



Full wwPDB EM Validation Report ⓘ

Nov 2, 2022 – 07:08 AM EDT

PDB ID : 5TB0
EMDB ID : EMD-8391
Title : Structure of rabbit RyR1 (EGTA-only dataset, all particles)
Authors : Clarke, O.B.; des Georges, A.; Zalk, R.; Marks, A.R.; Hendrickson, W.A.;
Frank, J.
Deposited on : 2016-09-10
Resolution : 4.40 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

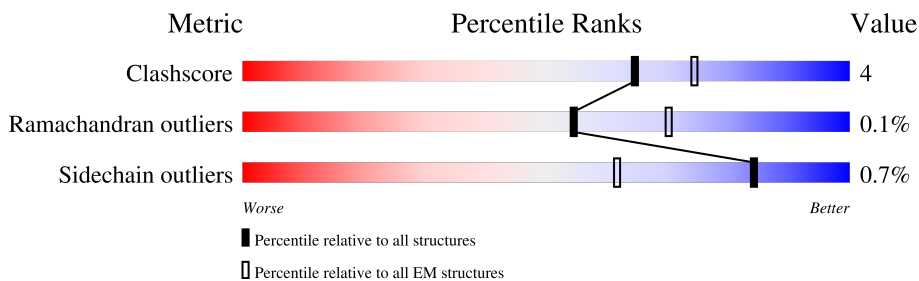
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.40 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	108	
1	F	108	
1	H	108	
1	J	108	
2	B	4416	
2	E	4416	
2	G	4416	
2	I	4416	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 121272 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 Peptidyl-prolyl cis-trans isomerase FKBP1B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	F	107	818	516	144	154	4	0	0
1	A	107	818	516	144	154	4	0	0
1	H	107	818	516	144	154	4	0	0
1	J	107	818	516	144	154	4	0	0

- Molecule 2 is a protein called Ryanodine receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	4194	29499	18686	5228	5428	157	0	0
2	G	4194	29499	18686	5228	5428	157	0	0
2	E	4194	29499	18686	5228	5428	157	0	0
2	I	4194	29499	18686	5228	5428	157	0	0

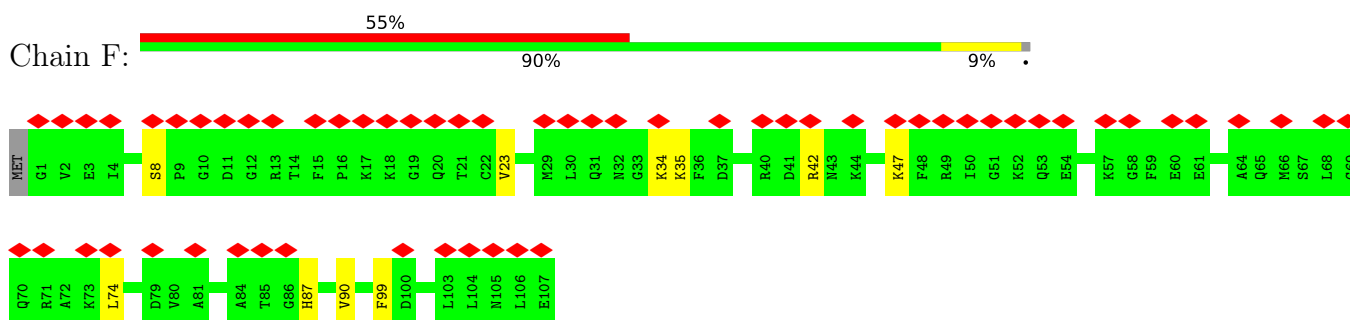
- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
3	B	1	Total	Zn	0
			1	1	
3	G	1	Total	Zn	0
			1	1	
3	E	1	Total	Zn	0
			1	1	
3	I	1	Total	Zn	0
			1	1	

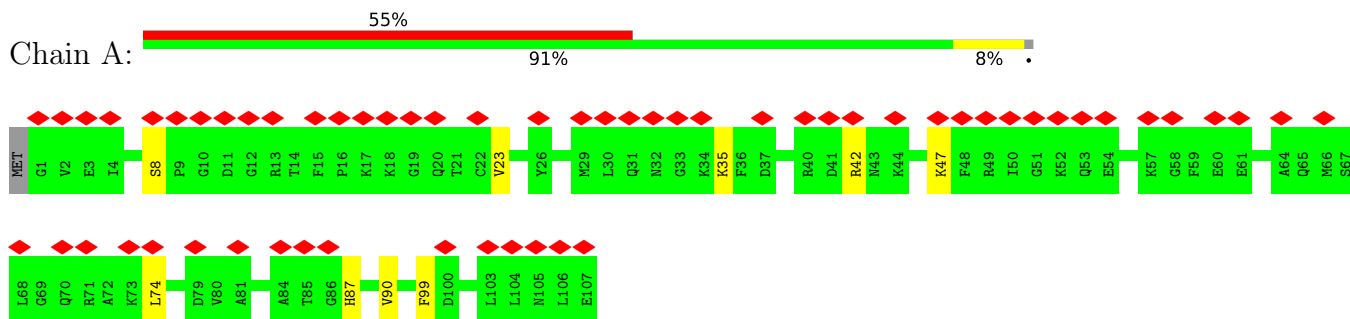
3 Residue-property plots [i](#)

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.

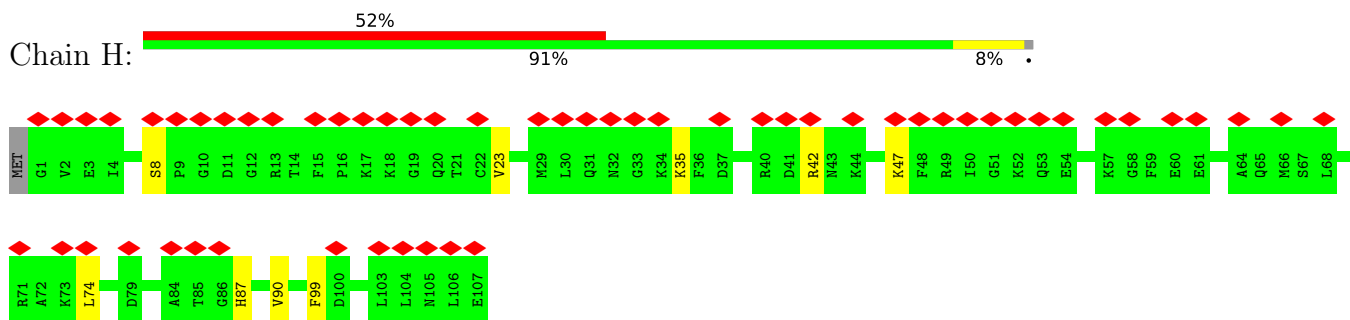
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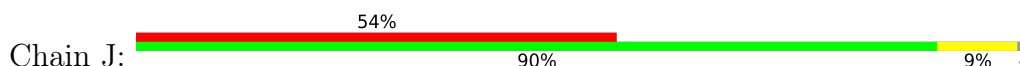
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

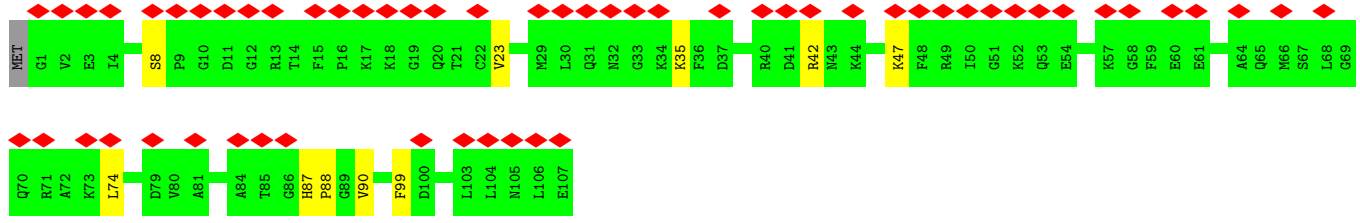


- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

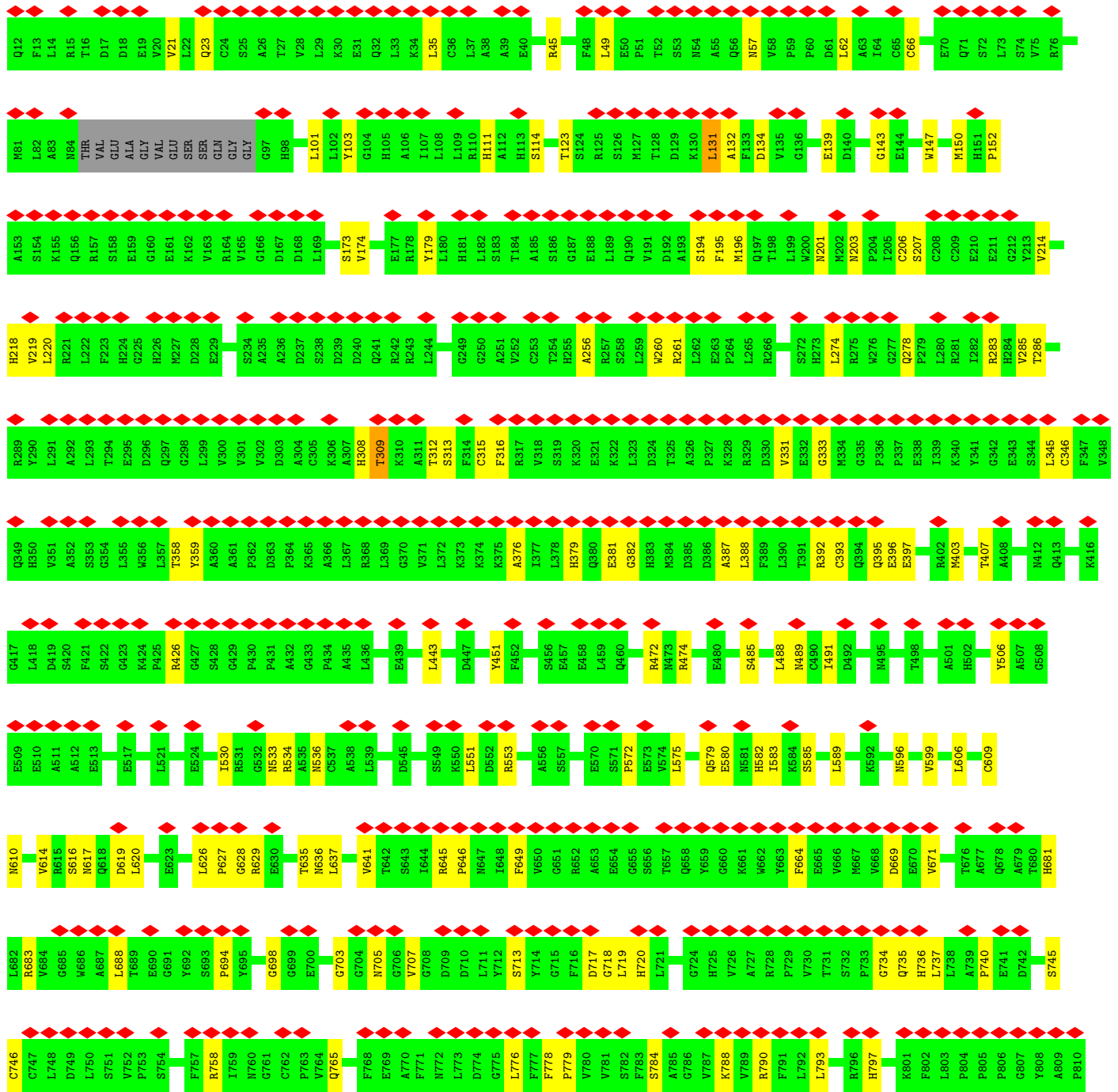
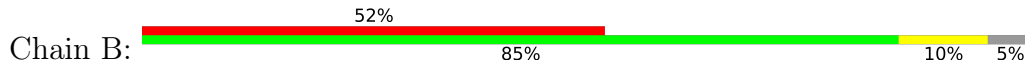


- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

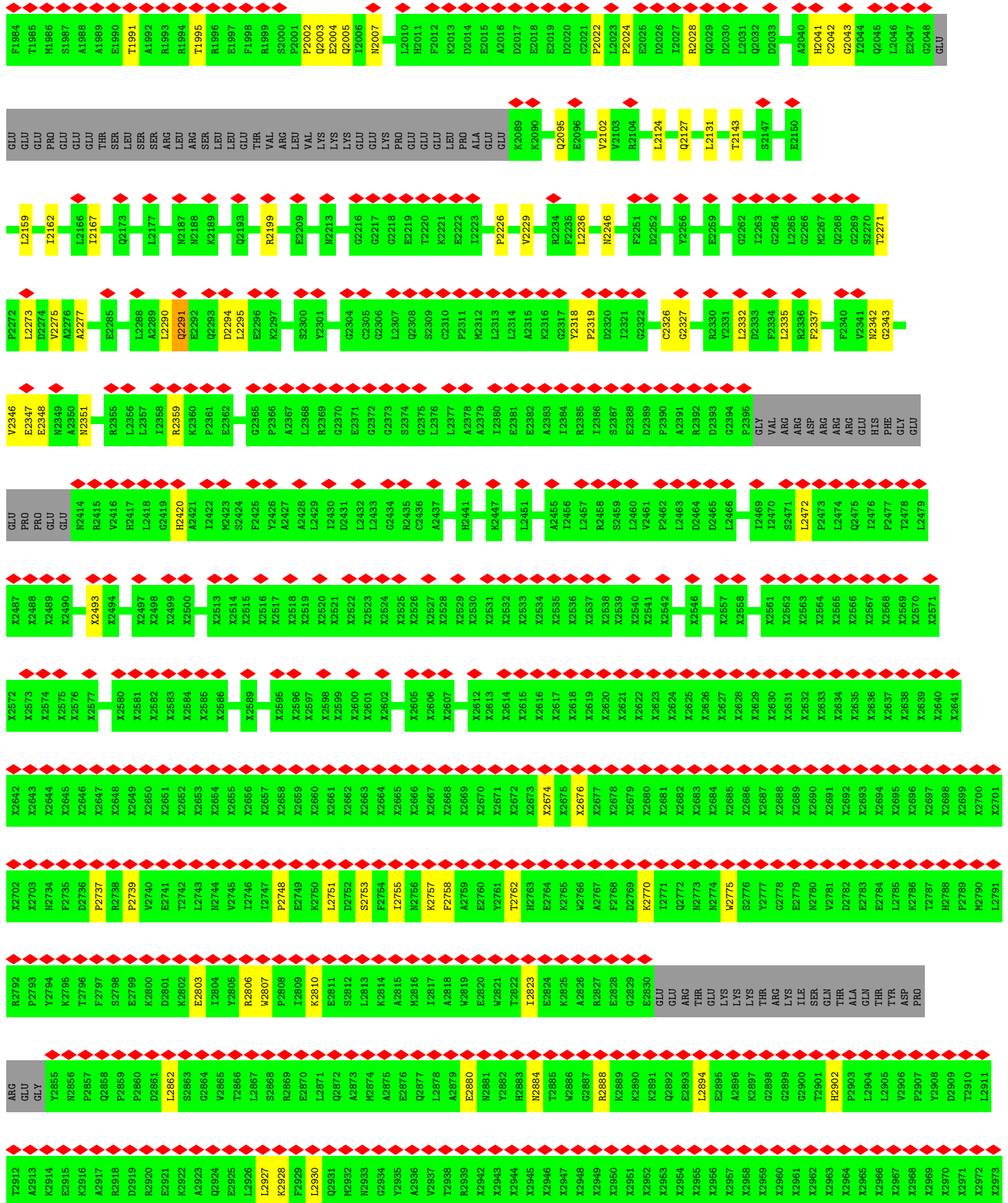


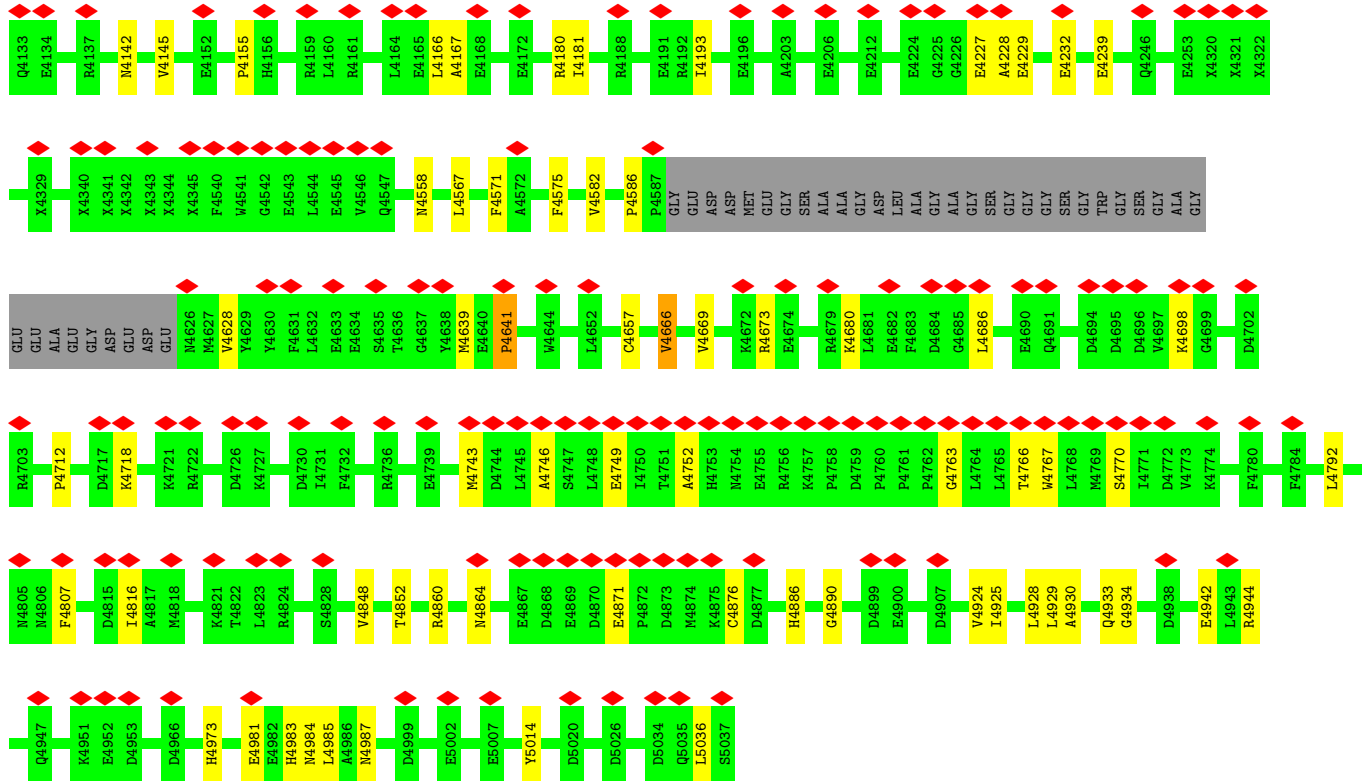


• Molecule 2: Ryanodine receptor 1

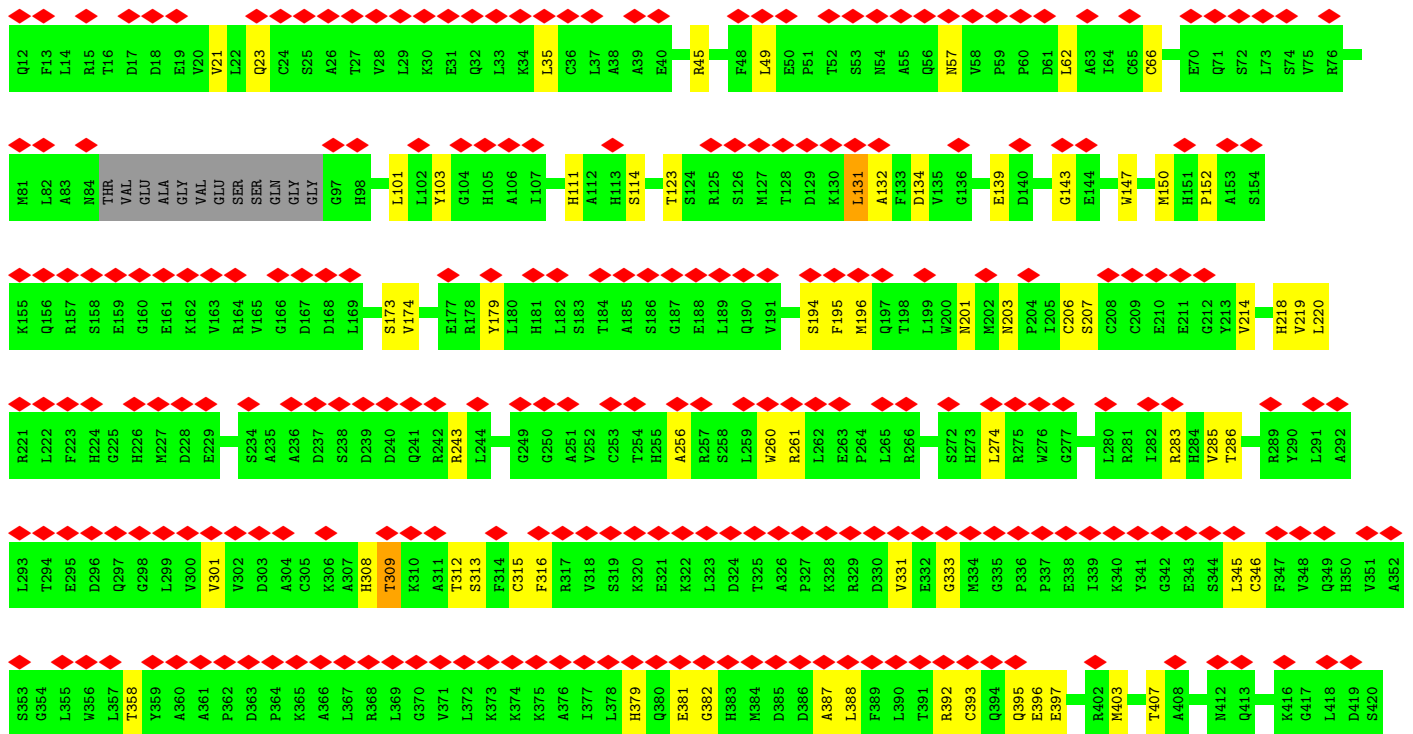
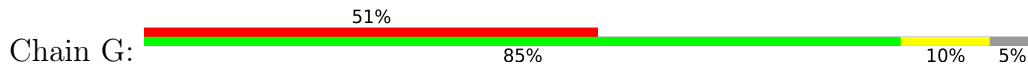


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L1922	E1923	E1924	Q1928	L1931	P1932	V1935	E1944	Q1949	E1950	L1958	A1959	A1960	E1963	R1964	Y1965	V1966	D1967	A1971	N1972	Q1973	R1974	S1975	R1976	Y1977	A1978	L1979	L1980	M1981	R1982	A1983																															

