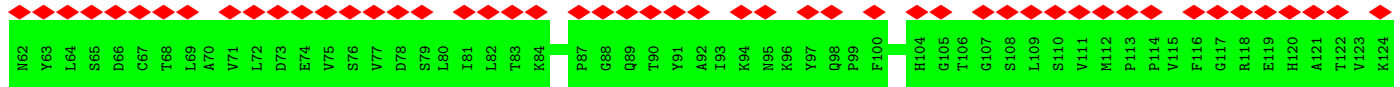
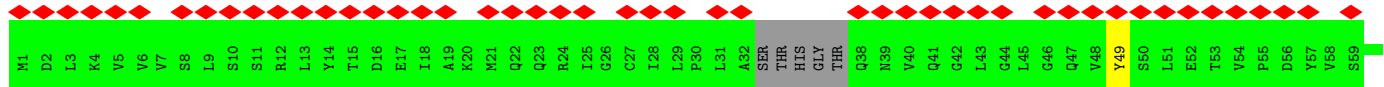
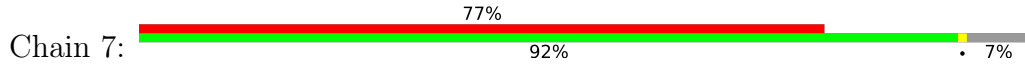


• Molecule 4: Triplex capsid protein 2





• Molecule 4: Triplex capsid protein 2



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of particles used	137356	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 ($e^-/\text{\AA}^2$)	48	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.064	Depositor
Minimum map value	-0.033	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.011	Depositor
Map size (Å)	392.99997, 392.99997, 392.99997	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.31, 1.31, 1.31	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	2	0.30	0/636	0.61	0/861
1	Y	0.28	0/636	0.52	1/861 (0.1%)
1	Z	0.29	0/636	0.49	0/861
1	m	0.31	0/615	0.57	1/832 (0.1%)
1	y	0.31	0/636	0.54	0/861
2	S	0.37	0/10737	0.53	0/14589
2	T	0.37	0/10642	0.56	4/14463 (0.0%)
2	W	0.34	0/10706	0.54	2/14549 (0.0%)
2	l	0.32	0/10114	0.52	0/13734
2	x	0.36	0/10648	0.54	1/14471 (0.0%)
3	5	0.29	0/2511	0.52	0/3418
3	e	0.33	0/2572	0.54	1/3503 (0.0%)
4	6	0.30	0/2320	0.59	2/3159 (0.1%)
4	7	0.29	0/2228	0.57	0/3029
4	f	0.31	0/2327	0.56	1/3169 (0.0%)
4	g	0.31	0/2233	0.59	2/3037 (0.1%)
All	All	0.34	0/70197	0.54	15/95397 (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
2	S	0	1
2	T	0	2
2	W	0	1
3	5	0	1
4	6	0	1
4	7	0	1
All	All	0	7

There are no bond length outliers.

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	T	817	LEU	CA-CB-CG	8.76	135.45	115.30
4	6	3	LEU	CA-CB-CG	6.49	130.22	115.30
4	g	72	LEU	CA-CB-CG	6.07	129.26	115.30
4	f	129	ASP	CB-CG-OD1	5.98	123.69	118.30
4	g	199	LEU	CA-CB-CG	5.86	128.78	115.30
1	Y	23	LEU	CA-CB-CG	5.85	128.75	115.30
4	6	294	LEU	CA-CB-CG	5.72	128.45	115.30
3	e	20	LEU	CA-CB-CG	5.57	128.12	115.30
2	T	806	ASP	CB-CG-OD1	5.48	123.23	118.30
2	x	1280	LEU	CA-CB-CG	5.42	127.77	115.30
2	T	428	ASP	CB-CG-OD2	5.21	122.98	118.30
2	W	828	LEU	CA-CB-CG	5.12	127.08	115.30
1	m	48	LEU	CA-CB-CG	5.12	127.06	115.30
2	W	21	LEU	CA-CB-CG	5.08	126.99	115.30
2	T	55	LEU	CA-CB-CG	5.04	126.89	115.30

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	5	307	VAL	Peptide
4	6	122	THR	Peptide
4	7	278	PHE	Peptide
2	S	1357	HIS	Peptide
2	T	1357	HIS	Peptide
2	T	817	LEU	Peptide
2	W	1357	HIS	Peptide

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	2	72/176 (41%)	64 (89%)	8 (11%)	0	100	100
1	Y	72/176 (41%)	65 (90%)	7 (10%)	0	100	100
1	Z	72/176 (41%)	67 (93%)	5 (7%)	0	100	100
1	m	69/176 (39%)	64 (93%)	5 (7%)	0	100	100
1	y	72/176 (41%)	65 (90%)	7 (10%)	0	100	100
2	S	1327/1381 (96%)	1246 (94%)	80 (6%)	1 (0%)	51	83
2	T	1319/1381 (96%)	1222 (93%)	97 (7%)	0	100	100
2	W	1321/1381 (96%)	1243 (94%)	78 (6%)	0	100	100
2	l	1237/1381 (90%)	1164 (94%)	73 (6%)	0	100	100
2	x	1321/1381 (96%)	1243 (94%)	78 (6%)	0	100	100
3	5	303/364 (83%)	285 (94%)	17 (6%)	1 (0%)	41	74
3	e	311/364 (85%)	300 (96%)	11 (4%)	0	100	100
4	6	285/301 (95%)	269 (94%)	16 (6%)	0	100	100
4	7	271/301 (90%)	255 (94%)	16 (6%)	0	100	100
4	f	286/301 (95%)	276 (96%)	10 (4%)	0	100	100
4	g	271/301 (90%)	261 (96%)	10 (4%)	0	100	100
All	All	8609/9717 (89%)	8089 (94%)	518 (6%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	S	1176	HIS
3	5	308	VAL

