



wwPDB EM Validation Summary Report ⓘ

Mar 19, 2024 – 02:03 PM JST

PDB ID : 5GKY
EMDB ID : EMD-9518
Title : Structure of RyR1 in a closed state (C1 conformer)
Authors : Bai, X.C.; Yan, Z.; Wu, J.P.; Yan, N.
Deposited on : 2016-07-07
Resolution : 3.80 Å (reported)

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

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

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:

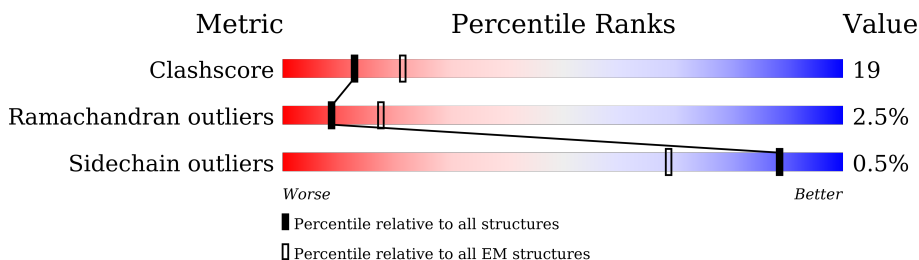
EMDB validation analysis : 0.0.1.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

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)
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	A	5037	
1	C	5037	
1	E	5037	
1	G	5037	
2	B	108	
2	D	108	
2	F	108	
2	H	108	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 111036 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 Ryanodine receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3660	26926	17112	4683	4974	157	1	0
1	C	3660	26926	17112	4683	4974	157	1	0
1	E	3660	26926	17112	4683	4974	157	1	0
1	G	3660	26926	17112	4683	4974	157	1	0

- Molecule 2 is a protein called Peptidyl-prolyl cis-trans isomerase FKBP1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	107	832	527	146	155	4	0	0
2	D	107	832	527	146	155	4	0	0
2	F	107	832	527	146	155	4	0	0
2	H	107	832	527	146	155	4	0	0

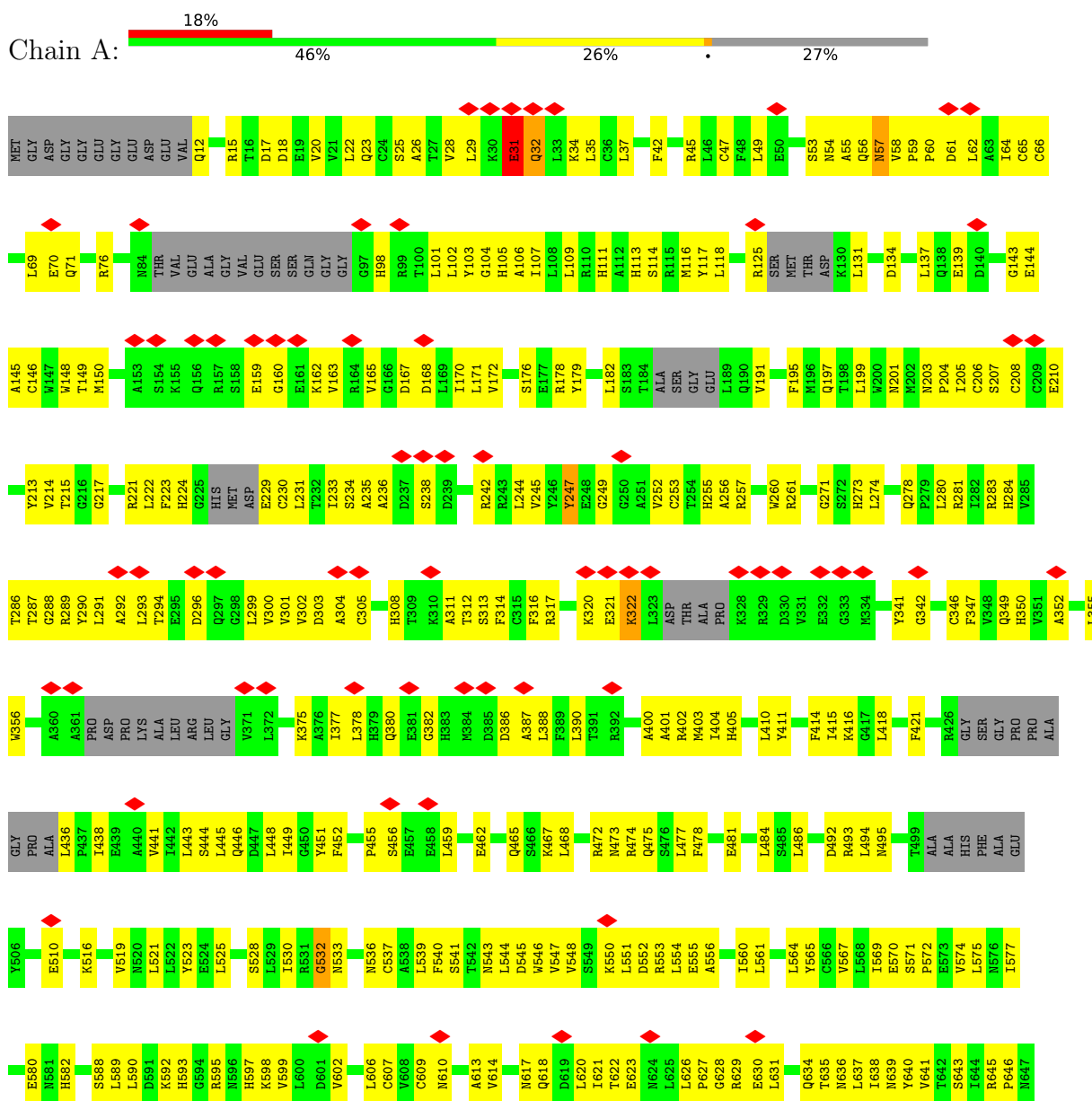
- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

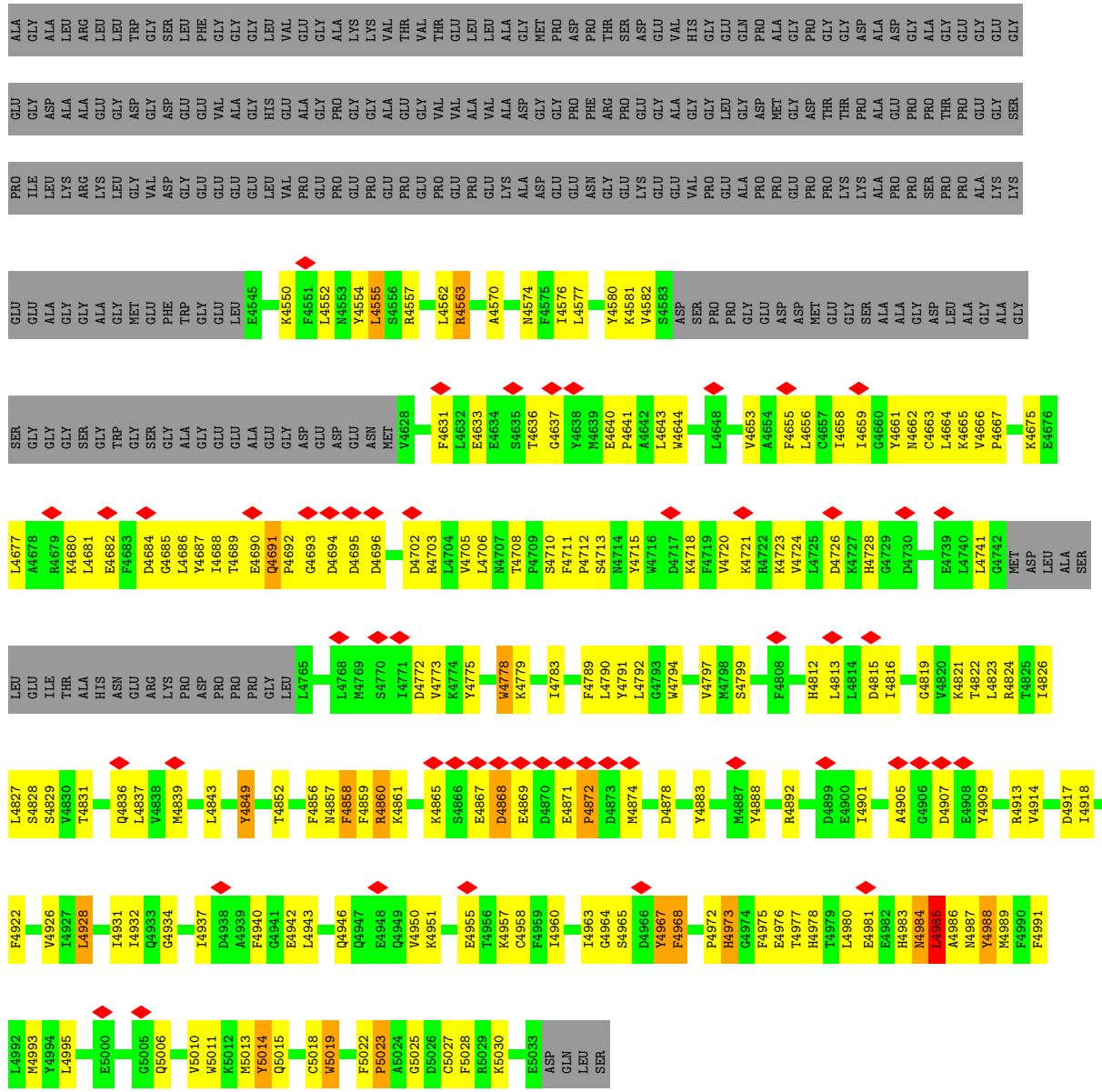
Mol	Chain	Residues	Atoms		AltConf
3	A	1	Total	Zn	0
			1	1	
3	C	1	Total	Zn	0
			1	1	
3	E	1	Total	Zn	0
			1	1	
3	G	1	Total	Zn	0
			1	1	

3 Residue-property plots

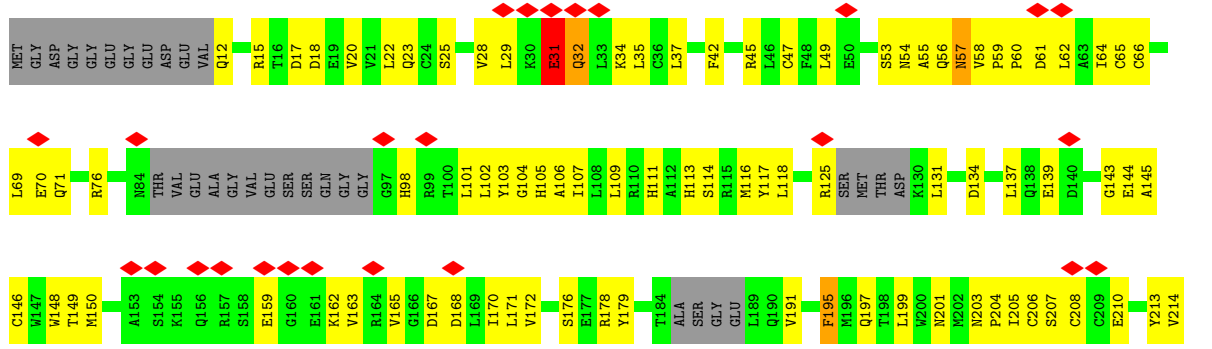
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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.