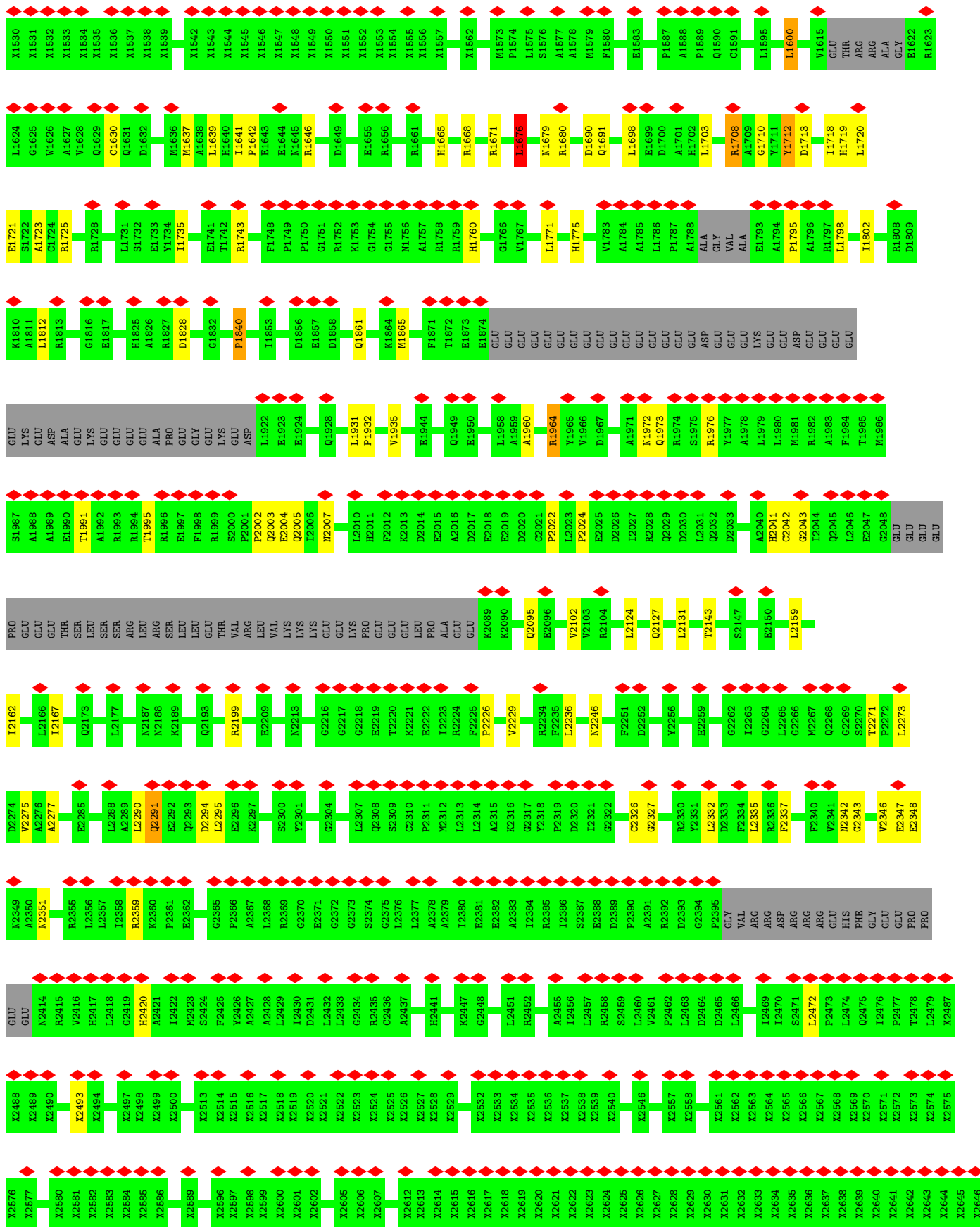




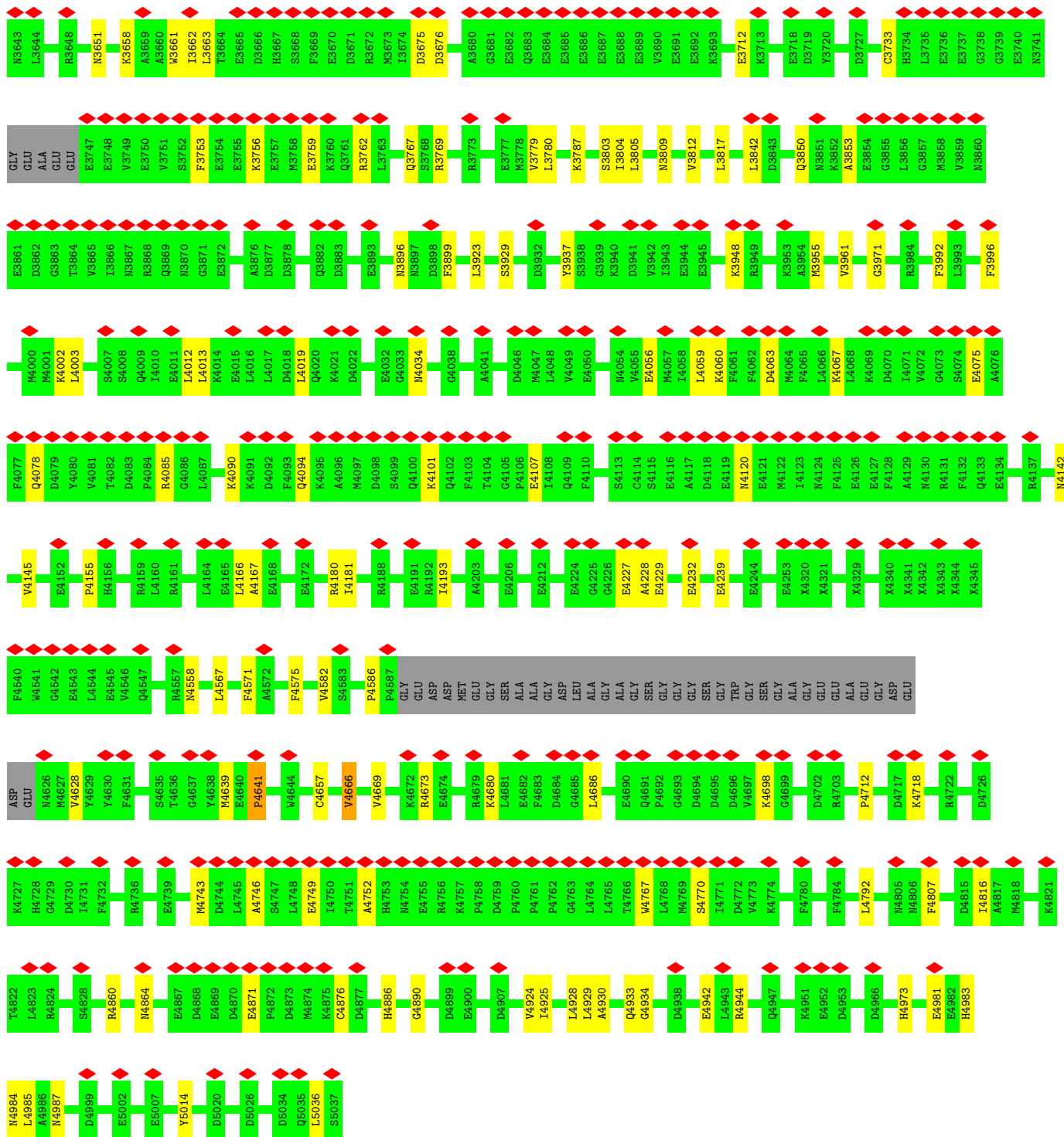
• Molecule 2: Ryanodine receptor 1



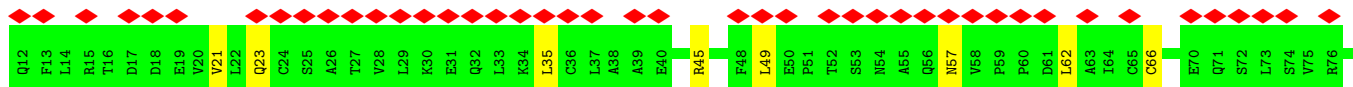
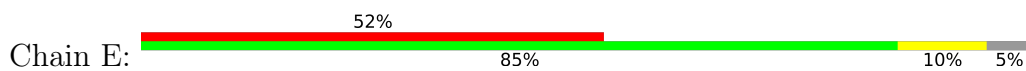
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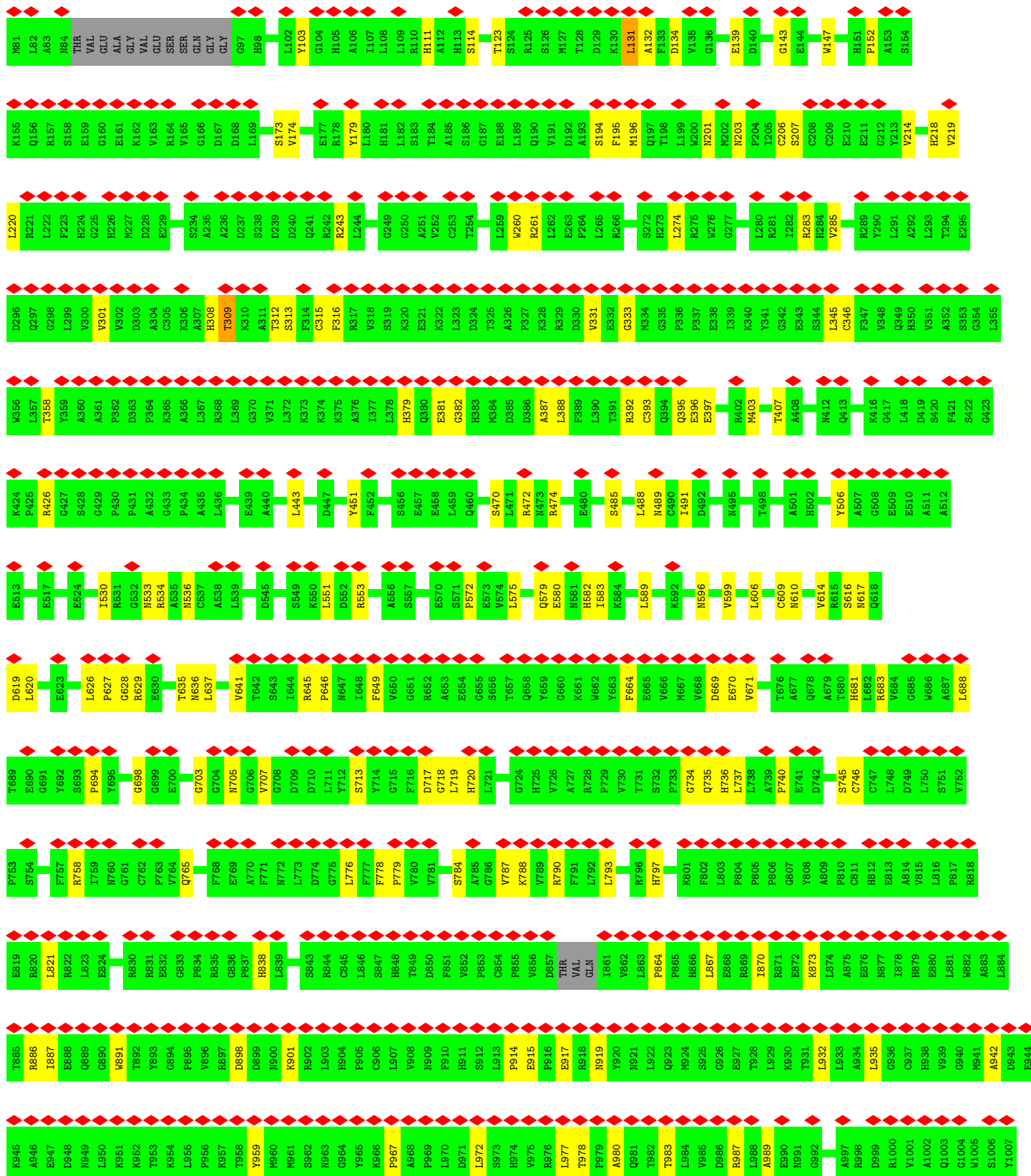


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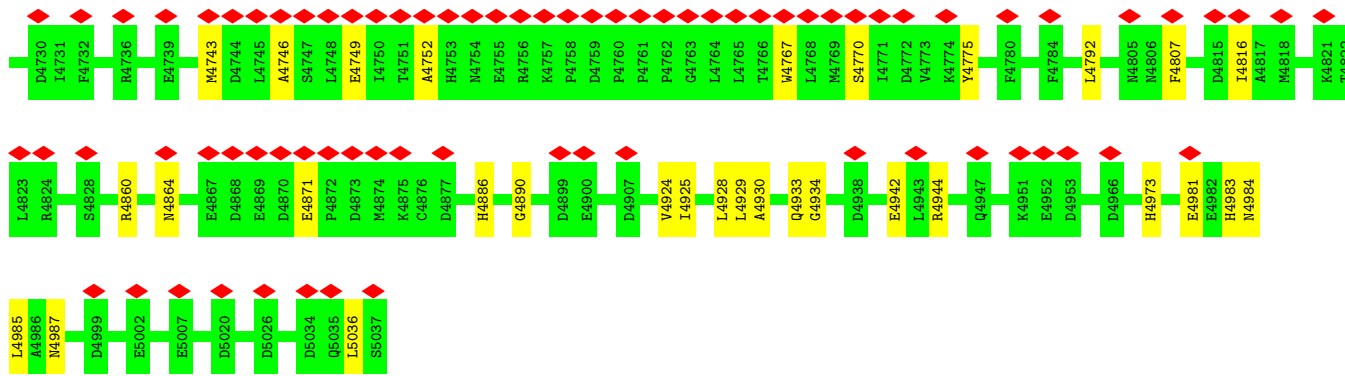
• Molecule 2: Ryanodine receptor 1