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	2	68/128 (53%)	66 (97%)	2 (3%)	42	67
1	Y	68/128 (53%)	68 (100%)	0	100	100
1	Z	68/128 (53%)	68 (100%)	0	100	100
1	m	66/128 (52%)	66 (100%)	0	100	100
1	y	68/128 (53%)	68 (100%)	0	100	100
2	S	1136/1171 (97%)	1125 (99%)	11 (1%)	76	86
2	T	1126/1171 (96%)	1115 (99%)	11 (1%)	76	86
2	W	1132/1171 (97%)	1120 (99%)	12 (1%)	73	85
2	l	1070/1171 (91%)	1068 (100%)	2 (0%)	93	97
2	x	1125/1171 (96%)	1120 (100%)	5 (0%)	91	95
3	5	263/289 (91%)	260 (99%)	3 (1%)	73	85
3	e	268/289 (93%)	267 (100%)	1 (0%)	91	95
4	6	258/267 (97%)	256 (99%)	2 (1%)	81	89
4	7	248/267 (93%)	247 (100%)	1 (0%)	91	95
4	f	259/267 (97%)	258 (100%)	1 (0%)	91	95
4	g	247/267 (92%)	246 (100%)	1 (0%)	91	95
All	All	7470/8141 (92%)	7418 (99%)	52 (1%)	84	91

All (52) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	2	65	PHE
1	2	67	VAL
2	S	22	LEU
2	S	136	LEU
2	S	516	THR
2	S	783	ARG
2	S	784	VAL
2	S	788	HIS
2	S	998	ARG
2	S	999	SER
2	S	1138	VAL
2	S	1141	TYR
2	S	1349	VAL
2	T	84	ASP
2	T	87	ARG
2	T	205	ARG

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Mol	Chain	Res	Type
2	T	737	LEU
2	T	795	HIS
2	T	973	ARG
2	T	1149	GLN
2	T	1155	LEU
2	T	1174	LEU
2	T	1176	HIS
2	T	1320	PHE
2	W	43	LYS
2	W	66	VAL
2	W	283	THR
2	W	314	ARG
2	W	395	TYR
2	W	629	PHE
2	W	742	ARG
2	W	1044	MET
2	W	1138	VAL
2	W	1252	ASP
2	W	1380	VAL
2	W	1381	PHE
2	x	384	LEU
2	x	516	THR
2	x	542	LEU
2	x	938	ARG
2	x	1297	ARG
3	e	37	ARG
4	f	129	ASP
4	g	243	VAL
2	l	37	PHE
2	l	547	ASP
3	5	86	ARG
3	5	160	ASP
3	5	174	ARG
4	6	4	LYS
4	6	131	ASP
4	7	49	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (116) such sidechains are listed below:

Mol	Chain	Res	Type
1	2	28	GLN
2	S	24	ASN

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Mol	Chain	Res	Type
2	S	385	GLN
2	S	442	ASN
2	S	498	ASN
2	S	509	ASN
2	S	534	ASN
2	S	695	GLN
2	S	788	HIS
2	S	834	HIS
2	S	859	ASN
2	S	997	HIS
2	S	1073	ASN
2	S	1120	HIS
2	S	1122	GLN
2	S	1176	HIS
2	S	1329	GLN
2	S	1357	HIS
2	T	242	GLN
2	T	415	ASN
2	T	475	ASN
2	T	543	HIS
2	T	560	HIS
2	T	834	HIS
2	T	848	HIS
2	T	859	ASN
2	T	988	GLN
2	T	997	HIS
2	T	1022	HIS
2	T	1073	ASN
2	T	1200	ASN
2	T	1241	ASN
2	T	1261	GLN
2	T	1276	ASN
2	T	1329	GLN
2	T	1377	ASN
2	W	24	ASN
2	W	301	GLN
2	W	377	HIS
2	W	433	GLN
2	W	495	ASN
2	W	534	ASN
2	W	596	HIS
2	W	636	ASN

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Mol	Chain	Res	Type
2	W	750	ASN
2	W	824	HIS
2	W	833	GLN
2	W	926	ASN
2	W	946	HIS
2	W	964	HIS
2	W	1056	ASN
2	W	1136	GLN
2	W	1149	GLN
2	W	1179	GLN
2	W	1197	GLN
2	W	1217	GLN
2	W	1292	ASN
2	W	1310	GLN
2	W	1329	GLN
2	W	1357	HIS
2	x	113	GLN
2	x	415	ASN
2	x	454	ASN
2	x	531	HIS
2	x	560	HIS
2	x	596	HIS
2	x	627	HIS
2	x	722	ASN
2	x	745	GLN
2	x	834	HIS
2	x	913	ASN
2	x	984	ASN
2	x	997	HIS
2	x	1022	HIS
2	x	1033	GLN
2	x	1122	GLN
2	x	1139	ASN
2	x	1306	ASN
2	x	1357	HIS
1	y	32	GLN
1	y	37	ASN
3	e	102	ASN
3	e	115	GLN
3	e	136	ASN
3	e	227	GLN
3	e	291	ASN