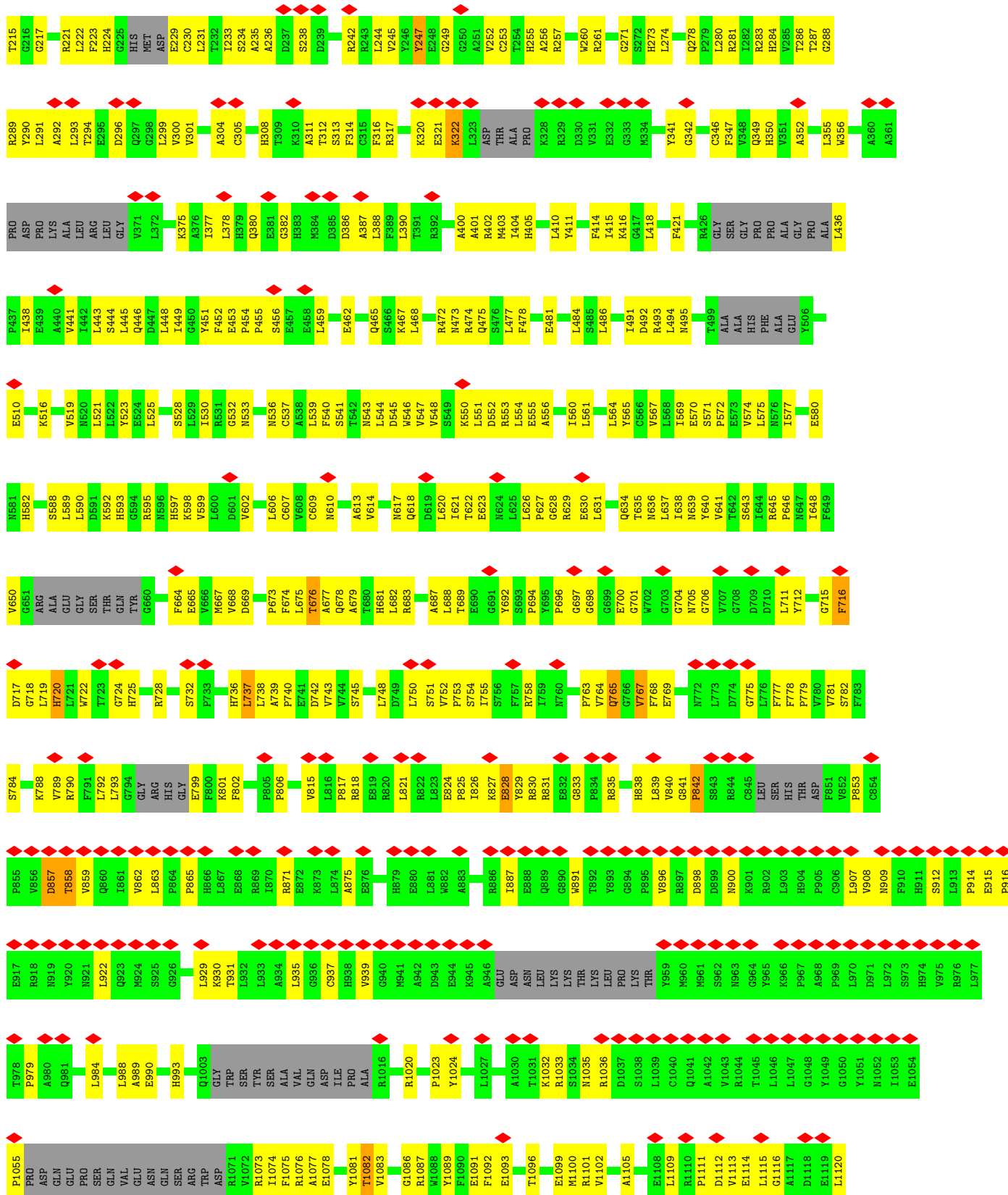
• Molecule 1: Ryanodine receptor 1

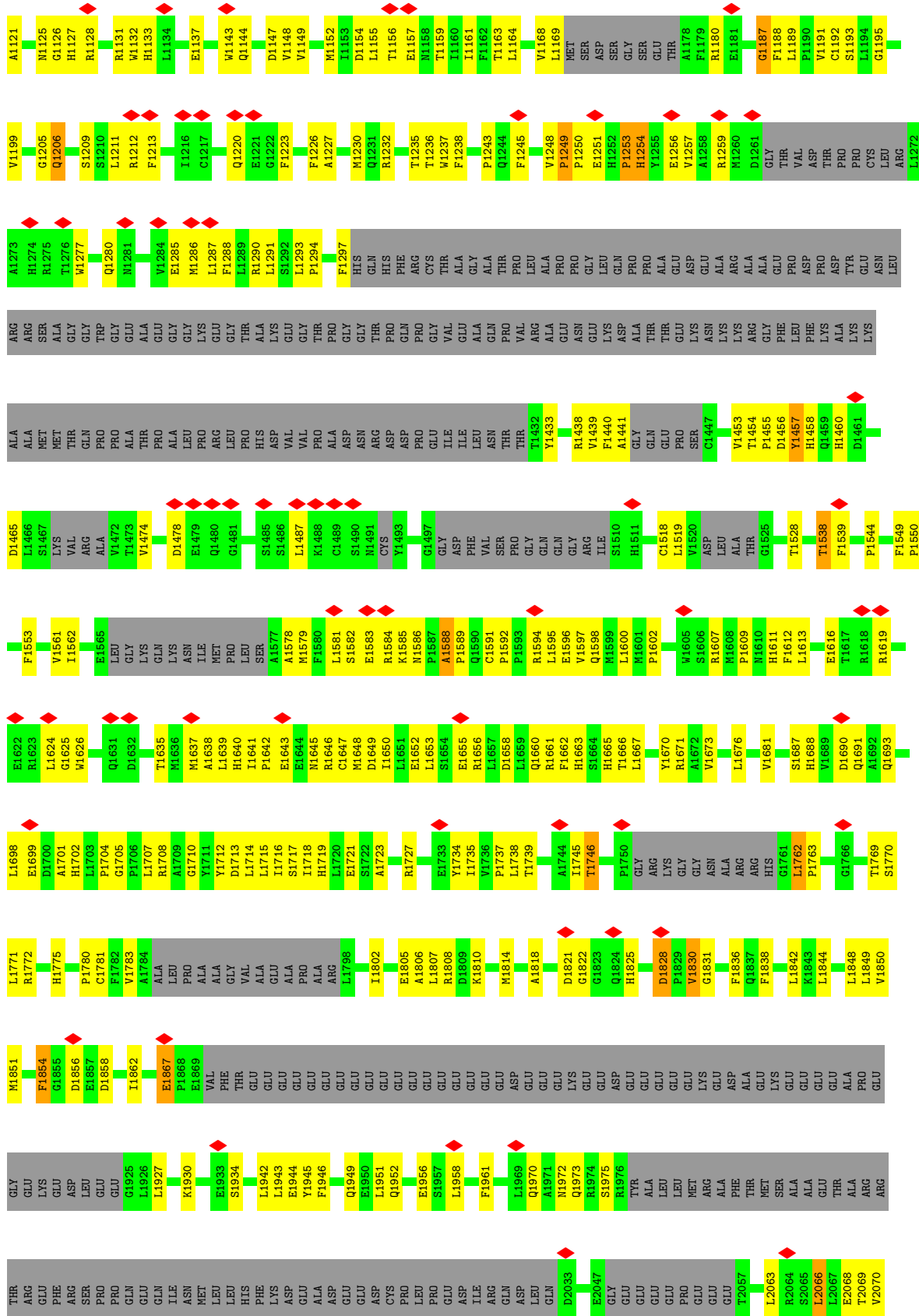




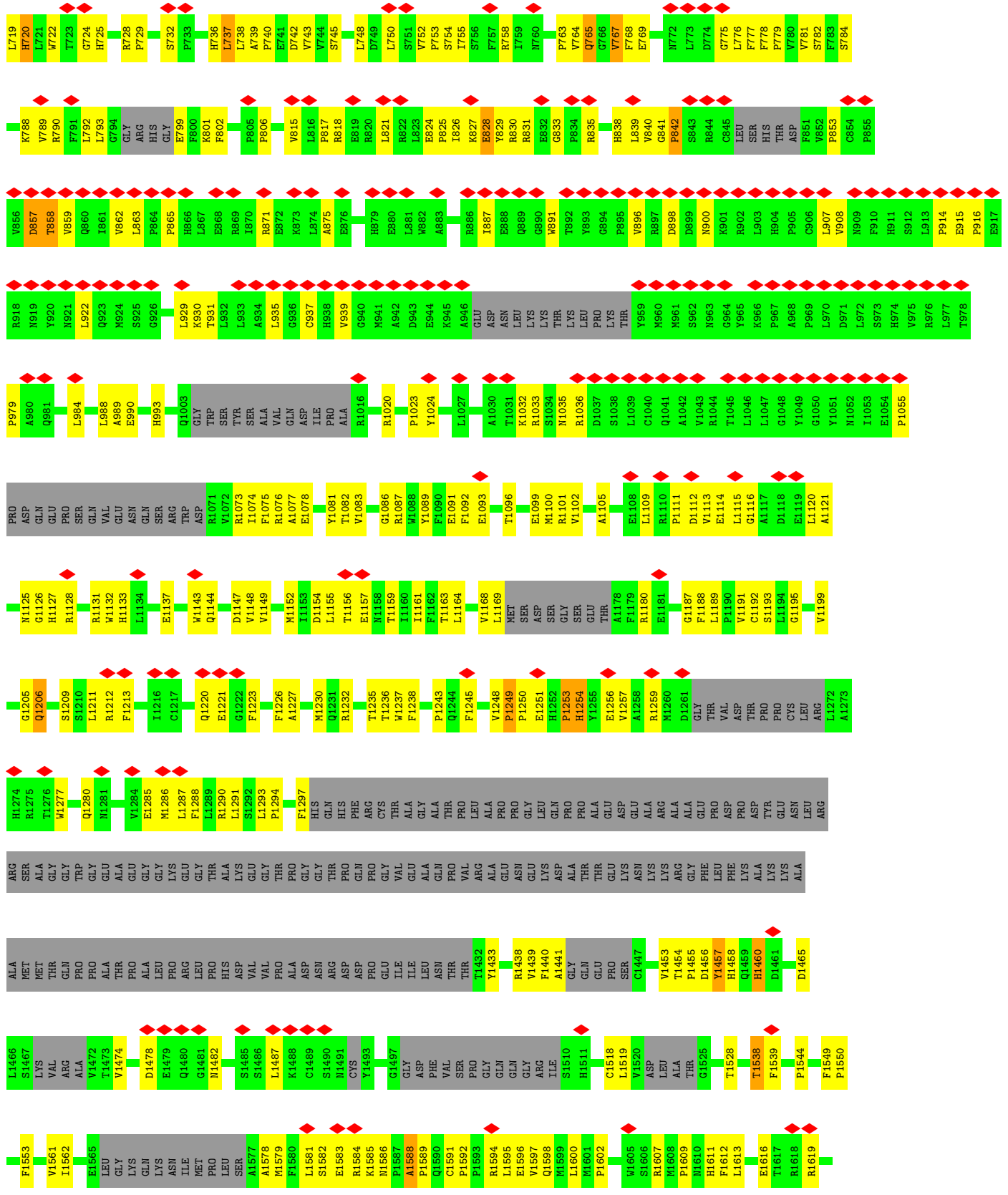
• Molecule 1: Ryanodine receptor 1



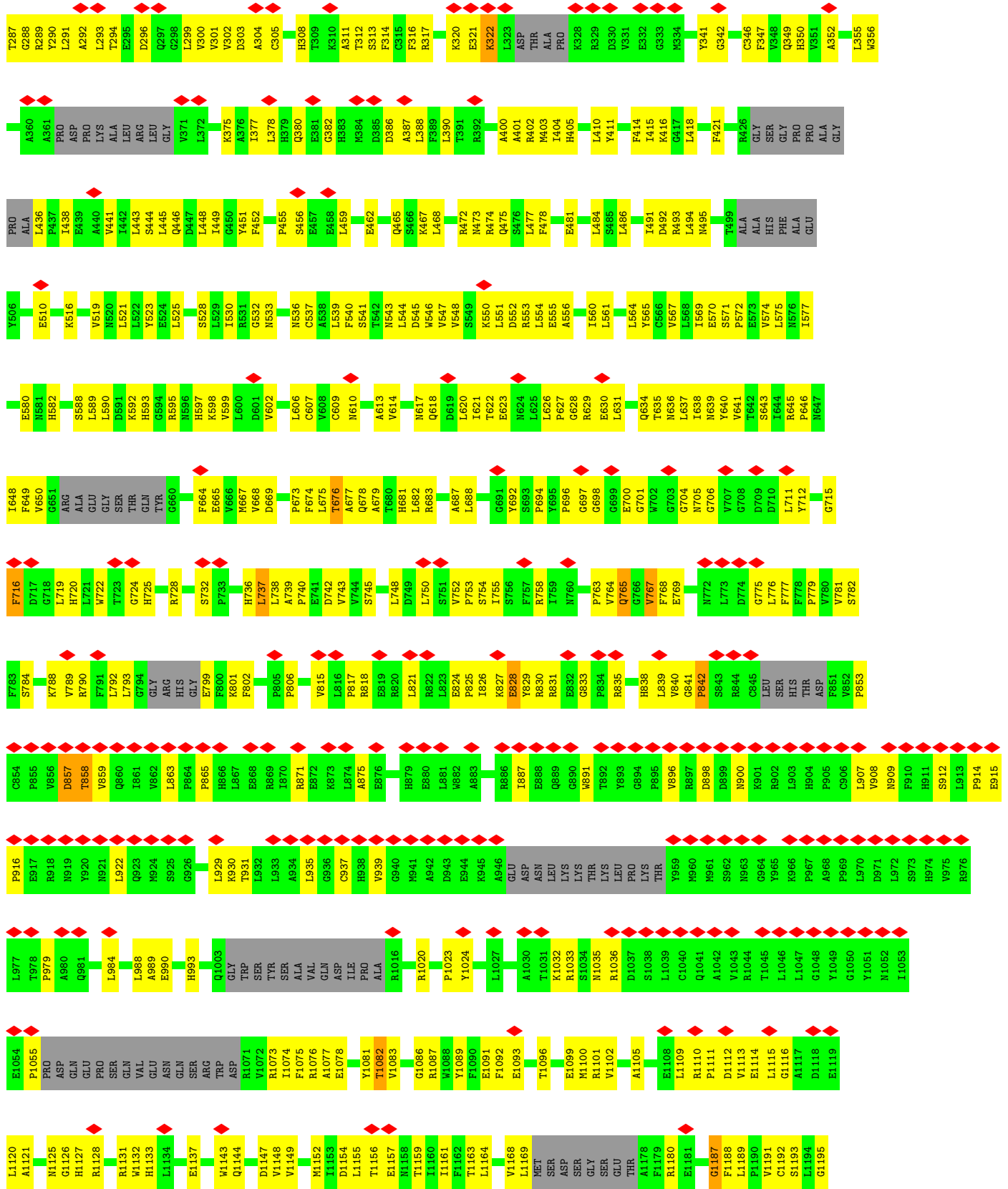


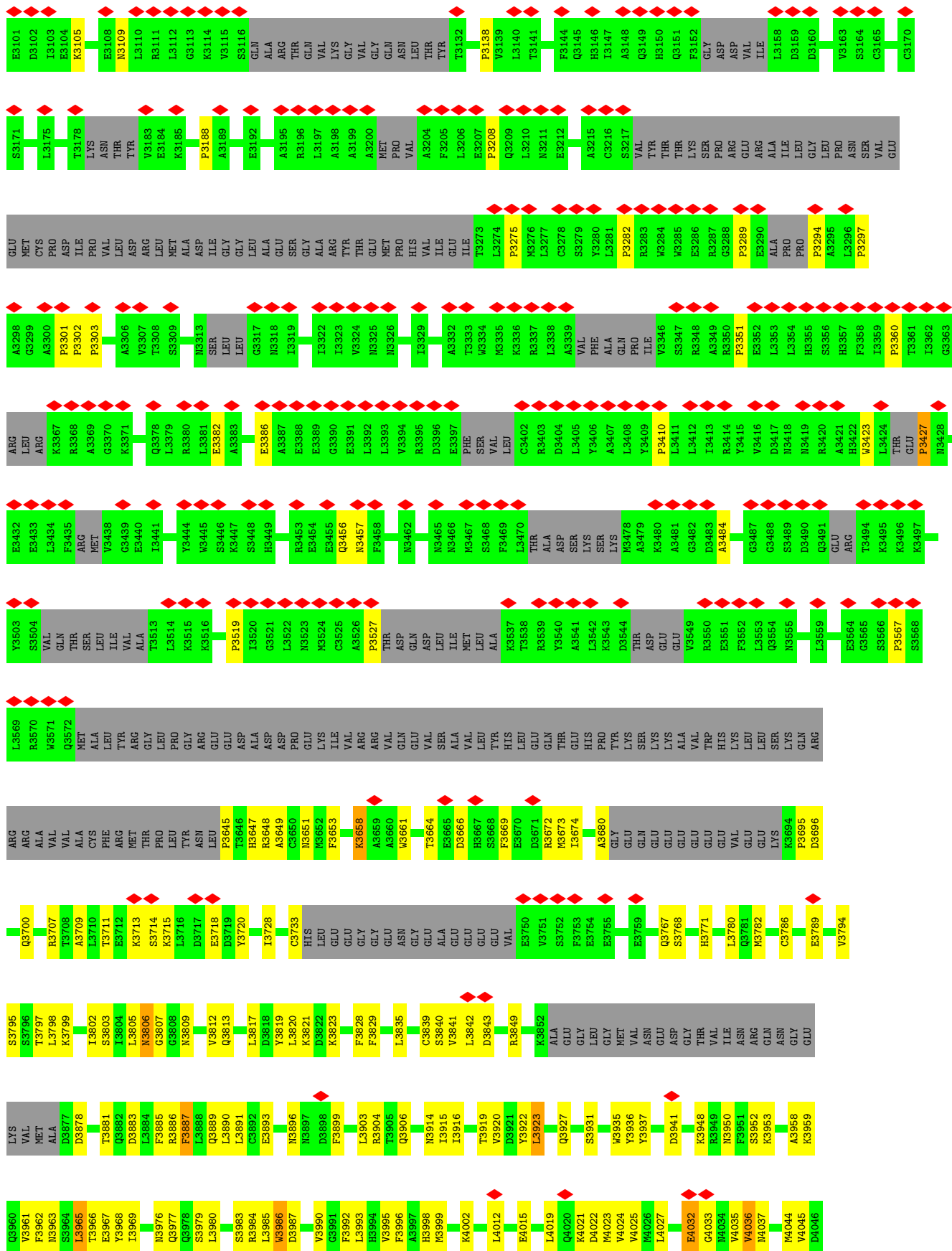


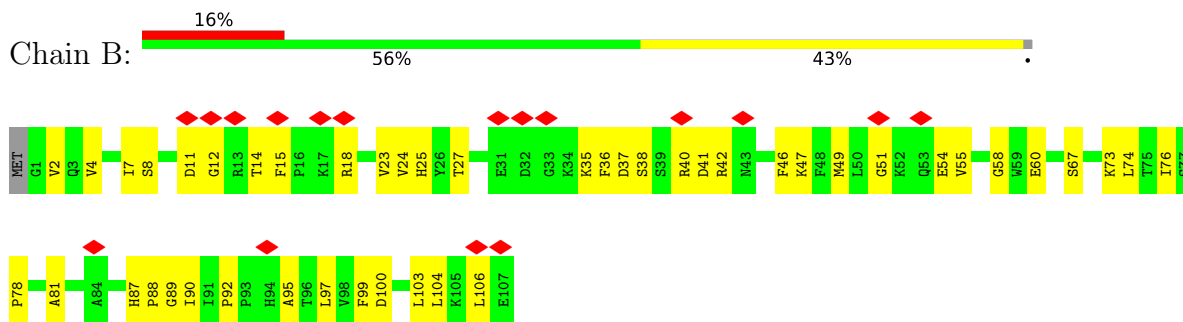
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ARG	SER	F3095	F3096	E3097	S3098	A3099	S3100	E3101	D3102	I3103	L3110	R3111	L3112	G3113	K3114	V3115	S3116	GLN	ALA	ARG	ARG	THR	GLN	GLN	VAL	LYS	GLY	VAL	GLY	ASN	GLU	THR	T3132	A3135	P3138	V3139	L3140	T3141	F3144	Q3145	H3146	I3147	L3148	Q3149	H3150	Q3151	F3152	GLY	ASP	ASP	VAL	ILE	L3158	D3159	D3160			
S3164	G3170	T3178	LYS	ASN	THR	TYR	V3183	E3184	K3185	P3188	A3189	E3192	C3193	L3194	A3195	R3196	L3197	A3198	A3199	A3200	MET	PRO	VAL	A3204	F3205	L3206	E3207	P3208	Q3209	L3210	N3211	E3212	A3215	C3216	S3217	VAL	TYR	THR	THR	LYS	SER	PRO	ARG	GLU	ARG	ALA	ILE	PRO	LEU	GLY	LEU	PRO	ASN	SER				
VAL	GLU	GLU	MET	CYS	PRO	ASP	ILE	PRO	VAL	LEU	ASP	ARG	ALA	ALA	ASP	ILE	GLY	GLY	GLY	ALA	ALA	ARG	THR	TYR	THR	GLU	GLU	PRO	VAL	HIS	VAL	ILE	ILE	T3273	L3274	P3275	M3276	L3277	C3278	S3279	Y3280	L3281	P3282	R3283	W3284	W3285	W3286	R3287	G3288	P3289	E3290	ALA	PRO	PRO	P3294			
P3297	A3298	G3299	A3300	P3301	P3302	P3303	C3304	T3305	A3306	V3307	T3308	S3309	N3313	SER	LEU	LEU	G3317	N3318	I3319	I3322	I3323	V3324	N3325	N3326	I3329	D3330	E3331	A3332	T3333	W3334	M3335	K3336	R3337	L3338	A3339	VAL	PHE	ALA	GLN	ILE	V3346	PRO	PRO	ILE	V3347	S3348	R3349	A3349	R3350	P3351	E3352	L3353	L3354	H3355	S3356	H3357	I3358	P3360