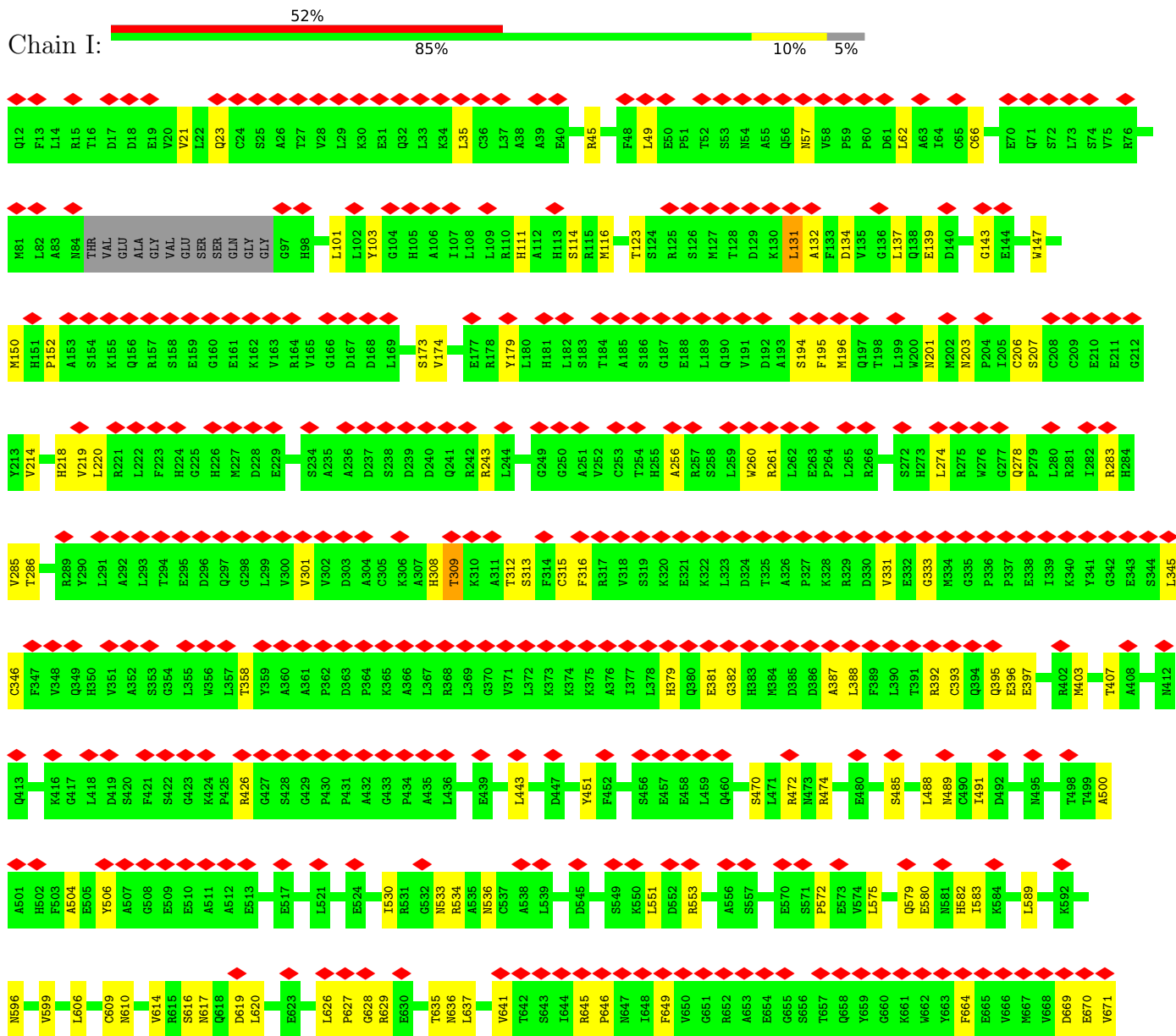
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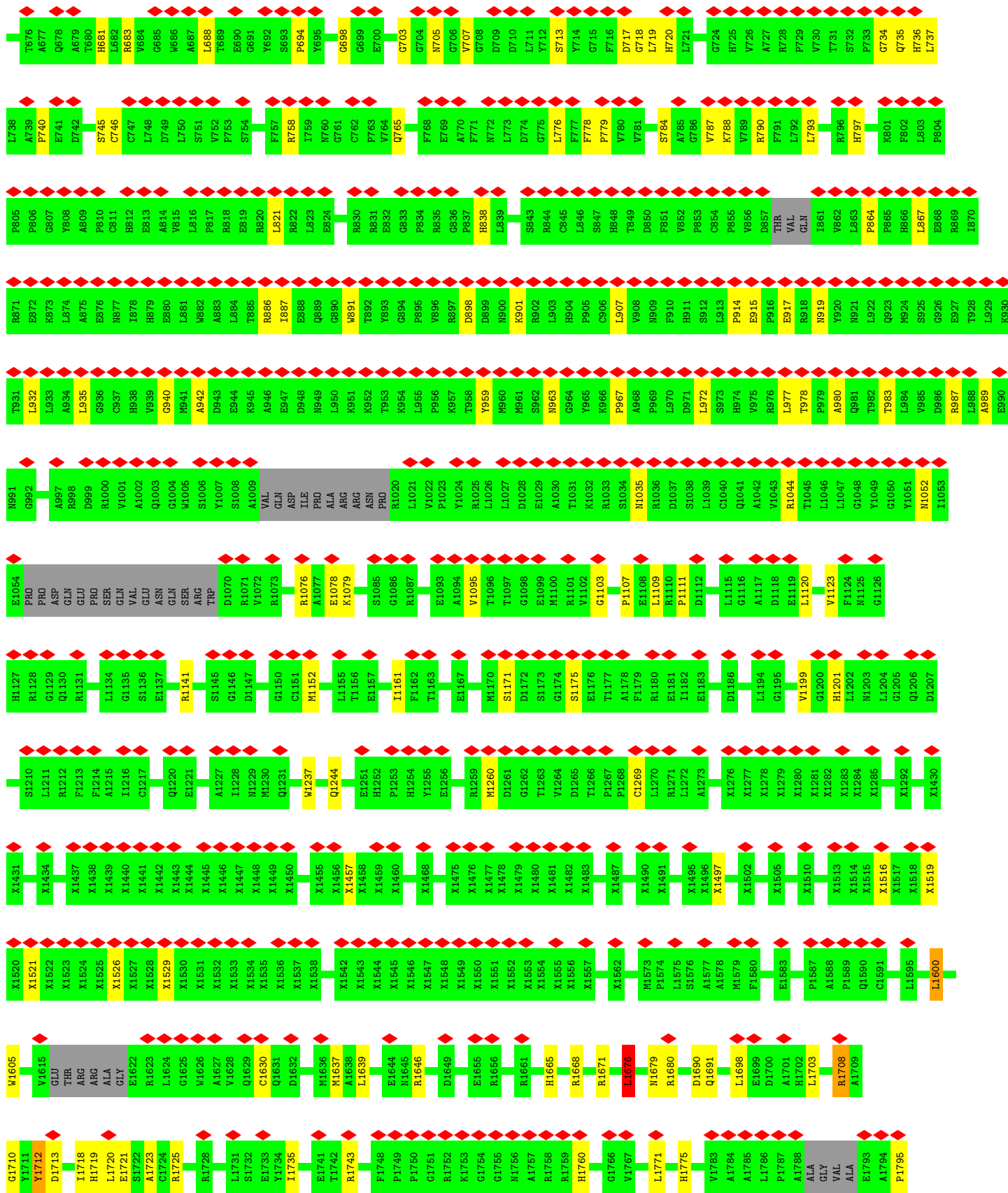
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X3456	X3457	X3460	X3463	X3464	X3465	X3466	X3467	X3468	X3511	X3512	X3513	X3514	X3515	X3516	X3517	X3518	X3519	X3520	X3521	X3522	X3523	X3524	X3525	X3526	X3527	X3528	X3529	X3530	X3531	X3532	X3533	X3534	X3535	X3536	X3539	X3540	X3541	X3542	X3543	X3544	X3545	X3546	X3547	X3548	X3549	X3550	X3551	X3552	X3553	X3554	X3555	X3556	X3557	X3558	X3559	X3560			
X3561	X3562	X3563	X3564	X3565	X3566	X3567	X3568	X3569	X3570	X3574	X3575	X3576	X3577	X3578	X3579	X3580	X3581	X3582	X3583	X3584	X3585	X3586	X3587	X3588	X3589	X3590	X3591	X3592	X3593	X3594	X3595	X3596	X3597	X3598	X3599	X3600	X3603	X3604	X3605	X3606	X3607	X3608	X3609	X3610	X3611	X3612	X3613	T3639	P3640	M3643	GLU	L3644	ALA	GLU	R3646	N3651			
L3654	X3658	A3659	X3660	X3661	L3662	L3663	X3664	X3665	X3666	X3667	X3668	X3669	X3670	X3671	X3672	X3673	L3674	D3675	D3676	A3680	X3681	E3682	X3683	E3684	X3685	X3686	X3687	E3688	E3689	V3690	E3691	E3692	X3693	E3712	X3713	E3718	D3719	X3720	X3727	H3734	L3735	E3736	E3737	X3738	G3739	E3740	X3741	GLY	GLU	ALA	GLU	GLU	E3747						
E3748	V3749	E3750	V3751	X3752	X3753	E3754	X3755	X3756	E3757	M3758	E3759	X3760	X3761	X3762	L3763	X3767	S3768	X3769	R3773	E3777	M3778	V3779	L3780	X3787	I3804	L3805	N3809	V3812	L3817	L3842	D3843	Q3850	N3851	K3852	A3853	E3854	G3855	L3856	G3857	M3858	V3859	N3860	E3861	D3862	G3863	V3865	I3866	N3867											
R3868	Q3869	N3870	G3871	E3872	A3876	D3877	D3878	Q3882	D3883	Q3889	E3893	N3896	F3899	L3923	S3929	D3932	Y3937	S3938	Q3939	K3940	D3941	V3942	I3943	E3944	E3945	K3948	R3949	K3953	A3954	N3955	V3961	E3967	G3971	R3984	L3993	F3996	M4000	M4001	L4003	V4080	V4081	T4082																	
A4004	Q4005	D4006	S4007	E4011	L4012	L4013	K4014	E4015	L4016	L4017	D4018	L4019	Q4020	K4021	D4022	E4032	G4033	M4034	G4038	A4041	D4046	M4047	L4048	V4049	E4050	M4054	V4055	E4056	M4057	I4058	L4059	K4060	F4061	F4062	D4063	M4064	F4065	L4066	K4067	L4068	K4069	D4070	G4073	S4074	E4075	A4076	F4077	Q4078	Q4079	Y4080	V4081	T4082							
D4083	P4084	R4085	G4086	L4087	K4090	K4091	D4092	F4093	Q4094	K4095	A4096	M4097	D4098	S4099	Q4100	K4101	Q4102	F4103	T4104	G4105	P4106	E4107	I4108	Q4109	P4110	S4113	C4114	S4115	A4116	E4117	D4118	E4119	M4120	E4121	M4122	I4123	M4124	F4125	E4126	E4127	F4128	A4129	M4130	R4131	F4132	Q4133	E4134	R4137	M4142	V4145	E4152	P4155							
H4156	R4159	L4160	R4161	L4164	E4165	L4166	A4167	E4168	E4172	R4180	I4181	R4188	E4191	R4192	I4193	E4196	A4203	A4206	E4206	E4212	E4224	G4225	G4226	E4227	A4228	E4229	E4232	Q4246	E4253	X4320	X4321	X4322	X4329	X4340	X4341	X4342	X4343	X4344	X4345	F4540	M4541	G4542	E4543	L4544															
E4546	V4546	Q4547	M4558	L4567	F4571	A4572	F4575	V4582	P4586	P4587	GLY	ASP	ASP	MET	GLU	GLY	SER	ALA	ALA	GLY	LEU	ASP	ALA	ALA	GLY	SER	TRP	GLY	SER	ALA	ALA	GLU	GLU	M4626	M4627	V4628	Y4630																						
F4631	L4632	E4633	E4634	S4635	T4636	G4637	V4638	M4639	E4640	P4641	W4644	L4652	C4657	V4666	V4669	K4672	R4673	E4674	R4679	K4680	L4681	E4682	F4683	D4684	G4685	L4686	E4690	Q4691	P4692	G4693	D4694	D4695	V4696	K4698	G4699	D4702	R4703	P4712	S4713	D4717	K4718	K4721	R4722	D4726	K4727														