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Mol	Chain	Res	Type
4	f	35	HIS
4	f	41	GLN
4	f	154	ASN
4	f	175	HIS
4	f	237	ASN
4	g	62	ASN
4	g	104	HIS
4	g	184	HIS
4	g	240	GLN
2	l	94	GLN
2	l	442	ASN
2	l	454	ASN
2	l	564	HIS
2	l	586	GLN
2	l	745	GLN
2	l	761	GLN
2	l	824	HIS
2	l	834	HIS
2	l	859	ASN
2	l	1056	ASN
2	l	1139	ASN
3	5	136	ASN
3	5	309	GLN
3	5	312	HIS
4	6	98	GLN
4	6	120	HIS
4	6	204	ASN
4	6	233	HIS
4	7	148	GLN
4	7	162	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.

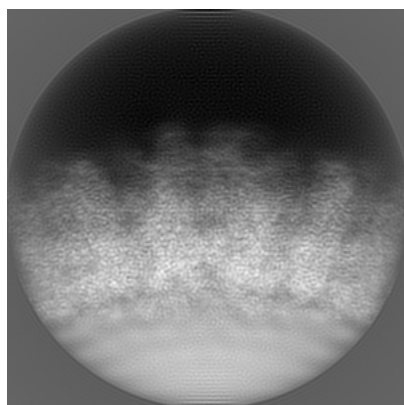
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30159. These allow visual inspection of the internal detail of the map and identification of artifacts.

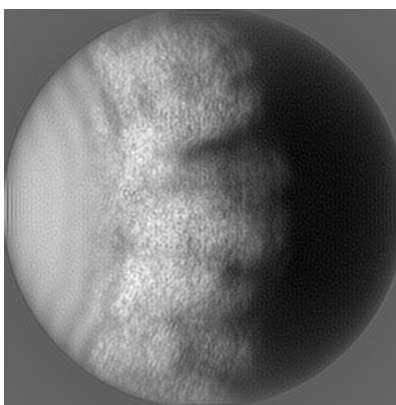
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

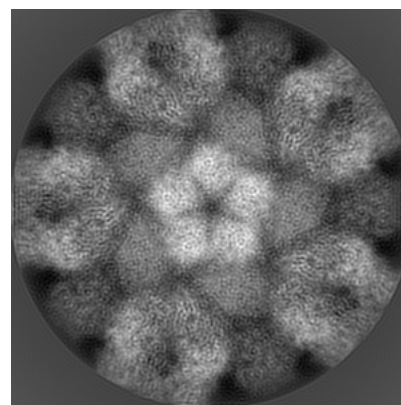
6.1.1 Primary map



X



Y

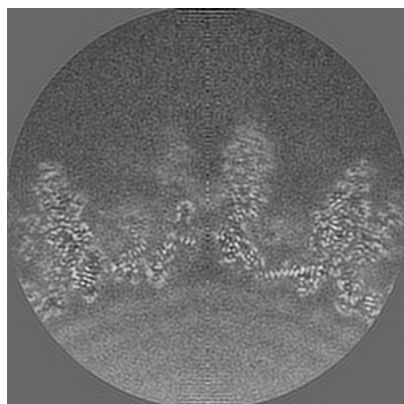


Z

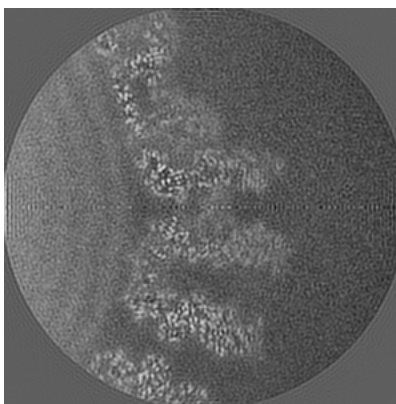
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

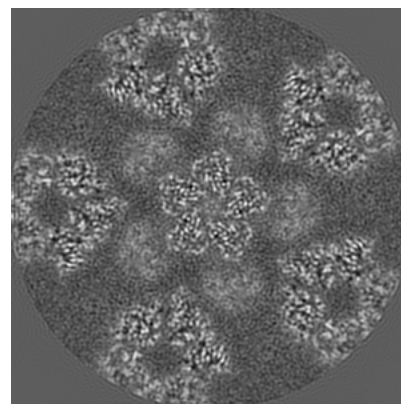
6.2.1 Primary map



X Index: 150



Y Index: 150

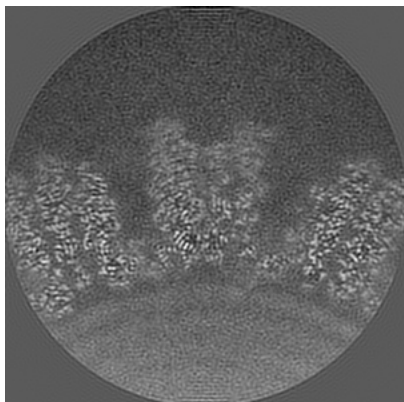


Z Index: 150

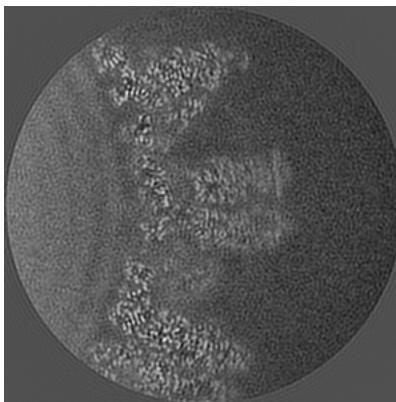
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