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GLU	P3427	N3428	A3431	E3432	E3433	L3434	F3435	MET	V3438	G3439	E3440	I3441	Y3444	W3445	S3446	K3447	S3448	H3449	R3453	E3454	E3455	Q3456	N3457	F3458	W3462	N3465	S3468	F3469	L3470	THR	ALA	ASP	SER	LYS	LYS	M3478	A3479	K3480	A3481	G3482	D3483	A3484	G3487	G3488	S3489	D3490	Q3491	GLU	ARG	T3494								
K3495	K3496	K3497	R3498	Y3503	S3504	VAL	GLN	THR	SER	LEU	ILE	VAL	T3513	L3514	K3515	K3516	M3517	L3518	P3519	I3520	G3521	L3522	M3523	N3524	C3525	A3526	P3527	THR	ASP	GLN	ASP	LEU	ILE	MET	LEU	ALA	K3537	T3538	R3539	Y3540	A3541	L3542	K3543	D3544	THR	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	L3559					
E3564	G3565	S3566	P3567	S3568	L3569	K3570	W3571	Q3572	MET	ALA	ALA	THR	VAL	ARG	GLY	PRO	LEU	TYR	ASN	GLY	GLU	GLU	ASP	ASP	PRO	GLU	LYS	ILE	VAL	ARG	VAL	GLN	VAL	ALA	VAL	THR	HIS	GLY	T3538	R3539	Y3540	A3541	L3542	K3543	D3544	THR	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	L3559				
LEU	LEU	SER	LYS	GLN	ARG	ARG	ARG	ALA	VAL	VAL	VAL	VAL	T3513	L3514	K3515	K3516	M3517	L3518	P3519	I3520	G3521	L3522	M3523	N3524	C3525	A3526	P3527	THR	ASP	GLN	ASP	LEU	ILE	MET	LEU	ALA	K3537	T3538	R3539	Y3540	A3541	L3542	K3543	D3544	THR	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	L3559					
LEU	LEU	SER	LYS	GLN	ARG	ARG	ARG	ALA	VAL	VAL	VAL	VAL	T3513	L3514	K3515	K3516	M3517	L3518	P3519	I3520	G3521	L3522	M3523	N3524	C3525	A3526	P3527	THR	ASP	GLN	ASP	LEU	ILE	MET	LEU	ALA	K3537	T3538	R3539	Y3540	A3541	L3542	K3543	D3544	THR	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	L3559					