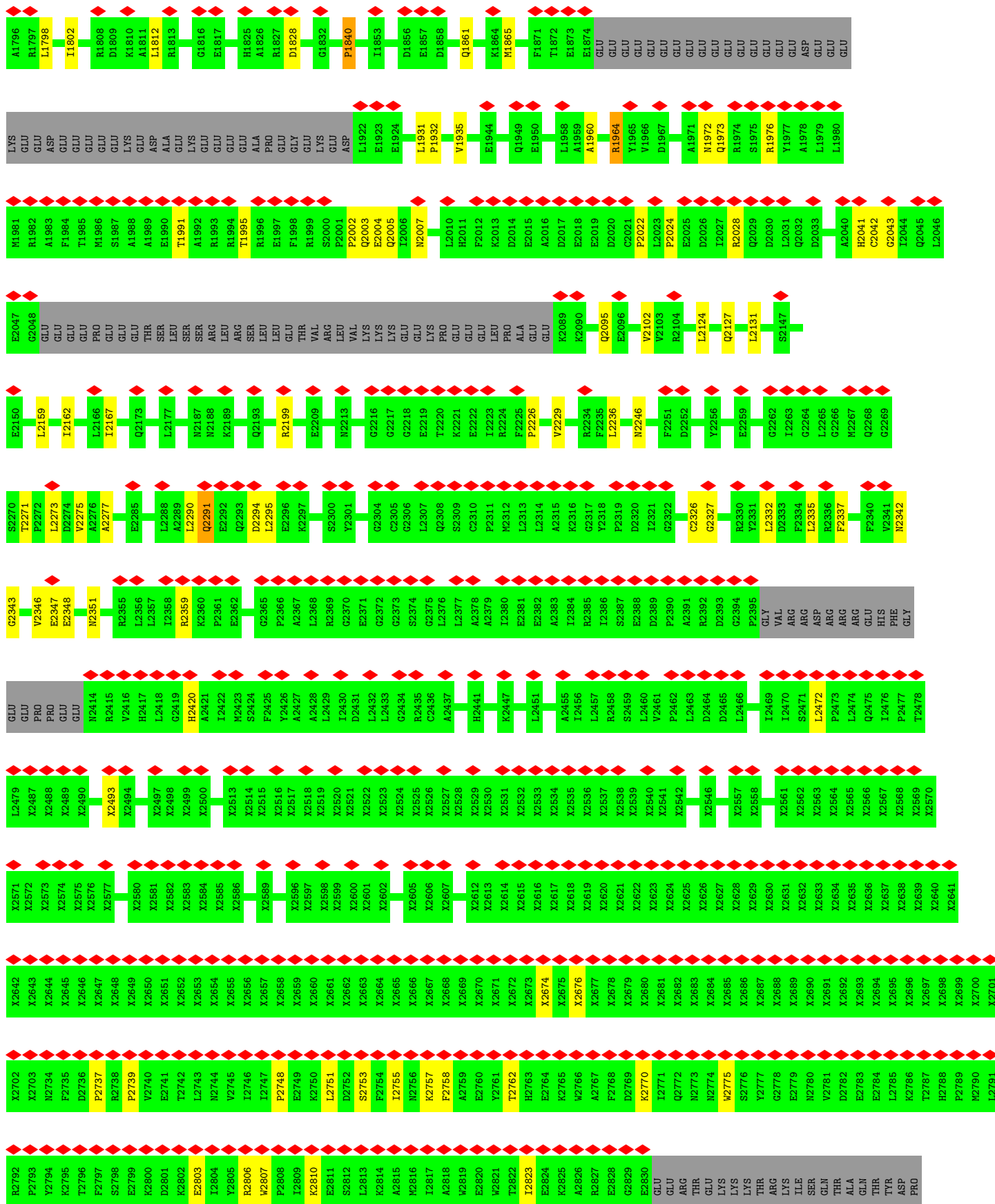


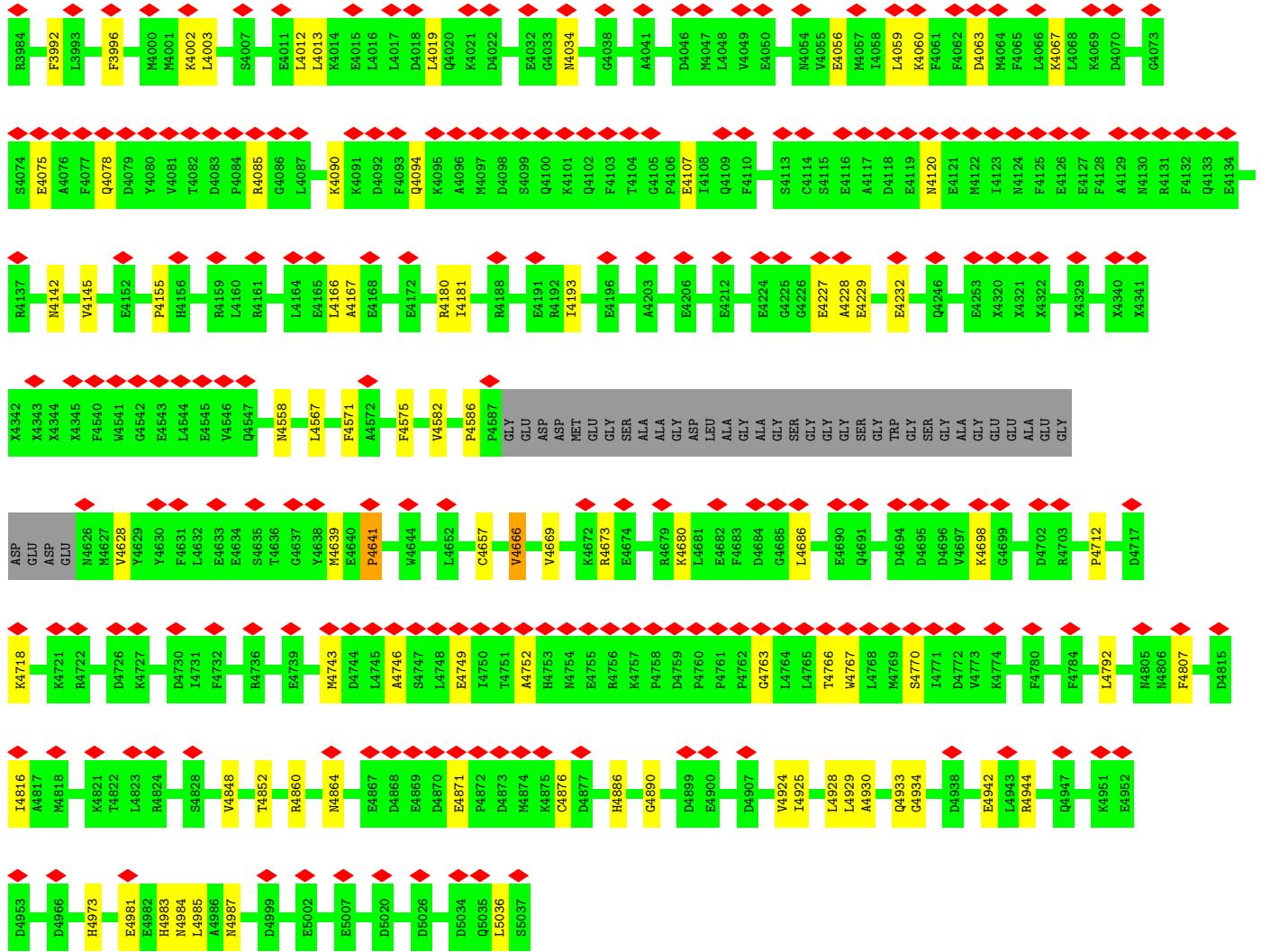
• Molecule 2: Ryanodine receptor 1

Chain I:









4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	55564	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 ($e^-/\text{\AA}^2$)	50	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	0.081	Depositor
Minimum map value	-0.049	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.025	Depositor
Map size (\AA)	502.0, 502.0, 502.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.255, 1.255, 1.255	Depositor

5 Model quality

5.1 Standard geometry

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	0.31	0/834	0.53	0/1123
1	F	0.31	0/834	0.53	0/1123
1	H	0.31	0/834	0.53	0/1123
1	J	0.31	0/834	0.53	0/1123
2	B	0.32	0/25428	0.56	9/34534 (0.0%)
2	E	0.32	0/25428	0.56	9/34534 (0.0%)
2	G	0.32	0/25428	0.56	9/34534 (0.0%)
2	I	0.32	0/25428	0.56	9/34534 (0.0%)
All	All	0.32	0/105048	0.56	36/142628 (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
1	A	0	1
1	F	0	1
1	H	0	1
1	J	0	1
2	B	0	18
2	E	0	18
2	G	0	18
2	I	0	18
All	All	0	76

There are no bond length outliers.

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	131	LEU	CA-CB-CG	8.74	135.39	115.30
2	B	131	LEU	CA-CB-CG	8.73	135.38	115.30
2	I	131	LEU	CA-CB-CG	8.72	135.36	115.30
2	E	131	LEU	CA-CB-CG	8.72	135.36	115.30
2	I	1676	LEU	CA-CB-CG	6.26	129.70	115.30
2	G	1676	LEU	CA-CB-CG	6.25	129.69	115.30
2	B	1676	LEU	CA-CB-CG	6.25	129.69	115.30
2	E	1676	LEU	CA-CB-CG	6.25	129.67	115.30
2	G	1600	LEU	CA-CB-CG	6.14	129.42	115.30
2	B	1600	LEU	CA-CB-CG	6.13	129.40	115.30
2	E	1600	LEU	CA-CB-CG	6.13	129.40	115.30
2	I	1600	LEU	CA-CB-CG	6.12	129.37	115.30
2	B	688	LEU	CA-CB-CG	5.92	128.92	115.30
2	I	688	LEU	CA-CB-CG	5.92	128.92	115.30
2	E	688	LEU	CA-CB-CG	5.92	128.91	115.30
2	G	688	LEU	CA-CB-CG	5.91	128.90	115.30
2	E	977	LEU	CA-CB-CG	5.91	128.90	115.30
2	I	977	LEU	CA-CB-CG	5.91	128.90	115.30
2	B	977	LEU	CA-CB-CG	5.91	128.89	115.30
2	G	977	LEU	CA-CB-CG	5.91	128.88	115.30
2	G	2290	LEU	CA-CB-CG	5.62	128.22	115.30
2	E	2290	LEU	CA-CB-CG	5.61	128.21	115.30
2	B	2290	LEU	CA-CB-CG	5.60	128.18	115.30
2	I	2290	LEU	CA-CB-CG	5.59	128.16	115.30
2	I	4985	LEU	CA-CB-CG	5.46	127.85	115.30
2	B	4985	LEU	CA-CB-CG	5.44	127.81	115.30
2	G	4985	LEU	CA-CB-CG	5.44	127.81	115.30
2	E	4985	LEU	CA-CB-CG	5.42	127.77	115.30
2	G	3663	LEU	CA-CB-CG	5.29	127.47	115.30
2	I	3663	LEU	CA-CB-CG	5.28	127.44	115.30
2	B	3663	LEU	CA-CB-CG	5.27	127.43	115.30
2	E	3663	LEU	CA-CB-CG	5.26	127.40	115.30
2	G	4639	MET	C-N-CA	5.07	134.38	121.70
2	I	4639	MET	C-N-CA	5.07	134.37	121.70
2	B	4639	MET	C-N-CA	5.06	134.34	121.70
2	E	4639	MET	C-N-CA	5.06	134.34	121.70

There are no chirality outliers.

All (76) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	8	SER	Peptide
2	B	139	GLU	Peptide

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Mol	Chain	Res	Type	Group
2	B	1676	LEU	Peptide
2	B	1690	ASP	Peptide
2	B	1712	TYR	Peptide
2	B	1720	LEU	Peptide
2	B	1795	PRO	Peptide
2	B	1828	ASP	Peptide
2	B	1840	PRO	Peptide
2	B	2291	GLN	Peptide
2	B	2343	GLY	Peptide
2	B	2472	LEU	Peptide
2	B	2807	TRP	Peptide
2	B	312	THR	Peptide
2	B	3971	GLY	Peptide
2	B	4641	PRO	Peptide
2	B	4666	VAL	Peptide
2	B	4807	PHE	Peptide
2	B	694	PRO	Peptide
2	E	139	GLU	Peptide
2	E	1676	LEU	Peptide
2	E	1690	ASP	Peptide
2	E	1712	TYR	Peptide
2	E	1720	LEU	Peptide
2	E	1795	PRO	Peptide
2	E	1828	ASP	Peptide
2	E	1840	PRO	Peptide
2	E	2291	GLN	Peptide
2	E	2343	GLY	Peptide
2	E	2472	LEU	Peptide
2	E	2807	TRP	Peptide
2	E	312	THR	Peptide
2	E	3971	GLY	Peptide
2	E	4641	PRO	Peptide
2	E	4666	VAL	Peptide
2	E	4807	PHE	Peptide
2	E	694	PRO	Peptide
1	F	8	SER	Peptide
2	G	139	GLU	Peptide
2	G	1676	LEU	Peptide
2	G	1690	ASP	Peptide
2	G	1712	TYR	Peptide
2	G	1720	LEU	Peptide
2	G	1795	PRO	Peptide