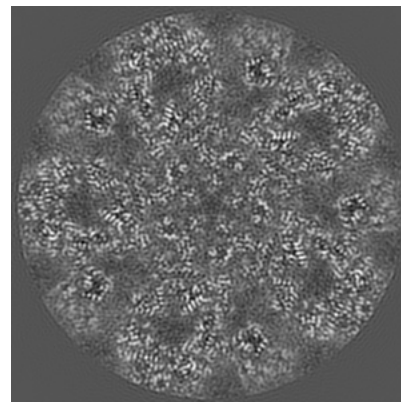
6.3.1 Primary map



X Index: 137



Y Index: 122



Z Index: 108

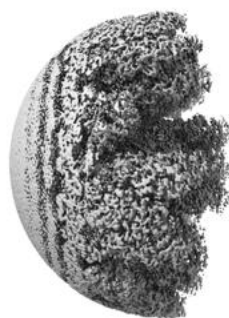
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

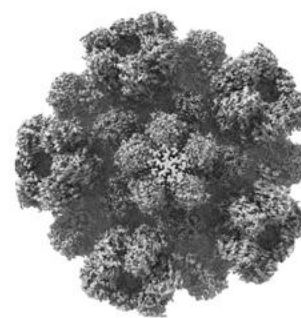
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.011. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