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GLU	GLU	VAL	GLY	LYS	K3694	P3695	D3696	P3697	L3698	H3699	Q3700	L3701	A3709	L3710	T3711	E3712	K3713	S3714	K3715	L3716	D3717	H3647	R3648	N3651	L3654	E3655	S3656	Y3657	K3658	W3661	T3664	E3665	D3666	H3667	S3668	F3669	E3670	D3671	M3672	M3673	I3674	D3675	D3676	L3677	A3680	GLY	GLU	GLN	GLU	GLU	GLU	GLU						
GLU	GLU	VAL	GLY	LYS	K3694	P3695	D3696	P3697	L3698	H3699	Q3700	L3701	A3709	L3710	T3711	E3712	K3713	S3714	K3715	L3716	D3717	H3647	R3648	N3651	L3654	E3655	S3656	Y3657	K3658	W3661	T3664	E3665	D3666	H3667	S3668	F3669	E3670	D3671	M3672	M3673	I3674	D3675	D3676	L3677	A3680	GLY	GLU	GLN	GLU	GLU	GLU	GLU						
GLU	GLU	VAL	GLY	LYS	K3694	P3695	D3696	P3697	L3698	H3699	Q3700	L3701	A3709	L3710	T3711	E3712	K3713	S3714	K3715	L3716	D3717	H3647	R3648	N3651	L3654	E3655	S3656	Y3657	K3658	W3661	T3664	E3665	D3666	H3667	S3668	F3669	E3670	D3671	M3672	M3673	I3674	D3675	D3676	L3677	A3680	GLY	GLU	GLN	GLU	GLU	GLU	GLU						
H3771	H3772	R3773	G3774	A3775	M3776	V3779	L3780	Q3781	M3782	I3783	S3784	S3795	S3796	T3797	L3798	K3799	I3802	L3805	N3806	G3807	G3808	N3809	V3812	Q3813	Q3814	M3815	L3816	L3817	R3818	Y3819	L3820	K3821	K3822	K3823	K3824	E3825	F3828	F3829	L3835	M3836	C3839	S3840	V3841	L3842	D3843	R3849	K3852	ALA										
GLU	GLY	LEU	MET	VAL	ASN	GLU	ASP	GLY	THR	VAL	ILE	ASN	ARG	GLN	ASN	GLY	LYS	VAL	MET	ALA	D3877	D3878	E3879	F3880	T3881	Q3882	D3883	L3884	F3885	R3886	F3887	L3888	Q3889	L3890	L3891	C3892	E3893	N3896	N3897	D3898	F3899	Q3900	N3901	Y3902	L3903	R3904	C3906	L3915	L3916	T3919	V3920	C3921	Y3922					