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Mol	Chain	Res	Type	Group
2	G	1828	ASP	Peptide
2	G	1840	PRO	Peptide
2	G	2291	GLN	Peptide
2	G	2343	GLY	Peptide
2	G	2472	LEU	Peptide
2	G	2807	TRP	Peptide
2	G	312	THR	Peptide
2	G	3971	GLY	Peptide
2	G	4641	PRO	Peptide
2	G	4666	VAL	Peptide
2	G	4807	PHE	Peptide
2	G	694	PRO	Peptide
1	H	8	SER	Peptide
2	I	139	GLU	Peptide
2	I	1676	LEU	Peptide
2	I	1690	ASP	Peptide
2	I	1712	TYR	Peptide
2	I	1720	LEU	Peptide
2	I	1795	PRO	Peptide
2	I	1828	ASP	Peptide
2	I	1840	PRO	Peptide
2	I	2291	GLN	Peptide
2	I	2343	GLY	Peptide
2	I	2472	LEU	Peptide
2	I	2807	TRP	Peptide
2	I	312	THR	Peptide
2	I	3971	GLY	Peptide
2	I	4641	PRO	Peptide
2	I	4666	VAL	Peptide
2	I	4807	PHE	Peptide
2	I	694	PRO	Peptide
1	J	8	SER	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	818	0	824	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	818	0	824	6	0
1	H	818	0	824	5	0
1	J	818	0	824	6	0
2	B	29499	0	24749	236	0
2	E	29499	0	24750	227	0
2	G	29499	0	24749	236	0
2	I	29499	0	24749	237	0
3	B	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
3	I	1	0	0	0	0
All	All	121272	0	102293	929	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (929) 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)
2:I:2291:GLN:HB3	2:I:2294:ASP:H	1.55	0.72
2:B:2291:GLN:HB3	2:B:2294:ASP:H	1.55	0.71
2:G:2291:GLN:HB3	2:G:2294:ASP:H	1.55	0.71
2:E:2291:GLN:HB3	2:E:2294:ASP:H	1.55	0.71
2:B:1260:MET:HB2	2:B:1269:CYS:H	1.62	0.65
2:B:331:VAL:HG12	2:B:333:GLY:H	1.61	0.65
2:G:1260:MET:HB2	2:G:1269:CYS:H	1.62	0.65
2:E:1260:MET:HB2	2:E:1269:CYS:H	1.62	0.65
2:I:331:VAL:HG12	2:I:333:GLY:H	1.61	0.64
2:G:1721:GLU:OE2	2:G:1725:ARG:NH2	2.31	0.64
2:E:331:VAL:HG12	2:E:333:GLY:H	1.61	0.64
2:E:942:ALA:HB2	2:E:1052:ASN:HB2	1.80	0.64
2:I:1260:MET:HB2	2:I:1269:CYS:H	1.62	0.64
2:I:1721:GLU:OE2	2:I:1725:ARG:NH2	2.31	0.64
2:G:942:ALA:HB2	2:G:1052:ASN:HB2	1.80	0.64
2:E:1721:GLU:OE2	2:E:1725:ARG:NH2	2.31	0.63
2:I:942:ALA:HB2	2:I:1052:ASN:HB2	1.80	0.63
2:I:379:HIS:HD2	2:I:382:GLY:H	1.47	0.63
2:B:942:ALA:HB2	2:B:1052:ASN:HB2	1.80	0.63
2:G:331:VAL:HG12	2:G:333:GLY:H	1.61	0.63
2:G:788:LYS:HG2	2:G:1630:CYS:H	1.64	0.63
2:B:1721:GLU:OE2	2:B:1725:ARG:NH2	2.31	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:788:LYS:HG2	2:I:1630:CYS:H	1.64	0.62
2:B:379:HIS:HD2	2:B:382:GLY:H	1.47	0.62
2:E:2347:GLU:O	2:E:2351:ASN:N	2.32	0.62
2:E:788:LYS:HG2	2:E:1630:CYS:H	1.64	0.61
2:B:788:LYS:HG2	2:B:1630:CYS:H	1.64	0.61
2:G:646:PRO:HD2	2:G:779:PRO:HB2	1.83	0.61
2:E:646:PRO:HD2	2:E:779:PRO:HB2	1.83	0.61
2:B:4973:HIS:NE2	2:I:4227:GLU:OE2	2.29	0.61
2:E:379:HIS:HD2	2:E:382:GLY:H	1.47	0.61
2:G:379:HIS:HD2	2:G:382:GLY:H	1.47	0.61
2:B:646:PRO:HD2	2:B:779:PRO:HB2	1.83	0.60
2:B:1519:UNK:HA	2:B:1526:UNK:HA	1.83	0.60
2:I:646:PRO:HD2	2:I:779:PRO:HB2	1.83	0.60
2:E:1519:UNK:HA	2:E:1526:UNK:HA	1.83	0.60
2:B:2347:GLU:O	2:B:2351:ASN:N	2.32	0.60
2:B:3937:TYR:O	2:B:4002:LYS:NZ	2.35	0.60
2:B:2748:PRO:HD2	2:B:2751:LEU:HD12	1.83	0.60
2:G:2748:PRO:HD2	2:G:2751:LEU:HD12	1.83	0.60
2:I:3937:TYR:O	2:I:4002:LYS:NZ	2.35	0.60
2:B:4984:ASN:OD1	2:B:4987:ASN:N	2.34	0.59
2:G:2347:GLU:O	2:G:2351:ASN:N	2.32	0.59
2:I:1519:UNK:HA	2:I:1526:UNK:HA	1.83	0.59
2:I:4180:ARG:NH1	2:I:4981:GLU:OE1	2.36	0.59
2:B:3675:ASP:OD1	2:B:3769:ARG:NH2	2.36	0.59
2:G:1519:UNK:HA	2:G:1526:UNK:HA	1.83	0.59
2:G:3937:TYR:O	2:G:4002:LYS:NZ	2.35	0.59
2:B:4227:GLU:OE2	2:E:4973:HIS:NE2	2.29	0.59
2:G:179:TYR:OH	2:I:2359:ARG:NH2	2.36	0.59
2:E:3937:TYR:O	2:E:4002:LYS:NZ	2.35	0.59
2:E:4180:ARG:NH1	2:E:4981:GLU:OE1	2.36	0.59
2:G:2359:ARG:NH2	2:E:179:TYR:OH	2.36	0.59
2:E:2748:PRO:HD2	2:E:2751:LEU:HD12	1.83	0.59
2:I:2748:PRO:HD2	2:I:2751:LEU:HD12	1.83	0.59
2:B:1079:LYS:NZ	2:B:1107:PRO:O	2.36	0.59
2:I:4984:ASN:OD1	2:I:4987:ASN:N	2.34	0.59
2:B:4180:ARG:NH1	2:B:4981:GLU:OE1	2.36	0.59
2:G:3675:ASP:OD1	2:G:3769:ARG:NH2	2.36	0.59
2:G:4180:ARG:NH1	2:G:4981:GLU:OE1	2.36	0.59
2:I:2347:GLU:O	2:I:2351:ASN:N	2.32	0.59
1:J:74:LEU:HB2	1:J:99:PHE:HB2	1.85	0.58
2:B:2291:GLN:HB2	2:B:2295:LEU:HG	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:580:GLU:HG2	2:G:583:ILE:HD11	1.85	0.58
2:G:1079:LYS:NZ	2:G:1107:PRO:O	2.36	0.58
2:G:4227:GLU:OE2	2:I:4973:HIS:NE2	2.26	0.58
2:E:580:GLU:HG2	2:E:583:ILE:HD11	1.85	0.58
2:I:2291:GLN:HB2	2:I:2295:LEU:HG	1.85	0.58
1:H:74:LEU:HB2	1:H:99:PHE:HB2	1.85	0.58
2:E:1079:LYS:NZ	2:E:1107:PRO:O	2.36	0.58
2:E:3675:ASP:OD1	2:E:3769:ARG:NH2	2.36	0.58
2:I:1079:LYS:NZ	2:I:1107:PRO:O	2.36	0.58
2:G:2291:GLN:HB2	2:G:2295:LEU:HG	1.85	0.58
1:A:74:LEU:HB2	1:A:99:PHE:HB2	1.85	0.58
2:G:1743:ARG:O	2:G:1964:ARG:NH2	2.37	0.58
2:E:2291:GLN:HB2	2:E:2295:LEU:HG	1.85	0.58
2:G:4984:ASN:OD1	2:G:4987:ASN:N	2.34	0.58
1:F:74:LEU:HB2	1:F:99:PHE:HB2	1.85	0.57
2:B:35:LEU:HD13	2:B:49:LEU:HD13	1.86	0.57
2:G:4582:VAL:HG11	2:E:4860:ARG:HD2	1.86	0.57
2:I:3675:ASP:OD1	2:I:3769:ARG:NH2	2.36	0.57
1:F:42:ARG:HG2	2:E:1691:GLN:HG2	1.87	0.57
2:I:4567:LEU:HA	2:I:4816:ILE:HD12	1.87	0.57
2:B:4567:LEU:HA	2:B:4816:ILE:HD12	1.87	0.57
2:B:4860:ARG:HD2	2:E:4582:VAL:HG11	1.87	0.57
2:G:393:CYS:SG	2:G:395:GLN:NE2	2.77	0.57
2:B:664:PHE:HB2	2:B:746:CYS:HB2	1.87	0.57
2:I:664:PHE:HB2	2:I:746:CYS:HB2	1.87	0.57
2:I:1743:ARG:O	2:I:1964:ARG:NH2	2.37	0.57
2:G:4567:LEU:HA	2:G:4816:ILE:HD12	1.87	0.57
2:B:580:GLU:HG2	2:B:583:ILE:HD11	1.85	0.57
2:B:2359:ARG:NH2	2:I:179:TYR:OH	2.37	0.57
2:B:4582:VAL:HG11	2:I:4860:ARG:HD2	1.86	0.57
2:G:35:LEU:HD13	2:G:49:LEU:HD13	1.86	0.57
2:G:4942:GLU:HA	2:I:4944:ARG:HH22	1.70	0.57
2:I:580:GLU:HG2	2:I:583:ILE:HD11	1.85	0.57
2:I:2755:ILE:HD13	2:I:2810:LYS:HG2	1.87	0.57
2:I:393:CYS:SG	2:I:395:GLN:NE2	2.77	0.57
2:B:393:CYS:SG	2:B:395:GLN:NE2	2.77	0.57
2:B:745:SER:HB2	2:B:758:ARG:HB3	1.87	0.57
2:B:1743:ARG:O	2:B:1964:ARG:NH2	2.37	0.56
2:G:4933:GLN:NE2	2:I:4933:GLN:OE1	2.38	0.56
2:E:393:CYS:SG	2:E:395:GLN:NE2	2.77	0.56
2:E:664:PHE:HB2	2:E:746:CYS:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1152:MET:HB2	2:E:1161:ILE:HB	1.87	0.56
2:I:745:SER:HB2	2:I:758:ARG:HB3	1.87	0.56
2:E:719:LEU:HD22	2:E:735:GLN:HG2	1.87	0.56
2:E:4984:ASN:OD1	2:E:4987:ASN:N	2.34	0.56
2:I:35:LEU:HD13	2:I:49:LEU:HD13	1.86	0.56
2:B:719:LEU:HD22	2:B:735:GLN:HG2	1.87	0.56
2:B:2755:ILE:HD13	2:B:2810:LYS:HG2	1.87	0.56
2:E:35:LEU:HD13	2:E:49:LEU:HD13	1.86	0.56
2:E:745:SER:HB2	2:E:758:ARG:HB3	1.87	0.56
2:E:1743:ARG:O	2:E:1964:ARG:NH2	2.37	0.56
2:E:2755:ILE:HD13	2:E:2810:LYS:HG2	1.87	0.56
2:G:641:VAL:HG21	2:G:705:ASN:HA	1.87	0.56
2:G:2042:CYS:SG	2:G:2043:GLY:N	2.78	0.56
2:E:4567:LEU:HA	2:E:4816:ILE:HD12	1.87	0.56
2:G:664:PHE:HB2	2:G:746:CYS:HB2	1.87	0.56
2:G:745:SER:HB2	2:G:758:ARG:HB3	1.87	0.56
2:I:23:GLN:OE1	2:I:203:ASN:ND2	2.34	0.56
2:B:1152:MET:HB2	2:B:1161:ILE:HB	1.87	0.56
2:G:1152:MET:HB2	2:G:1161:ILE:HB	1.87	0.56
2:E:641:VAL:HG21	2:E:705:ASN:HA	1.87	0.56
2:E:2042:CYS:SG	2:E:2043:GLY:N	2.78	0.56
2:B:23:GLN:OE1	2:B:203:ASN:ND2	2.34	0.56
2:G:2755:ILE:HD13	2:G:2810:LYS:HG2	1.87	0.56
2:G:2342:ASN:OD1	2:G:2342:ASN:N	2.39	0.56
2:E:4864:ASN:ND2	2:E:4871:GLU:OE1	2.39	0.56
2:I:719:LEU:HD22	2:I:735:GLN:HG2	1.87	0.56
2:B:179:TYR:OH	2:E:2359:ARG:NH2	2.38	0.56
2:G:4973:HIS:NE2	2:E:4227:GLU:OE2	2.32	0.56
2:E:2803:GLU:OE2	2:E:2806:ARG:NH1	2.39	0.56
2:B:2770:LYS:HB3	2:B:2775:TRP:HB2	1.88	0.55
2:G:719:LEU:HD22	2:G:735:GLN:HG2	1.87	0.55
2:I:1152:MET:HB2	2:I:1161:ILE:HB	1.87	0.55
2:I:2042:CYS:SG	2:I:2043:GLY:N	2.78	0.55
2:G:4864:ASN:ND2	2:G:4871:GLU:OE1	2.39	0.55
2:G:626:LEU:HG	2:G:628:GLY:H	1.72	0.55
2:G:2770:LYS:HB3	2:G:2775:TRP:HB2	1.88	0.55
2:E:485:SER:O	2:E:489:ASN:N	2.38	0.55
2:I:2770:LYS:HB3	2:I:2775:TRP:HB2	1.88	0.55
2:I:4864:ASN:ND2	2:I:4871:GLU:OE1	2.39	0.55
2:B:614:VAL:HG22	2:B:616:SER:H	1.72	0.55
2:E:614:VAL:HG22	2:E:616:SER:H	1.72	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:2737:PRO:O	2:I:2888:ARG:NH2	2.40	0.55
2:B:2342:ASN:OD1	2:B:2342:ASN:N	2.39	0.55
2:I:626:LEU:HG	2:I:628:GLY:H	1.72	0.55
2:B:4864:ASN:ND2	2:B:4871:GLU:OE1	2.39	0.55