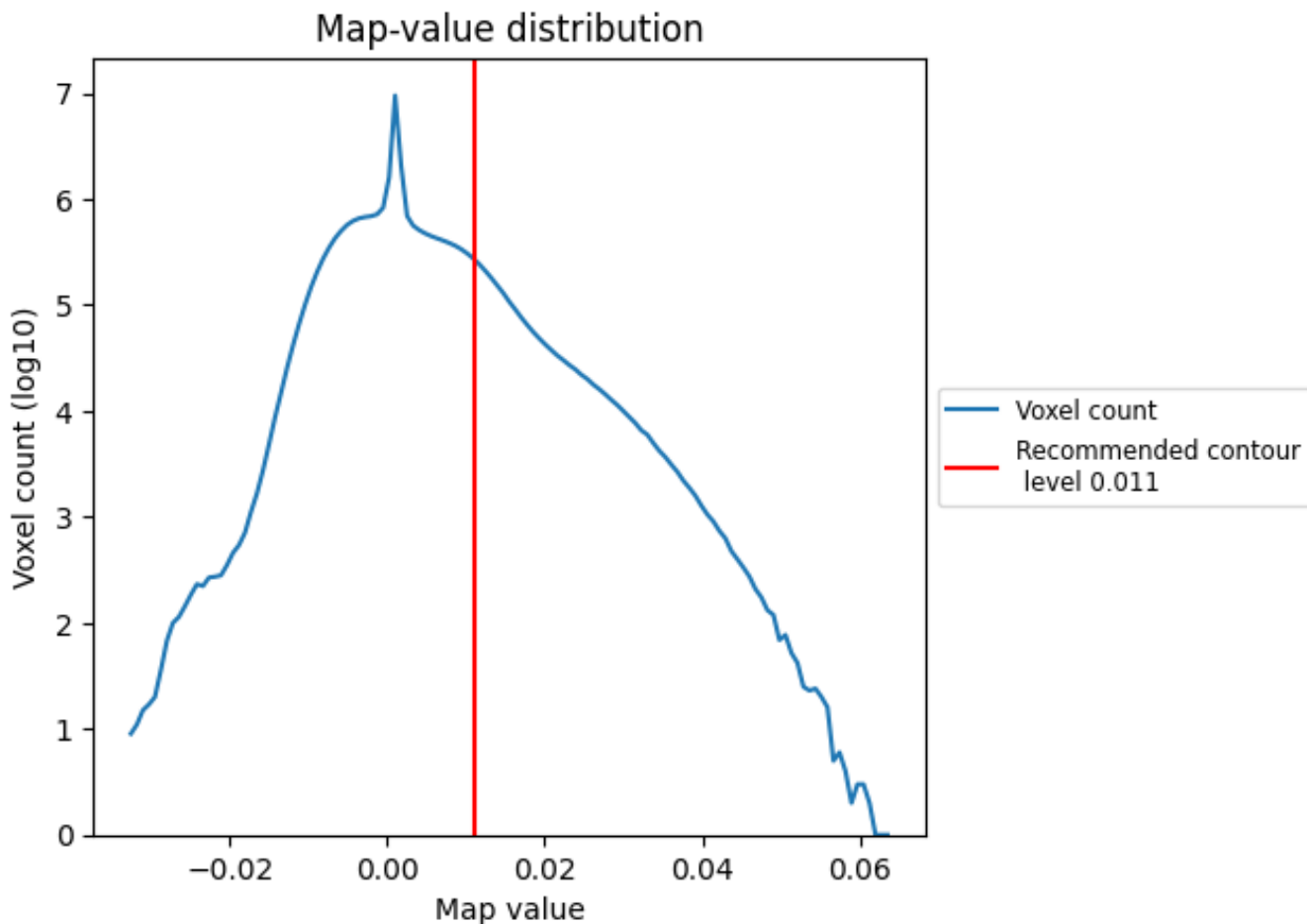
6.5 Mask visualisation

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

7 Map analysis [i](#)

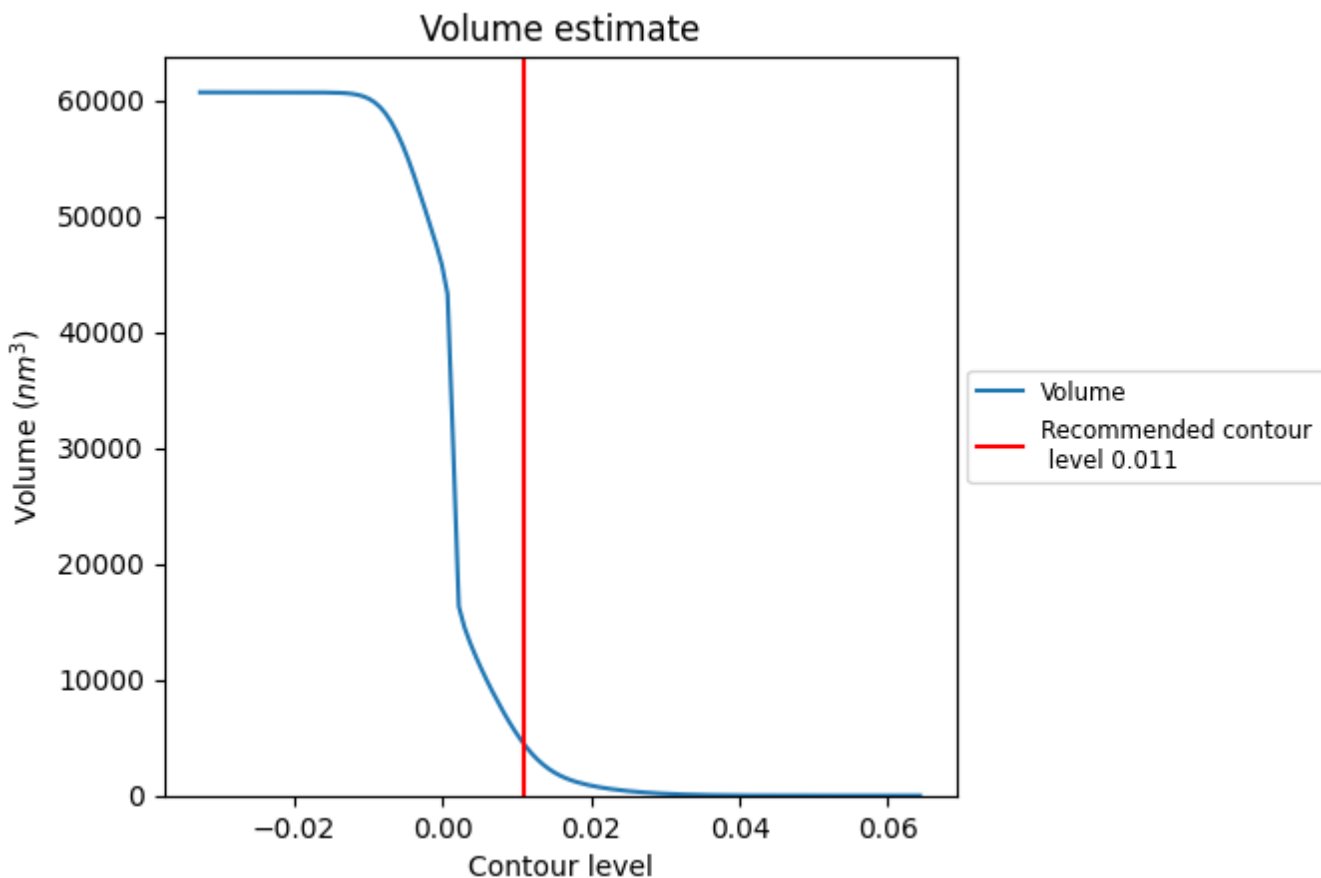
This section contains the results of statistical analysis of the map.

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.