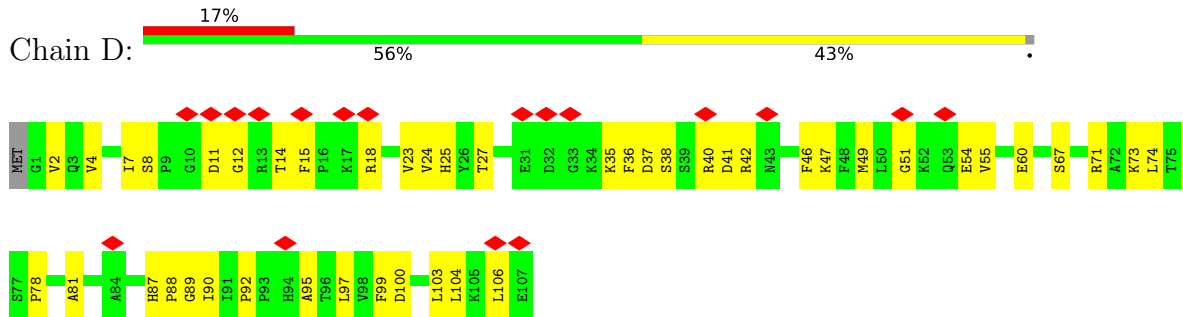
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ASN	GLN	TYR	PHE	ASN	ASN	HIS	CYS	Y3016	F3017	L3018	S3019	T3020	P3021	A3022	H3030	A3031	S3032	N3033	K3036	E3037	M3038	I3039	T3040	L2911	T2912	A2913	C3044	K3045	P3062	ALA	VAL	VAL	ASN	L3068	H3069	I3070	L3071	S3074	R3078	M3081	K3082	S3083	G3084	P3085	E3086	I3087	A3090	GLY	LEU	ARG									
SER	F3095	F3096	E3097	S3098	A3099	S3100	S3101	E3101	D3102	I3103	L3110	R3111	L3112	G3113	K3114	V3115	L3116	GLN	ALA	THR	ARG	GLN	VAL	GLY	GLY	VAL	GLN	ASN	LEU	THR	T3132	A3135	P3138	V3139	L3140	I3141	F3144	Q3145	H3146	I3147	A3148	R3149	H3150	Q3151	F3152	GLY	ASP	ASP	VAL	ILE	L3158	D3159	D3160						
S3164	C3170	T3178	LYS	ASN	THR	TYR	V3183	E3184	K3185	P3188	A3189	E3192	C3193	L3194	A3195	R3196	L3197	A3198	A3199	A3200	MET	PRO	VAL	A3204	F3205	L3206	E3207	P3208	Q3209	L3210	N3211	E3212	A3215	C3216	S3217	VAL	TYR	THR	THR	LYS	SER	PRO	ARG	GLU	ARG	ALA	ALA	ILE	LEU	GLY	LEU	PRO	P3294	F3297					
GLU	GLU	MET	PRO	ASP	ILE	PRO	VAL	ASP	ARG	LEU	MET	ALA	ASP	ILE	GLY	GLY	ALA	ARG	ARG	TYR	THR	GLU	MET	PRO	HIS	VAL	VAL	P3273	L3274	P3275	M3276	L3277	C3278	S3279	Y3280	L3281	P3282	R3283	W3284	W3285	E3286	R3287	G3288	P3289	E3290	ALA	PRO	PRO	P3294	F3297									
A3298	G3299	A3300	P3301	P3302	P3303	C3304	T3305	A3306	V3307	T3308	S3309	N3313	SER	LEU	G3317	N3318	I3319	I3322	I3323	V3324	N3325	N3326	I3329	D3330	E3331	A3332	K3333	W3334	M3335	K3336	R3337	L3338	A3339	VAL	PHE	ALA	GLN	PRO	ILE	V3346	S3347	R3348	A3349	R3350	P3351	E3352	L3353	L3354	H3355	S3356	H3357	F3358	I3359	P3360	T3361				
I3362	G3363	ARG	LEU	ARG	K3367	R3368	A3369	G3370	K3371	A3374	Q3378	L3381	E3382	A3383	E3386	A3387	E3388	E3389	G3390	E3391	L3392	L3393	V3394	R3395	D3396	E3397	PHE	SER	VAL	LEU	C3402	R3403	D3404	L3405	Y3406	A3407	L3408	P3410	L3411	L3412	I3413	R3414	Y3415	V3416	D3417	N3418	N3419	R3420	A3421	H3422	W3423	L3424	THR	GLU					
P3427	N3428	A3431	E3432	E3433	L3434	F3435	ARG	MET	V3438	G3439	E3440	I3441	Y3444	W3445	S3446	K3447	S3448	H3449	R3453	E3454	E3455	Q3456	N3457	F3458	W3462	N3465	S3468	F3469	L3470	THR	ALA	ASP	SER	LYS	SER	L3478	A3479	K3480	A3481	G3482	D3483	A3484	G3487	G3488	S3489	D3490	Q3491	GLU	ARG	T3494	K3495								



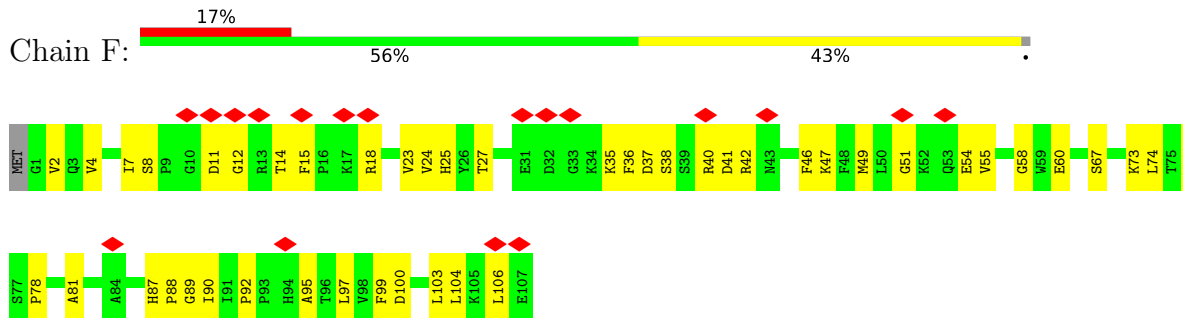




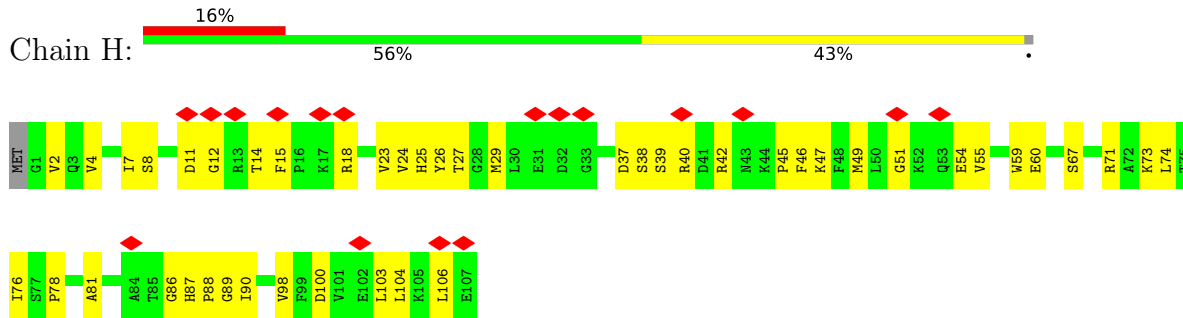
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	119000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	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	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.382	Depositor
Minimum map value	-0.148	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.085	Depositor
Map size (Å)	482.40002, 482.40002, 482.40002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.34, 1.34, 1.34	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section:
ZN

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	0.85	25/27395 (0.1%)	0.86	68/37119 (0.2%)
1	C	0.85	27/27395 (0.1%)	0.86	64/37119 (0.2%)
1	E	0.85	24/27395 (0.1%)	0.86	63/37119 (0.2%)
1	G	0.84	26/27395 (0.1%)	0.85	59/37119 (0.2%)
2	B	0.64	0/851	0.68	0/1146
2	D	0.64	0/851	0.68	0/1146
2	F	0.64	0/851	0.68	0/1146
2	H	0.66	0/851	0.69	0/1146
All	All	0.84	102/112984 (0.1%)	0.85	254/153060 (0.2%)

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
1	A	0	17
1	C	0	17
1	E	0	17
1	G	0	16
All	All	0	67

The worst 5 of 102 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	2853	GLU	CD-OE1	17.93	1.45	1.25
1	E	2853	GLU	CD-OE1	17.88	1.45	1.25
1	G	2853	GLU	CD-OE1	17.49	1.44	1.25
1	C	2853	GLU	CD-OE1	17.32	1.44	1.25
1	G	4988	TYR	CG-CD1	-9.48	1.26	1.39

The worst 5 of 254 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	G	4032	GLU	OE1-CD-OE2	-7.83	113.91	123.30
1	G	4985	LEU	CB-CG-CD1	-7.61	98.06	111.00
1	G	2118	ARG	NE-CZ-NH2	-7.55	116.53	120.30
1	A	3773	ARG	NE-CZ-NH2	-7.54	116.53	120.30
1	G	4563	ARG	NE-CZ-NH2	7.46	124.03	120.30

There are no chirality outliers.

5 of 67 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1187	GLY	Mainchain
1	A	31	GLU	Mainchain,Peptide
1	A	322	LYS	Peptide
1	A	841	GLY	Mainchain,Peptide
1	A	857	ASP	Mainchain,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	26926	0	24467	1003	0
1	C	26926	0	24467	1022	0
1	E	26926	0	24467	1004	0
1	G	26926	0	24467	952	0
2	B	832	0	831	41	0
2	D	832	0	831	41	0
2	F	832	0	831	41	0
2	H	832	0	831	40	0
3	A	1	0	0	0	0
3	C	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
All	All	111036	0	101192	3945	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 19.

The worst 5 of 3945 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:G:1808:ARG:NH1	1:G:1858:ASP:OD2	1.79	1.16
1:E:1808:ARG:NH1	1:E:1858:ASP:OD2	1.79	1.16
1:C:1808:ARG:NH1	1:C:1858:ASP:OD2	1.79	1.15
1:A:1808:ARG:NH1	1:A:1858:ASP:OD2	1.79	1.14
1:A:1243:PRO:HD2	1:A:1458:HIS:HB3	1.20	1.10

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	A	3499/5037 (70%)	3211 (92%)	199 (6%)	89 (2%)	5	36
1	C	3499/5037 (70%)	3211 (92%)	201 (6%)	87 (2%)	5	36
1	E	3499/5037 (70%)	3211 (92%)	199 (6%)	89 (2%)	5	36
1	G	3499/5037 (70%)	3211 (92%)	199 (6%)	89 (2%)	5	36
2	B	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
2	D	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
2	F	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
2	H	105/108 (97%)	97 (92%)	7 (7%)	1 (1%)	15	52
All	All	14416/20580 (70%)	13232 (92%)	829 (6%)	355 (2%)	9	36

5 of 355 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	55	ALA
1	A	737	LEU
1	A	858	THR

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Mol	Chain	Res	Type
1	A	896	VAL
1	A	916	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	A	2503/4276 (58%)	2489 (99%)	14 (1%)	86 92
1	C	2504/4276 (59%)	2490 (99%)	14 (1%)	86 92
1	E	2504/4276 (59%)	2490 (99%)	14 (1%)	86 92
1	G	2502/4276 (58%)	2489 (100%)	13 (0%)	88 94
2	B	89/90 (99%)	89 (100%)	0	100 100
2	D	89/90 (99%)	89 (100%)	0	100 100
2	F	89/90 (99%)	89 (100%)	0	100 100
2	H	89/90 (99%)	89 (100%)	0	100 100
All	All	10369/17464 (59%)	10314 (100%)	55 (0%)	89 94

5 of 55 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	377	ILE
1	E	914	PRO
1	G	4972	PRO
1	G	979	PRO
1	E	380	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 169 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	3960	GLN
1	G	1640	HIS
1	E	4153	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	G	203	ASN
1	G	1775	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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](#)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

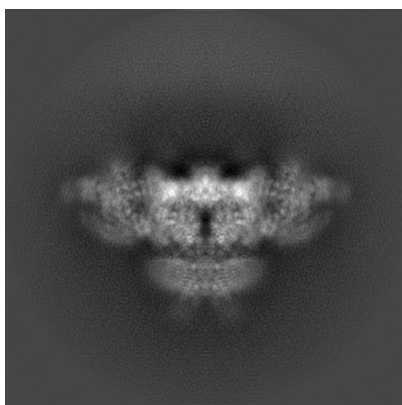
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9518. These allow visual inspection of the internal detail of the map and identification of artifacts.