2:G:2803:GLU:OE2	2:G:2806:ARG:NH1	2.39	0.55
2:E:2737:PRO:O	2:E:2888:ARG:NH2	2.40	0.55
2:E:2770:LYS:HB3	2:E:2775:TRP:HB2	1.89	0.55
2:I:315:CYS:SG	2:I:316:PHE:N	2.80	0.55
2:G:614:VAL:HG22	2:G:616:SER:H	1.72	0.55
2:I:619:ASP:OD1	2:I:1680:ARG:NH1	2.38	0.55
2:E:23:GLN:OE1	2:E:203:ASN:ND2	2.34	0.55
2:I:614:VAL:HG22	2:I:616:SER:H	1.72	0.55
2:B:2803:GLU:OE2	2:B:2806:ARG:NH1	2.39	0.55
2:G:315:CYS:SG	2:G:316:PHE:N	2.80	0.55
2:G:2737:PRO:O	2:G:2888:ARG:NH2	2.40	0.55
2:E:626:LEU:HG	2:E:628:GLY:H	1.72	0.55
2:B:2737:PRO:O	2:B:2888:ARG:NH2	2.40	0.54
2:I:2803:GLU:OE2	2:I:2806:ARG:NH1	2.39	0.54
2:B:641:VAL:HG21	2:B:705:ASN:HA	1.87	0.54
2:G:671:VAL:HG22	2:G:740:PRO:HG3	1.89	0.54
2:G:2739:PRO:HB3	2:G:2884:ASN:HB3	1.89	0.54
2:G:3809:ASN:HB3	2:G:3812:VAL:HG22	1.89	0.54
2:E:3809:ASN:HB3	2:E:3812:VAL:HG22	1.89	0.54
2:B:626:LEU:HG	2:B:628:GLY:H	1.72	0.54
2:E:2739:PRO:HB3	2:E:2884:ASN:HB3	1.89	0.54
2:G:2346:VAL:HG22	2:G:2348:GLU:H	1.73	0.54
2:E:315:CYS:SG	2:E:316:PHE:N	2.80	0.54
2:I:641:VAL:HG21	2:I:705:ASN:HA	1.87	0.54
2:I:2739:PRO:HB3	2:I:2884:ASN:HB3	1.89	0.54
2:I:3809:ASN:HB3	2:I:3812:VAL:HG22	1.89	0.54
2:B:315:CYS:SG	2:B:316:PHE:N	2.80	0.54
2:B:2346:VAL:HG22	2:B:2348:GLU:H	1.73	0.54
2:E:3817:LEU:HD13	2:E:3899:PHE:HD1	1.73	0.54
2:I:2342:ASN:OD1	2:I:2342:ASN:N	2.39	0.54
2:B:3809:ASN:HB3	2:B:3812:VAL:HG22	1.89	0.54
2:E:1679:ASN:ND2	2:E:1798:LEU:O	2.41	0.54
2:B:671:VAL:HG22	2:B:740:PRO:HG3	1.89	0.54
2:E:2342:ASN:N	2:E:2342:ASN:OD1	2.39	0.54
2:I:3817:LEU:HD13	2:I:3899:PHE:HD1	1.73	0.54
2:B:1679:ASN:ND2	2:B:1798:LEU:O	2.41	0.54
2:B:3817:LEU:HD13	2:B:3899:PHE:HD1	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:358:THR:HG21	2:B:382:GLY:HA2	1.90	0.53
2:E:2003:GLN:O	2:E:2007:ASN:ND2	2.42	0.53
2:B:4930:ALA:O	2:B:4934:GLY:N	2.42	0.53
2:G:4930:ALA:O	2:G:4934:GLY:N	2.42	0.53
2:I:2346:VAL:HG22	2:I:2348:GLU:H	1.73	0.53
2:G:2003:GLN:O	2:G:2007:ASN:ND2	2.42	0.53
2:I:2003:GLN:O	2:I:2007:ASN:ND2	2.42	0.53
2:E:4090:LYS:O	2:E:4094:GLN:N	2.40	0.53
2:E:4075:GLU:HA	2:E:4078:GLN:HB2	1.91	0.53
2:I:671:VAL:HG22	2:I:740:PRO:HG3	1.89	0.53
2:E:671:VAL:HG22	2:E:740:PRO:HG3	1.89	0.53
2:I:1679:ASN:ND2	2:I:1798:LEU:O	2.41	0.53
2:I:1691:GLN:HE22	2:I:1802:ILE:HG12	1.74	0.53
2:I:4930:ALA:O	2:I:4934:GLY:N	2.42	0.53
2:B:1691:GLN:HE22	2:B:1802:ILE:HG12	1.74	0.53
2:B:2739:PRO:HB3	2:B:2884:ASN:HB3	1.89	0.53
2:G:1679:ASN:ND2	2:G:1798:LEU:O	2.41	0.53
2:G:3817:LEU:HD13	2:G:3899:PHE:HD1	1.73	0.53
2:E:2346:VAL:HG22	2:E:2348:GLU:H	1.73	0.53
2:E:4571:PHE:O	2:E:4575:PHE:N	2.42	0.53
2:E:4930:ALA:O	2:E:4934:GLY:N	2.41	0.53
2:B:2003:GLN:O	2:B:2007:ASN:ND2	2.42	0.53
2:B:4075:GLU:HA	2:B:4078:GLN:HB2	1.91	0.53
2:G:358:THR:HG21	2:G:382:GLY:HA2	1.90	0.53
2:E:358:THR:HG21	2:E:382:GLY:HA2	1.90	0.52
2:I:4571:PHE:O	2:I:4575:PHE:N	2.42	0.52
2:B:572:PRO:HA	2:B:575:LEU:HD13	1.92	0.52
2:B:4571:PHE:O	2:B:4575:PHE:N	2.42	0.52
2:G:4571:PHE:O	2:G:4575:PHE:N	2.42	0.52
2:G:619:ASP:OD1	2:G:1680:ARG:NH1	2.38	0.52
2:G:2199:ARG:NH2	2:G:2246:ASN:OD1	2.43	0.52
2:E:619:ASP:OD1	2:E:1680:ARG:NH1	2.39	0.52
2:I:358:THR:HG21	2:I:382:GLY:HA2	1.90	0.52
2:I:2199:ARG:NH2	2:I:2246:ASN:OD1	2.43	0.52
2:B:485:SER:O	2:B:489:ASN:N	2.38	0.52
2:E:1691:GLN:HE22	2:E:1802:ILE:HG12	1.74	0.52
2:I:635:THR:HB	2:I:1639:LEU:HD23	1.92	0.52
2:I:4181:ILE:HG23	2:I:4193:ILE:HB	1.92	0.52
2:B:2199:ARG:NH2	2:B:2246:ASN:OD1	2.43	0.52
2:I:533:ASN:ND2	2:I:536:ASN:OD1	2.38	0.52
2:I:4075:GLU:HA	2:I:4078:GLN:HB2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:669:ASP:OD2	2:G:790:ARG:NH2	2.43	0.52
2:G:1691:GLN:HE22	2:G:1802:ILE:HG12	1.74	0.52
2:I:173:SER:OG	2:I:174:VAL:N	2.43	0.52
2:I:572:PRO:HA	2:I:575:LEU:HD13	1.92	0.52
2:G:4181:ILE:HG23	2:G:4193:ILE:HB	1.92	0.52
2:G:635:THR:HB	2:G:1639:LEU:HD23	1.92	0.52
2:E:4181:ILE:HG23	2:E:4193:ILE:HB	1.92	0.52
2:B:173:SER:OG	2:B:174:VAL:N	2.43	0.51
2:G:4075:GLU:HA	2:G:4078:GLN:HB2	1.91	0.51
2:E:572:PRO:HA	2:E:575:LEU:HD13	1.92	0.51
1:A:42:ARG:HG2	2:B:1691:GLN:HG2	1.92	0.51
2:B:635:THR:HB	2:B:1639:LEU:HD23	1.92	0.51
2:I:1516:UNK:N	2:I:1529:UNK:O	2.44	0.51
2:I:4059:LEU:HD13	2:I:4167:ALA:HB2	1.92	0.51
2:I:4063:ASP:O	2:I:4067:LYS:NZ	2.36	0.51
2:B:619:ASP:OD1	2:B:1680:ARG:NH1	2.38	0.51
2:B:4181:ILE:HG23	2:B:4193:ILE:HB	1.92	0.51
2:I:4673:ARG:HH22	2:I:4698:LYS:HB2	1.75	0.51
2:B:4933:GLN:NE2	2:E:4933:GLN:OE1	2.43	0.51
2:G:572:PRO:HA	2:G:575:LEU:HD13	1.92	0.51
2:G:4673:ARG:HH22	2:G:4698:LYS:HB2	1.75	0.51
2:E:2199:ARG:NH2	2:E:2246:ASN:OD1	2.43	0.51
2:I:4003:LEU:HB2	2:I:4013:LEU:HD13	1.93	0.51
2:B:533:ASN:ND2	2:B:536:ASN:OD1	2.38	0.51
2:B:596:ASN:HB3	2:B:599:VAL:HG22	1.93	0.51
2:B:2042:CYS:SG	2:B:2043:GLY:N	2.78	0.51
2:B:4063:ASP:O	2:B:4067:LYS:NZ	2.36	0.51
2:G:173:SER:OG	2:G:174:VAL:N	2.43	0.51
2:G:4003:LEU:HB2	2:G:4013:LEU:HD13	1.93	0.51
2:G:4860:ARG:HD2	2:I:4582:VAL:HG11	1.92	0.51
2:I:4090:LYS:O	2:I:4094:GLN:N	2.40	0.51
2:B:717:ASP:OD1	2:B:720:HIS:ND1	2.44	0.51
2:B:4003:LEU:HB2	2:B:4013:LEU:HD13	1.93	0.51
2:G:717:ASP:OD1	2:G:720:HIS:ND1	2.44	0.51
2:E:1516:UNK:N	2:E:1529:UNK:O	2.44	0.51
2:I:717:ASP:OD1	2:I:720:HIS:ND1	2.44	0.51
2:B:4942:GLU:HA	2:E:4944:ARG:HH22	1.76	0.51
2:E:4673:ARG:HH22	2:E:4698:LYS:HB2	1.75	0.51
2:I:596:ASN:HB3	2:I:599:VAL:HG22	1.93	0.51
2:B:4680:LYS:HD3	2:B:4686:LEU:HD22	1.93	0.51
2:B:4944:ARG:HH22	2:I:4942:GLU:HA	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:596:ASN:HB3	2:G:599:VAL:HG22	1.93	0.50
2:G:1718:ILE:HG13	2:G:1719:HIS:CD2	2.46	0.50
2:E:4003:LEU:HB2	2:E:4013:LEU:HD13	1.93	0.50
2:I:1103:GLY:HA3	2:I:1123:VAL:HA	1.94	0.50
2:I:4743:MET:HB3	2:I:4746:ALA:HB3	1.93	0.50
2:B:4059:LEU:HD13	2:B:4167:ALA:HB2	1.92	0.50
2:E:4059:LEU:HD13	2:E:4167:ALA:HB2	1.92	0.50
2:I:1718:ILE:HG13	2:I:1719:HIS:CD2	2.46	0.50
2:B:609:CYS:SG	2:B:610:ASN:N	2.85	0.50
2:G:609:CYS:SG	2:G:610:ASN:N	2.85	0.50
2:G:1516:UNK:N	2:G:1529:UNK:O	2.44	0.50
2:G:4059:LEU:HD13	2:G:4167:ALA:HB2	1.92	0.50
2:G:4090:LYS:O	2:G:4094:GLN:N	2.40	0.50
2:B:1516:UNK:N	2:B:1529:UNK:O	2.44	0.50
2:B:1718:ILE:HG13	2:B:1719:HIS:CD2	2.46	0.50
2:B:4933:GLN:OE1	2:I:4933:GLN:NE2	2.44	0.50
2:E:669:ASP:OD2	2:E:790:ARG:NH2	2.42	0.50
2:G:23:GLN:OE1	2:G:203:ASN:ND2	2.34	0.50
2:G:396:GLU:OE2	2:G:451:TYR:OH	2.28	0.50
2:E:426:ARG:HB2	2:E:506:TYR:HA	1.94	0.50
2:E:717:ASP:OD1	2:E:720:HIS:ND1	2.44	0.50
2:B:1103:GLY:HA3	2:B:1123:VAL:HA	1.94	0.50
2:B:4673:ARG:HH22	2:B:4698:LYS:HB2	1.75	0.50
2:G:4944:ARG:HH22	2:E:4942:GLU:HA	1.76	0.50
2:E:1718:ILE:HG13	2:E:1719:HIS:CD2	2.46	0.50
2:I:396:GLU:OE2	2:I:451:TYR:OH	2.28	0.50
2:I:609:CYS:SG	2:I:610:ASN:N	2.85	0.50
2:I:4680:LYS:HD3	2:I:4686:LEU:HD22	1.93	0.50
1:F:87:HIS:HD2	1:F:90:VAL:HB	1.77	0.50
2:B:683:ARG:NH1	2:B:707:VAL:O	2.43	0.50
2:G:627:PRO:O	2:G:629:ARG:NH1	2.45	0.50
2:E:173:SER:OG	2:E:174:VAL:N	2.43	0.50
2:B:111:HIS:CD2	2:B:114:SER:H	2.30	0.50
2:B:669:ASP:OD2	2:B:790:ARG:NH2	2.43	0.50
2:B:2002:PRO:HA	2:B:2005:GLN:HB3	1.94	0.50
2:I:627:PRO:O	2:I:629:ARG:NH1	2.45	0.50
2:I:864:PRO:HD2	2:I:867:LEU:HD12	1.94	0.50
1:J:42:ARG:HG2	2:I:1691:GLN:HG2	1.94	0.50
2:G:1103:GLY:HA3	2:G:1123:VAL:HA	1.93	0.50
2:G:1698:LEU:N	2:G:1712:TYR:OH	2.45	0.50
2:E:111:HIS:CD2	2:E:114:SER:H	2.30	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:635:THR:HB	2:E:1639:LEU:HD23	1.92	0.50
2:E:4680:LYS:HD3	2:E:4686:LEU:HD22	1.93	0.50
2:B:627:PRO:O	2:B:629:ARG:NH1	2.45	0.49
2:E:596:ASN:HB3	2:E:599:VAL:HG22	1.93	0.49
2:E:683:ARG:NH1	2:E:707:VAL:O	2.43	0.49
2:I:214:VAL:HG12	2:I:274:LEU:HD12	1.94	0.49
2:I:637:LEU:HD23	2:I:1637:MET:HB3	1.94	0.49
2:I:989:ALA:O	2:I:1035:ASN:ND2	2.44	0.49
1:J:35:LYS:HD3	2:I:636:ASN:HD21	1.77	0.49
2:G:1244:GLN:OE1	2:G:1646:ARG:NH1	2.45	0.49
2:I:488:LEU:HD23	2:I:491:ILE:HD12	1.94	0.49
2:I:2002:PRO:HA	2:I:2005:GLN:HB3	1.94	0.49
1:H:87:HIS:HD2	1:H:90:VAL:HB	1.77	0.49
2:B:488:LEU:HD23	2:B:491:ILE:HD12	1.94	0.49
2:B:989:ALA:O	2:B:1035:ASN:ND2	2.44	0.49
2:B:3753:PHE:HA	2:B:3756:LYS:HB3	1.93	0.49
2:G:214:VAL:HG12	2:G:274:LEU:HD12	1.94	0.49
2:G:533:ASN:ND2	2:G:536:ASN:OD1	2.38	0.49