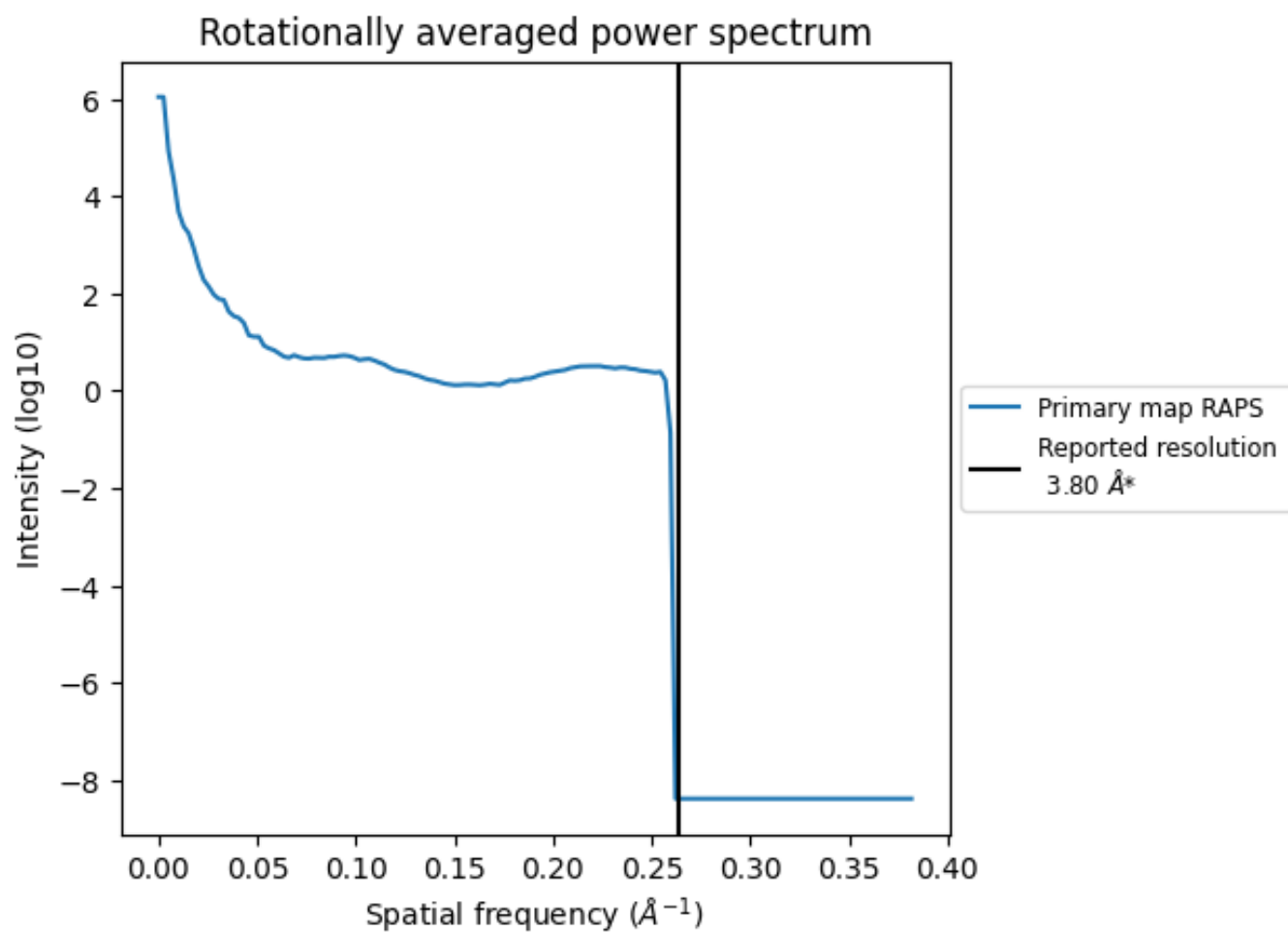
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 4476 nm³; this corresponds to an approximate mass of 4043 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 0.263 Å⁻¹

8 Fourier-Shell correlation

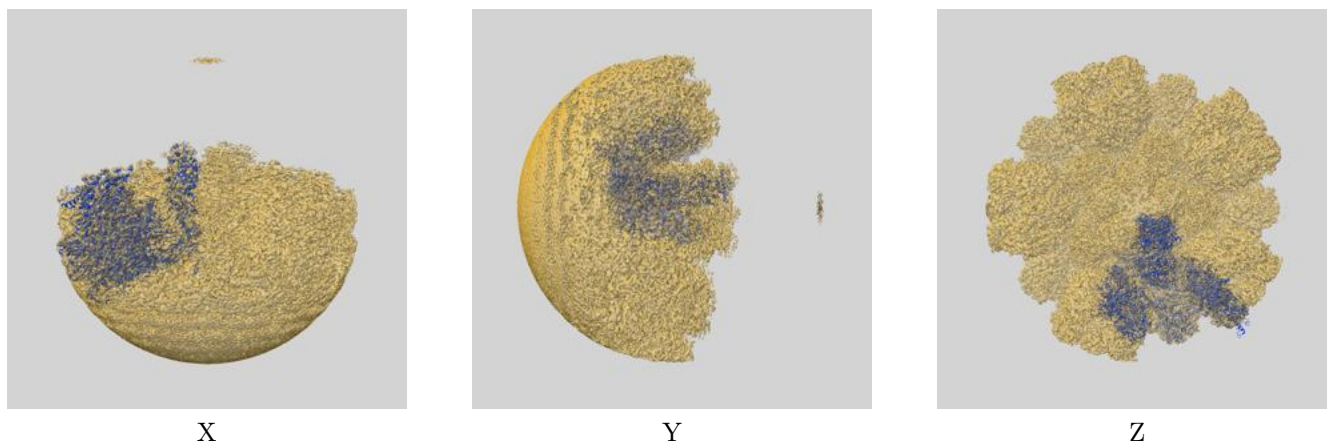
This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