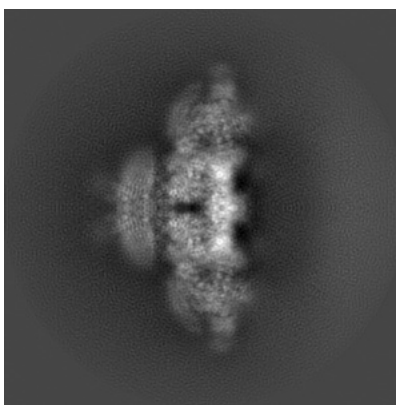
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

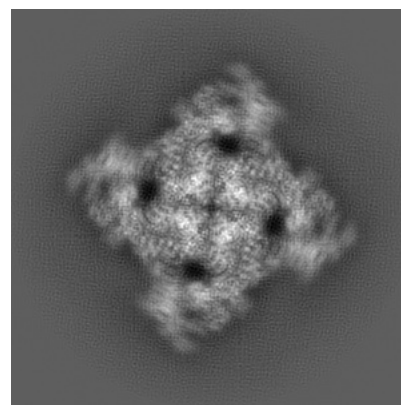
6.1.1 Primary map



X



Y

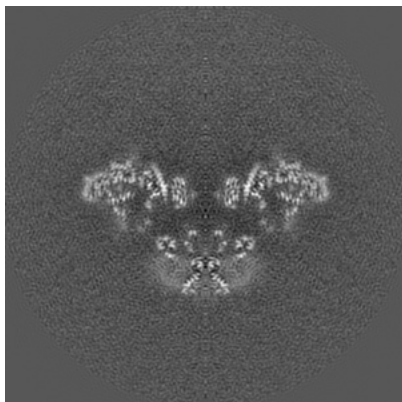


Z

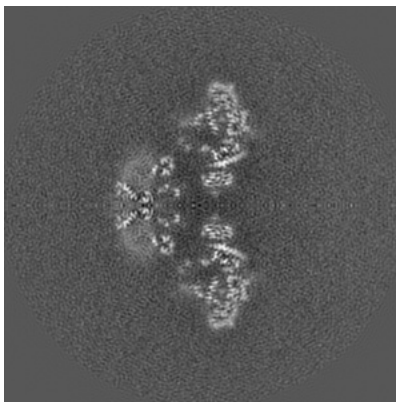
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

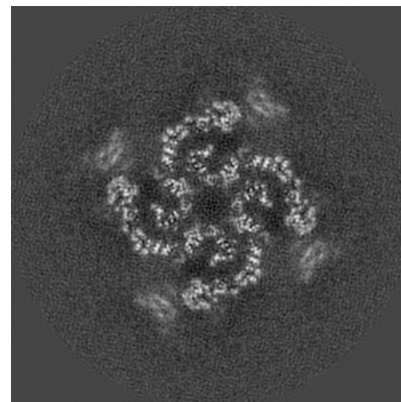
6.2.1 Primary map



X Index: 180



Y Index: 180

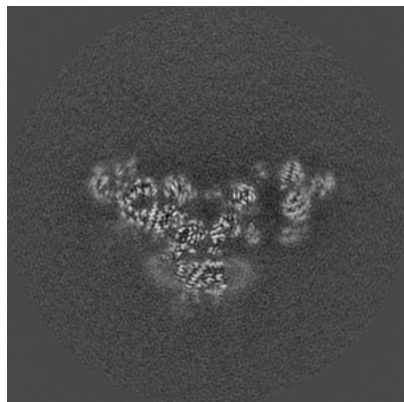


Z Index: 180

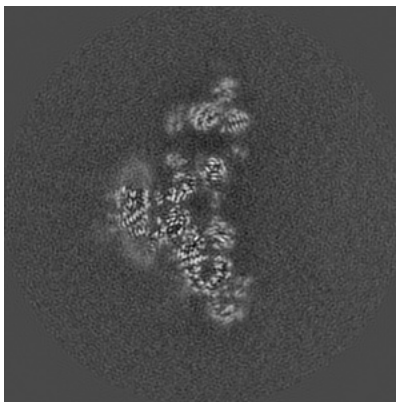
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

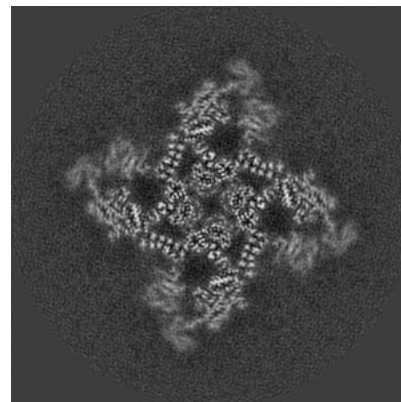
6.3.1 Primary map



X Index: 191



Y Index: 169

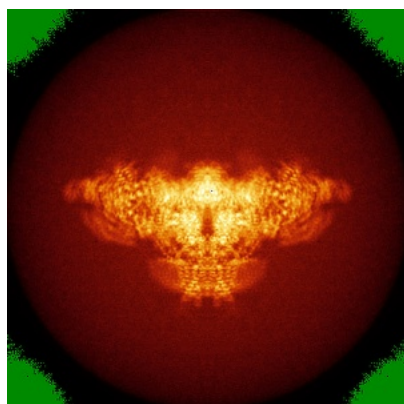


Z Index: 190

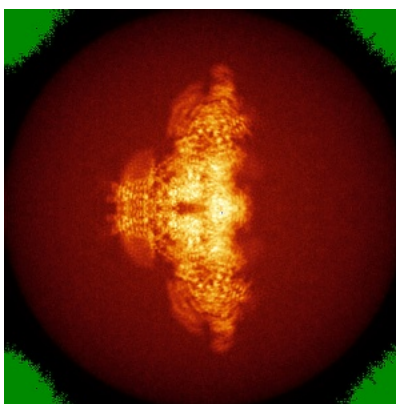
The images above show the largest variance slices of the map in three orthogonal directions.

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

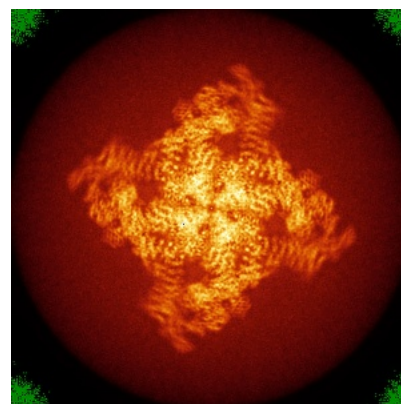
6.4.1 Primary map



X



Y

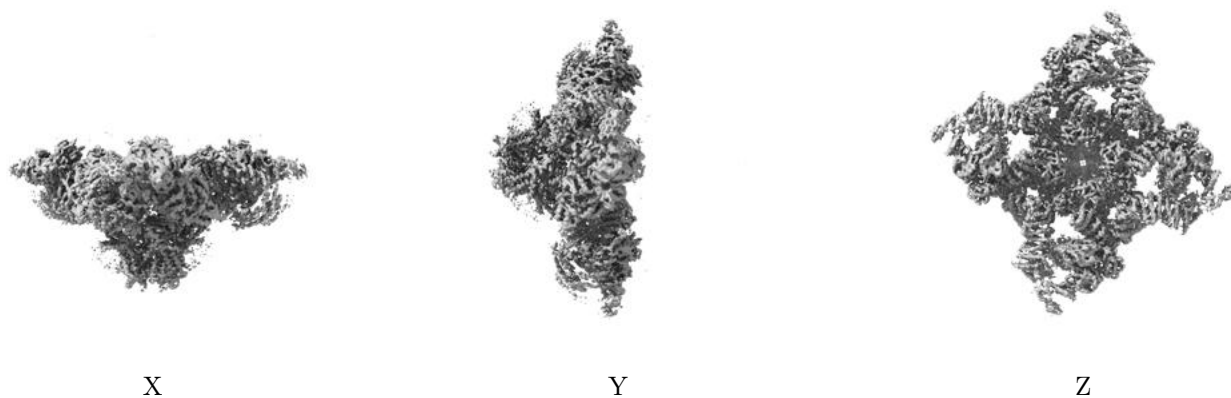


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.085. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

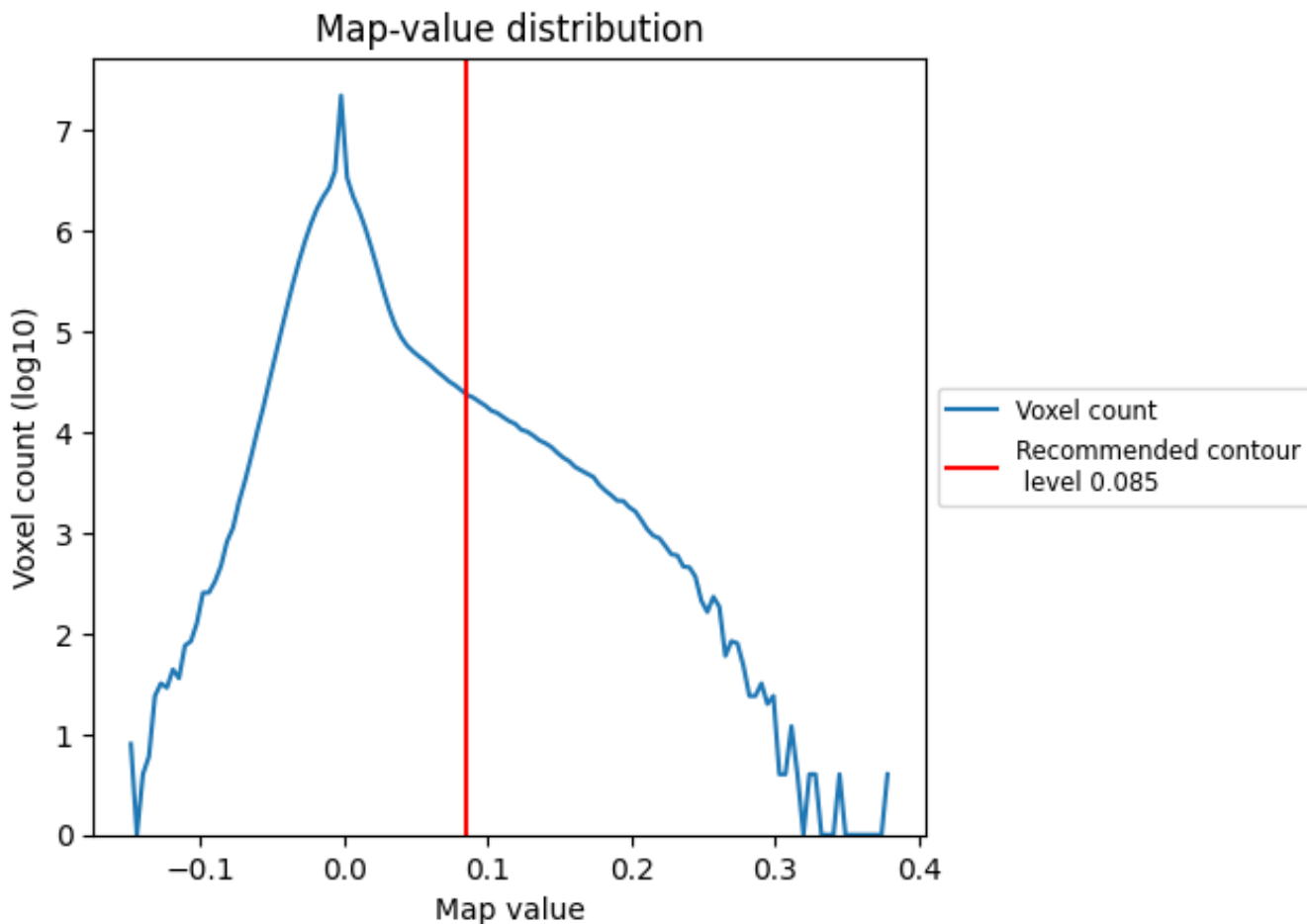
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

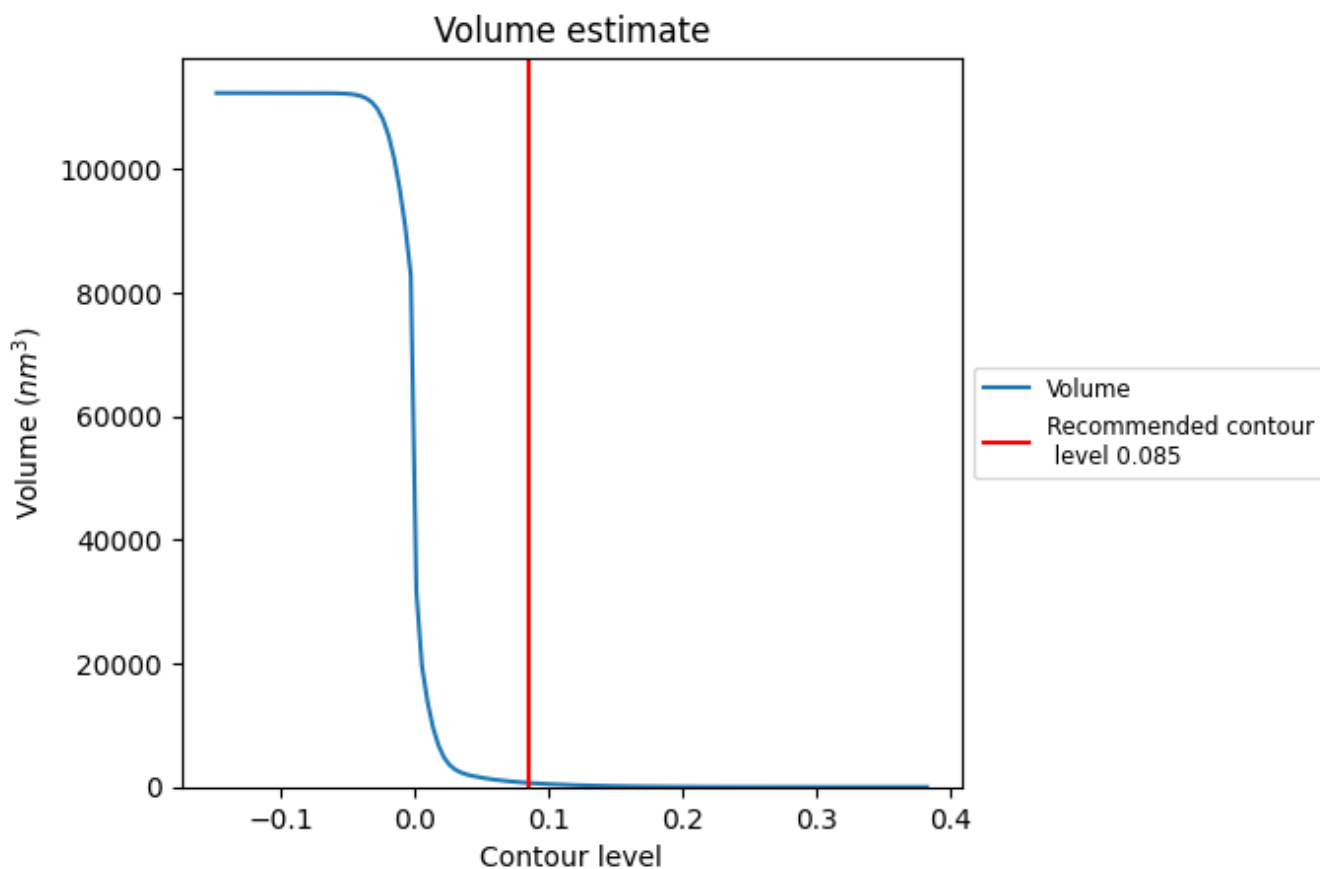
This section contains the results of statistical analysis of the map.

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.

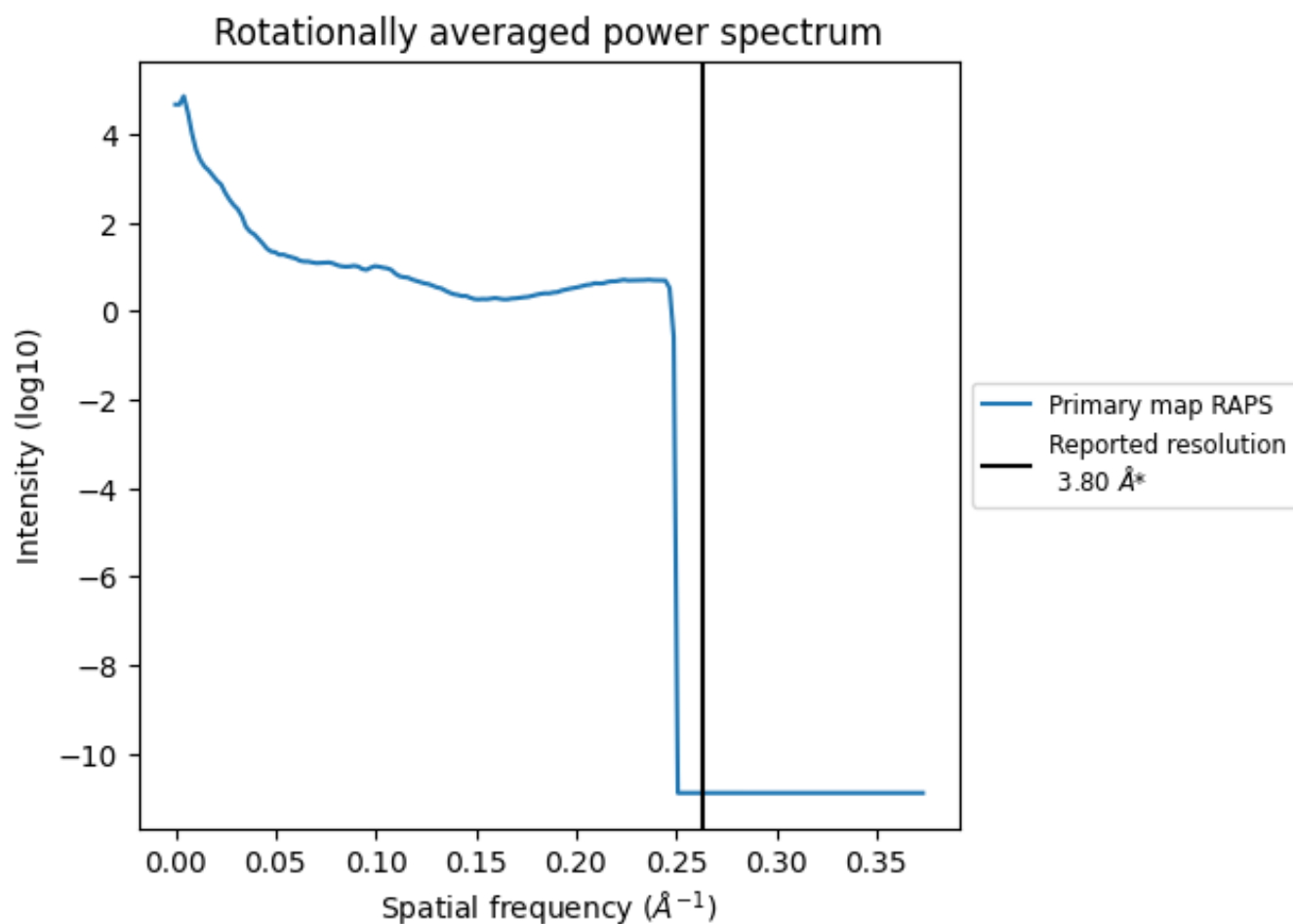
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 655 nm^3 ; this corresponds to an approximate mass of 591 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