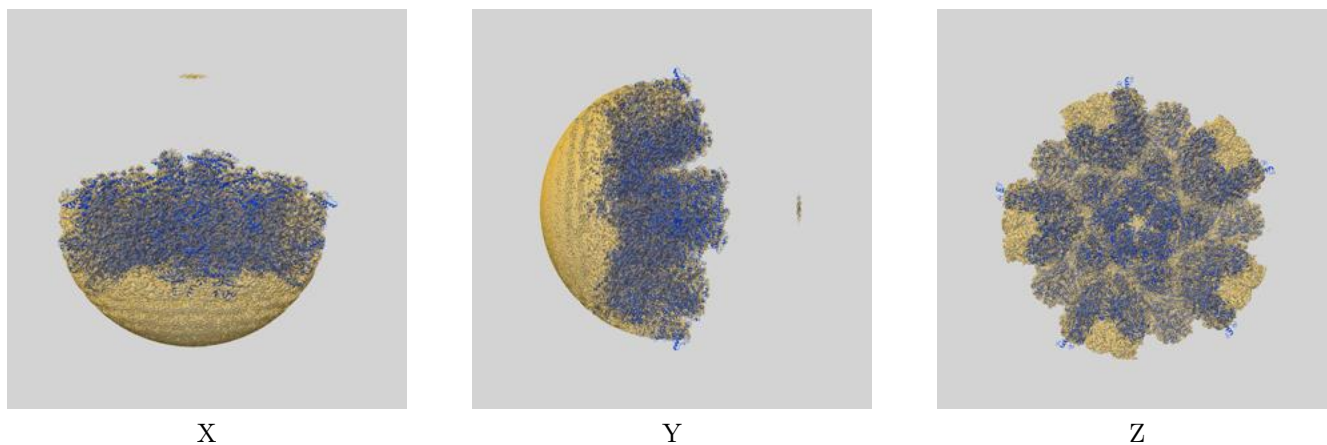
This section contains information regarding the fit between EMDB map EMD-30159 and PDB model 7BR8. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)

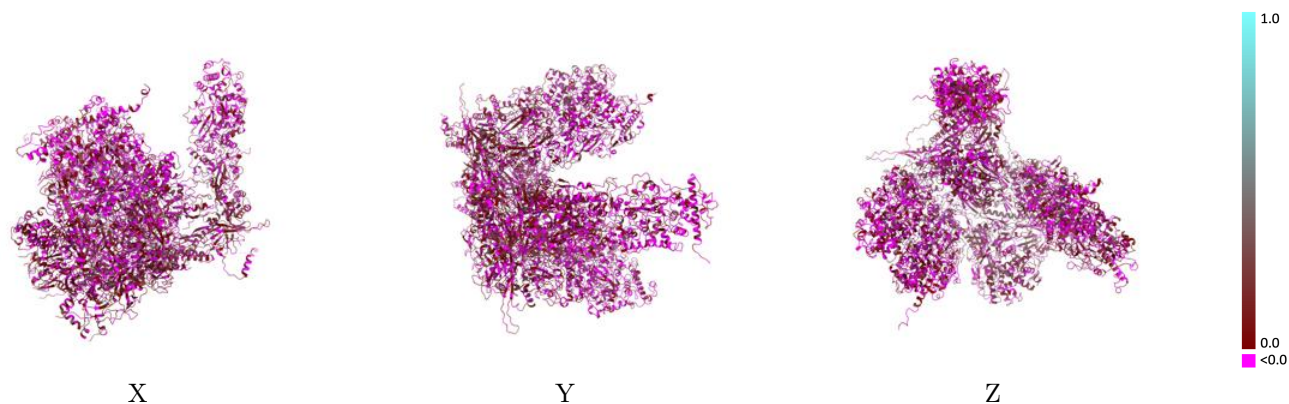


9.1.2 Map-model assembly overlay [i](#)



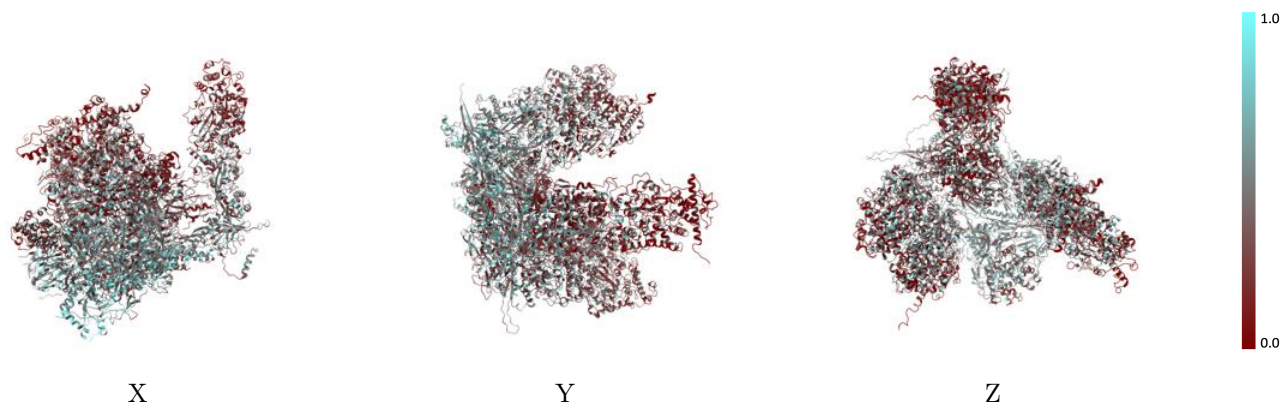
The images above show the 3D surface view of the map at the recommended contour level 0.011 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