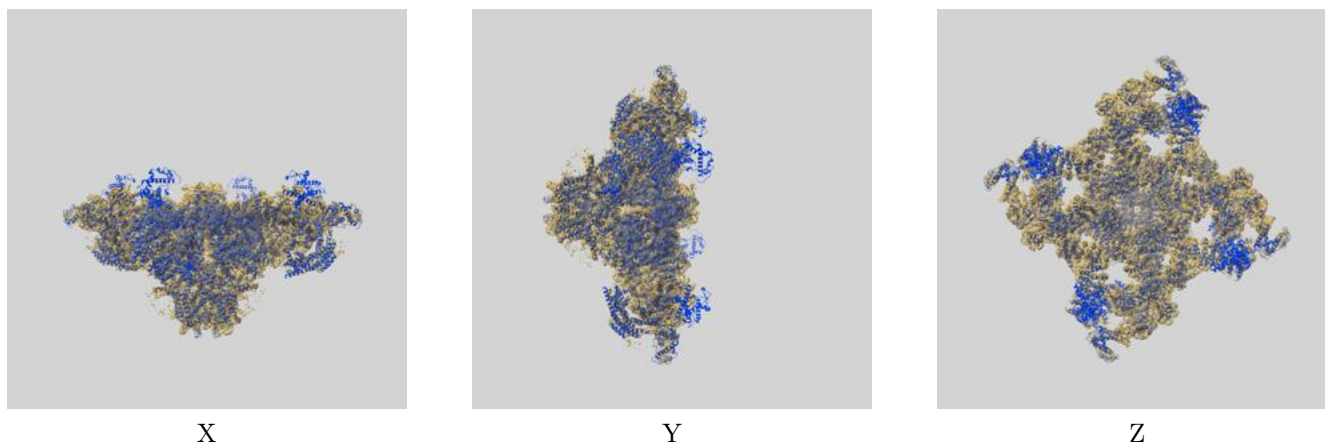
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

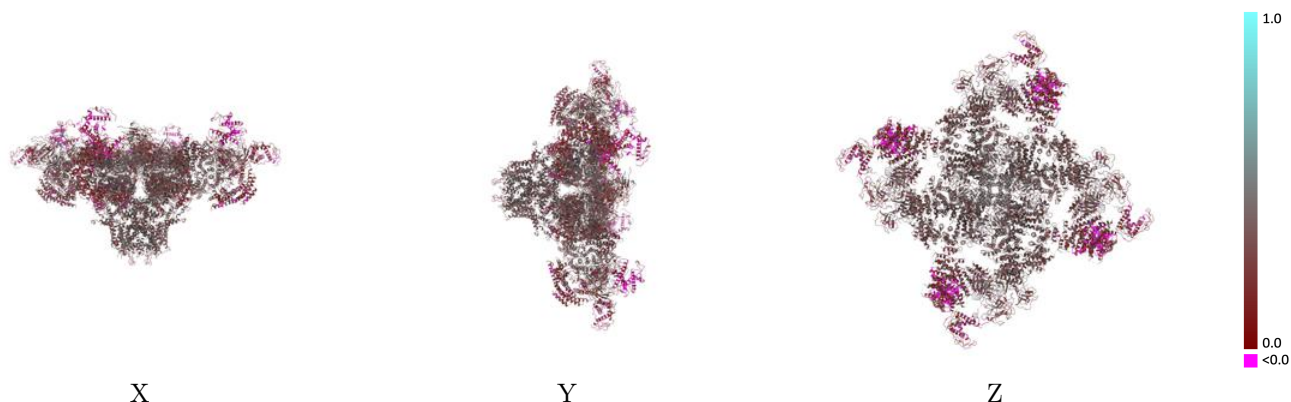
This section contains information regarding the fit between EMDB map EMD-9518 and PDB model 5GKY. Per-residue inclusion information can be found in section [3](#) on page [4](#).

9.1 Map-model overlay [i](#)



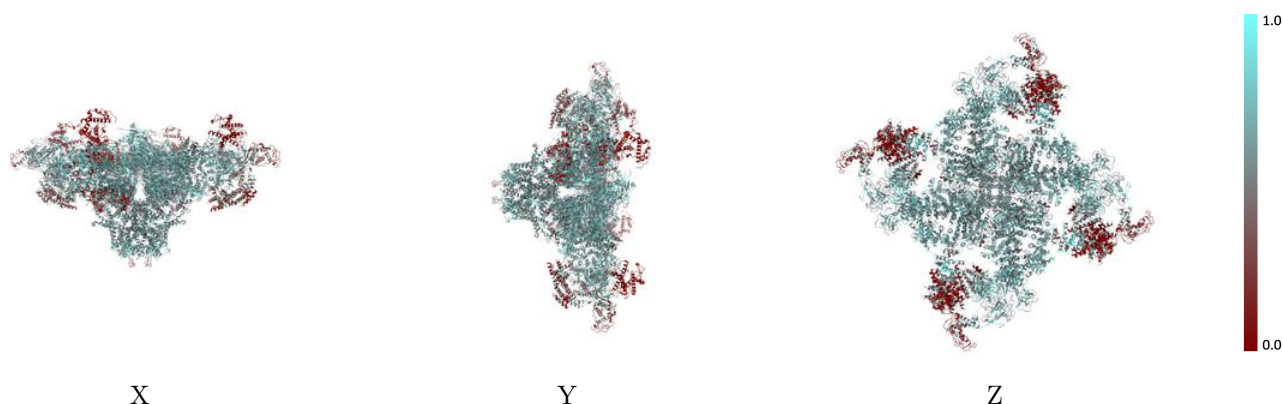
The images above show the 3D surface view of the map at the recommended contour level 0.085 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



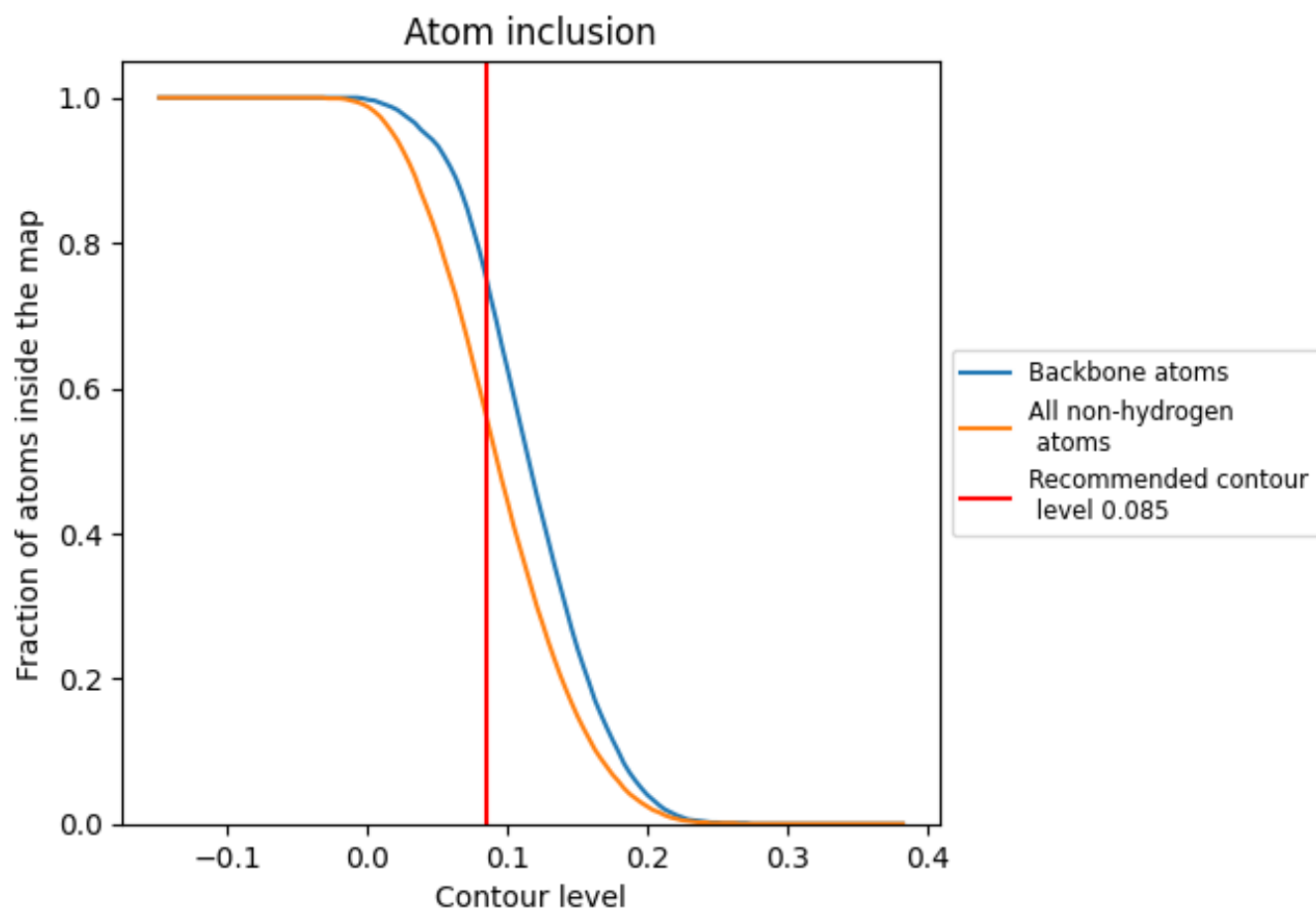
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.085).



















9.4 Atom inclusion [i](#)



At the recommended contour level, 75% of all backbone atoms, 56% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.085) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5630	 0.3170
A	 0.5630	 0.3160
B	 0.5760	 0.3340
C	 0.5630	 0.3160
D	 0.5760	 0.3310
E	 0.5630	 0.3160
F	 0.5740	 0.3290
G	 0.5630	 0.3170
H	 0.5740	 0.3370