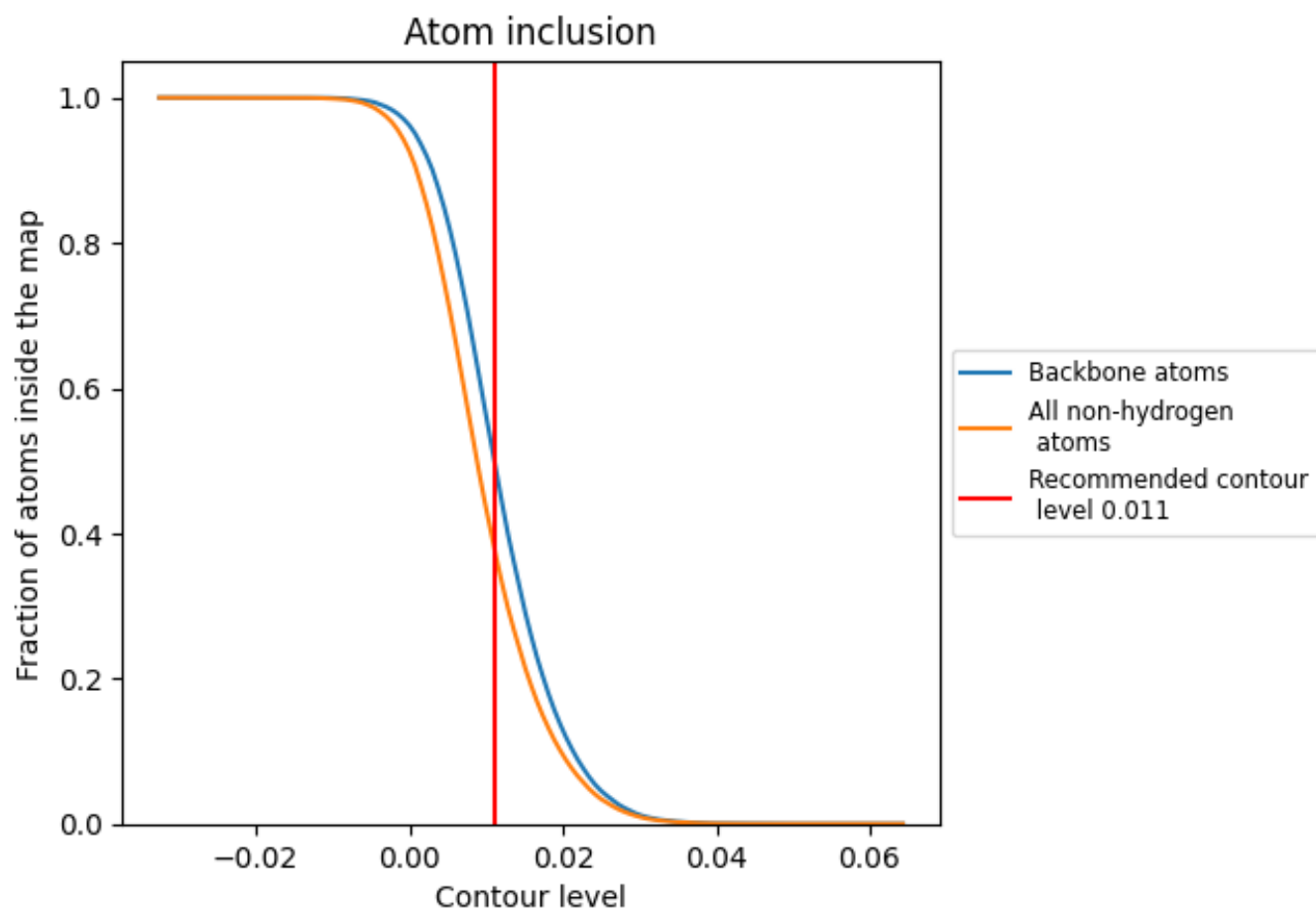
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.011).



































9.4 Atom inclusion [i](#)



At the recommended contour level, 50% of all backbone atoms, 38% 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 (0.011) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3837	 0.0390
2	 0.0900	 0.0040
5	 0.3403	 0.0580
6	 0.2568	 0.0380
7	 0.2146	 0.0200
S	 0.3922	 0.0270
T	 0.4152	 0.0250
W	 0.4587	 0.0620
Y	 0.1883	 -0.0060
Z	 0.1433	 -0.0060
e	 0.4820	 0.0630
f	 0.4464	 0.0640
g	 0.4598	 0.0620
l	 0.3236	 0.0360
m	 0.0829	 -0.0260
x	 0.4186	 0.0370
y	 0.1567	 0.0320