2:E:609:CYS:SG	2:E:610:ASN:N	2.85	0.49
2:E:683:ARG:HG2	2:E:717:ASP:HB3	1.95	0.49
2:I:707:VAL:HG23	2:I:713:SER:HB2	1.94	0.49
2:B:864:PRO:HD2	2:B:867:LEU:HD12	1.94	0.49
2:B:4090:LYS:O	2:B:4094:GLN:N	2.40	0.49
2:G:707:VAL:HG23	2:G:713:SER:HB2	1.94	0.49
2:G:4743:MET:HB3	2:G:4746:ALA:HB3	1.93	0.49
2:E:206:CYS:SG	2:E:207:SER:N	2.85	0.49
2:I:206:CYS:SG	2:I:207:SER:N	2.85	0.49
2:I:1244:GLN:OE1	2:I:1646:ARG:NH1	2.45	0.49
2:I:3753:PHE:HA	2:I:3756:LYS:HB3	1.93	0.49
2:I:2332:LEU:HD13	2:I:2335:LEU:HD12	1.95	0.49
2:B:214:VAL:HG12	2:B:274:LEU:HD12	1.94	0.49
2:B:1698:LEU:N	2:B:1712:TYR:OH	2.45	0.49
2:G:637:LEU:HD23	2:G:1637:MET:HB3	1.94	0.49
2:G:2894:LEU:HD11	2:G:2902:HIS:HB2	1.94	0.49
2:G:4680:LYS:HD3	2:G:4686:LEU:HD22	1.93	0.49
2:E:4924:VAL:HA	2:E:4928:LEU:HB2	1.94	0.49
2:I:426:ARG:HB2	2:I:506:TYR:HA	1.93	0.49
2:I:3842:LEU:O	2:I:3929:SER:OG	2.31	0.49
2:B:1244:GLN:OE1	2:B:1646:ARG:NH1	2.45	0.49
2:B:1703:LEU:HD12	2:B:1708:ARG:HB2	1.95	0.49
2:G:111:HIS:CD2	2:G:114:SER:H	2.30	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:488:LEU:HD23	2:G:491:ILE:HD12	1.94	0.49
2:E:214:VAL:HG12	2:E:274:LEU:HD12	1.94	0.49
2:E:627:PRO:O	2:E:629:ARG:NH1	2.45	0.49
2:E:1244:GLN:OE1	2:E:1646:ARG:NH1	2.45	0.49
2:E:3753:PHE:HA	2:E:3756:LYS:HB3	1.93	0.49
2:B:426:ARG:HB2	2:B:506:TYR:HA	1.93	0.49
2:B:2332:LEU:HD13	2:B:2335:LEU:HD12	1.95	0.49
2:G:206:CYS:SG	2:G:207:SER:N	2.85	0.49
2:G:3842:LEU:O	2:G:3929:SER:OG	2.31	0.49
2:E:4743:MET:HB3	2:E:4746:ALA:HB3	1.93	0.49
2:I:111:HIS:CD2	2:I:114:SER:H	2.30	0.49
2:I:1703:LEU:HD12	2:I:1708:ARG:HB2	1.95	0.49
1:A:87:HIS:HD2	1:A:90:VAL:HB	1.77	0.49
2:B:683:ARG:HG2	2:B:717:ASP:HB3	1.95	0.49
2:G:426:ARG:HB2	2:G:506:TYR:HA	1.94	0.49
2:G:864:PRO:HD2	2:G:867:LEU:HD12	1.94	0.49
2:G:2002:PRO:HA	2:G:2005:GLN:HB3	1.94	0.49
2:G:4933:GLN:OE1	2:E:4933:GLN:NE2	2.46	0.49
2:E:637:LEU:HD23	2:E:1637:MET:HB3	1.94	0.49
2:I:1698:LEU:N	2:I:1712:TYR:OH	2.45	0.49
2:B:2894:LEU:HD11	2:B:2902:HIS:HB2	1.94	0.49
2:G:3753:PHE:HA	2:G:3756:LYS:HB3	1.93	0.49
2:E:1103:GLY:HA3	2:E:1123:VAL:HA	1.94	0.49
2:E:2002:PRO:HA	2:E:2005:GLN:HB3	1.94	0.49
2:B:2131:LEU:HD23	2:B:3662:ILE:HB	1.95	0.48
2:G:4063:ASP:O	2:G:4067:LYS:NZ	2.36	0.48
2:E:838:HIS:HA	2:E:1201:HIS:HB3	1.95	0.48
2:E:989:ALA:O	2:E:1035:ASN:ND2	2.44	0.48
2:E:1698:LEU:N	2:E:1712:TYR:OH	2.45	0.48
2:B:707:VAL:HG23	2:B:713:SER:HB2	1.94	0.48
2:E:2420:HIS:ND1	2:E:2493:UNK:O	2.47	0.48
2:I:485:SER:O	2:I:489:ASN:N	2.38	0.48
2:I:669:ASP:OD2	2:I:790:ARG:NH2	2.43	0.48
2:I:683:ARG:NH1	2:I:707:VAL:O	2.43	0.48
2:I:2131:LEU:HD23	2:I:3662:ILE:HB	1.96	0.48
2:I:3948:LYS:HG2	2:I:4012:LEU:HD22	1.95	0.48
2:B:838:HIS:HA	2:B:1201:HIS:HB3	1.95	0.48
2:B:4743:MET:HB3	2:B:4746:ALA:HB3	1.93	0.48
2:G:683:ARG:HG2	2:G:717:ASP:HB3	1.95	0.48
2:E:2894:LEU:HD11	2:E:2902:HIS:HB2	1.94	0.48
2:I:4924:VAL:HA	2:I:4928:LEU:HB2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:206:CYS:SG	2:B:207:SER:N	2.85	0.48
2:B:395:GLN:NE2	2:B:397:GLU:OE1	2.47	0.48
2:B:1960:ALA:O	2:B:1964:ARG:NE	2.46	0.48
2:B:3842:LEU:O	2:B:3929:SER:OG	2.31	0.48
2:G:2758:PHE:O	2:G:2762:THR:N	2.47	0.48
2:E:488:LEU:HD23	2:E:491:ILE:HD12	1.94	0.48
2:I:2894:LEU:HD11	2:I:2902:HIS:HB2	1.94	0.48
2:B:637:LEU:HD23	2:B:1637:MET:HB3	1.94	0.48
2:B:3767:GLN:NE2	2:B:3804:ILE:O	2.47	0.48
2:G:1991:THR:O	2:G:1995:THR:OG1	2.32	0.48
2:G:4060:LYS:NZ	2:G:4107:GLU:OE2	2.47	0.48
2:G:4924:VAL:HA	2:G:4928:LEU:HB2	1.94	0.48
2:E:864:PRO:HD2	2:E:867:LEU:HD12	1.94	0.48
2:E:1991:THR:O	2:E:1995:THR:OG1	2.32	0.48
2:I:683:ARG:HG2	2:I:717:ASP:HB3	1.95	0.48
2:B:1991:THR:O	2:B:1995:THR:OG1	2.32	0.48
2:G:485:SER:O	2:G:489:ASN:N	2.38	0.48
2:G:3948:LYS:HG2	2:G:4012:LEU:HD22	1.96	0.48
2:E:395:GLN:NE2	2:E:397:GLU:OE1	2.47	0.48
2:E:1960:ALA:O	2:E:1964:ARG:NE	2.46	0.48
1:H:35:LYS:HD3	2:G:636:ASN:HD21	1.79	0.48
2:B:4924:VAL:HA	2:B:4928:LEU:HB2	1.94	0.48
2:G:2131:LEU:HD23	2:G:3662:ILE:HB	1.96	0.48
2:E:707:VAL:HG23	2:E:713:SER:HB2	1.94	0.48
2:E:2131:LEU:HD23	2:E:3662:ILE:HB	1.96	0.48
2:E:4060:LYS:NZ	2:E:4107:GLU:OE2	2.47	0.48
2:I:681:HIS:HB3	2:I:784:SER:HB3	1.96	0.48
2:I:1991:THR:O	2:I:1995:THR:OG1	2.32	0.48
2:I:4666:VAL:HG23	2:I:4669:VAL:HB	1.96	0.48
2:G:838:HIS:HA	2:G:1201:HIS:HB3	1.95	0.48
2:G:887:ILE:HG21	2:G:959:TYR:HA	1.96	0.48
2:G:2332:LEU:HD13	2:G:2335:LEU:HD12	1.95	0.48
2:E:3767:GLN:NE2	2:E:3804:ILE:O	2.47	0.48
2:G:1703:LEU:HD12	2:G:1708:ARG:HB2	1.95	0.47
2:G:3767:GLN:NE2	2:G:3804:ILE:O	2.47	0.47
2:E:1703:LEU:HD12	2:E:1708:ARG:HB2	1.95	0.47
2:E:2332:LEU:HD13	2:E:2335:LEU:HD12	1.95	0.47
2:E:4666:VAL:HG23	2:E:4669:VAL:HB	1.96	0.47
1:A:35:LYS:HD3	2:B:636:ASN:HD21	1.79	0.47
1:J:87:HIS:HD2	1:J:90:VAL:HB	1.77	0.47
2:G:1671:ARG:NH2	2:G:1710:GLY:O	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:2420:HIS:ND1	2:G:2493:UNK:O	2.47	0.47
2:I:3658:LYS:HA	2:I:3661:TRP:CD2	2.49	0.47
2:B:1671:ARG:NH2	2:B:1710:GLY:O	2.47	0.47
2:G:681:HIS:HB3	2:G:784:SER:HB3	1.96	0.47
2:E:4063:ASP:O	2:E:4067:LYS:NZ	2.36	0.47
2:I:395:GLN:NE2	2:I:397:GLU:OE1	2.47	0.47
2:I:2758:PHE:O	2:I:2762:THR:N	2.47	0.47
2:B:2758:PHE:O	2:B:2762:THR:N	2.47	0.47
2:B:3658:LYS:HA	2:B:3661:TRP:CD2	2.49	0.47
2:G:219:VAL:HG13	2:G:285:VAL:HG21	1.97	0.47
2:G:683:ARG:NH1	2:G:707:VAL:O	2.43	0.47
2:G:3658:LYS:HA	2:G:3661:TRP:CD2	2.49	0.47
2:E:887:ILE:HG21	2:E:959:TYR:HA	1.96	0.47
2:I:3767:GLN:NE2	2:I:3804:ILE:O	2.47	0.47
1:H:42:ARG:HG2	2:G:1691:GLN:HG2	1.97	0.47
2:E:533:ASN:ND2	2:E:536:ASN:OD1	2.38	0.47
2:E:1671:ARG:NH2	2:E:1710:GLY:O	2.47	0.47
2:B:4155:PRO:HD2	2:B:5036:LEU:HD23	1.97	0.47
2:G:395:GLN:NE2	2:G:397:GLU:OE1	2.47	0.47
2:G:2159:LEU:HA	2:G:2162:ILE:HD12	1.97	0.47
2:I:395:GLN:HG3	2:I:397:GLU:H	1.80	0.47
2:I:838:HIS:HA	2:I:1201:HIS:HB3	1.95	0.47
2:I:1671:ARG:NH2	2:I:1710:GLY:O	2.47	0.47
2:I:4060:LYS:NZ	2:I:4107:GLU:OE2	2.47	0.47
2:B:395:GLN:HG3	2:B:397:GLU:H	1.80	0.47
2:B:396:GLU:OE2	2:B:451:TYR:OH	2.28	0.47
2:B:681:HIS:HB3	2:B:784:SER:HB3	1.96	0.47
2:B:972:LEU:O	2:B:1044:ARG:NH2	2.48	0.47
2:B:1812:LEU:HD21	2:B:1861:GLN:HG2	1.97	0.47
2:B:2420:HIS:ND1	2:B:2493:UNK:O	2.47	0.47
2:B:3948:LYS:HG2	2:B:4012:LEU:HD22	1.96	0.47
2:B:4060:LYS:NZ	2:B:4107:GLU:OE2	2.47	0.47
2:G:395:GLN:HG3	2:G:397:GLU:H	1.80	0.47
2:E:1171:SER:OG	2:E:1175:SER:N	2.42	0.47
2:E:3842:LEU:O	2:E:3929:SER:OG	2.31	0.47
2:E:3948:LYS:HG2	2:E:4012:LEU:HD22	1.96	0.47
2:E:4155:PRO:HD2	2:E:5036:LEU:HD23	1.97	0.47
2:I:887:ILE:HG21	2:I:959:TYR:HA	1.96	0.47
2:I:1960:ALA:O	2:I:1964:ARG:NE	2.46	0.47
2:B:2751:LEU:HD11	2:B:2823:ILE:HG21	1.97	0.47
2:G:4666:VAL:HG23	2:G:4669:VAL:HB	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:134:ASP:N	2:E:134:ASP:OD1	2.48	0.47
2:E:681:HIS:HB3	2:E:784:SER:HB3	1.96	0.47
2:E:2927:LEU:HD23	2:E:2930:LEU:HD12	1.96	0.47
2:E:3779:VAL:HG23	2:E:3780:LEU:HD12	1.97	0.47
2:I:4155:PRO:HD2	2:I:5036:LEU:HD23	1.97	0.47
2:B:4239:GLU:OE2	2:B:5014:TYR:OH	2.27	0.47
2:G:989:ALA:O	2:G:1035:ASN:ND2	2.44	0.47
2:G:4155:PRO:HD2	2:G:5036:LEU:HD23	1.97	0.47
2:E:395:GLN:HG3	2:E:397:GLU:H	1.80	0.47
2:E:2159:LEU:HA	2:E:2162:ILE:HD12	1.97	0.47
2:I:219:VAL:HG13	2:I:285:VAL:HG21	1.97	0.47
2:I:2420:HIS:ND1	2:I:2493:UNK:O	2.47	0.47
2:I:4767:TRP:HE3	2:I:4770:SER:HB2	1.80	0.47
2:B:3779:VAL:HG23	2:B:3780:LEU:HD12	1.97	0.47
2:B:887:ILE:HG21	2:B:959:TYR:HA	1.96	0.46
2:E:1812:LEU:HD21	2:E:1861:GLN:HG2	1.97	0.46
2:I:2751:LEU:HD11	2:I:2823:ILE:HG21	1.97	0.46
1:A:23:VAL:HG22	1:A:47:LYS:HG2	1.97	0.46
2:B:2159:LEU:HA	2:B:2162:ILE:HD12	1.96	0.46
2:B:2277:ALA:HB1	2:B:2337:PHE:HD2	1.81	0.46
2:B:2927:LEU:HD23	2:B:2930:LEU:HD12	1.96	0.46
2:B:4666:VAL:HG23	2:B:4669:VAL:HB	1.96	0.46
2:B:4767:TRP:HE3	2:B:4770:SER:HB2	1.80	0.46
2:G:132:ALA:HA	2:G:194:SER:HB2	1.98	0.46
2:E:972:LEU:O	2:E:1044:ARG:NH2	2.48	0.46
2:E:2236:LEU:HD23	2:E:2275:VAL:HG21	1.98	0.46
2:E:2758:PHE:O	2:E:2762:THR:N	2.47	0.46
2:I:2159:LEU:HA	2:I:2162:ILE:HD12	1.97	0.46
1:H:23:VAL:HG22	1:H:47:LYS:HG2	1.97	0.46
2:B:219:VAL:HG13	2:B:285:VAL:HG21	1.97	0.46
2:B:1095:VAL:HB	2:B:1199:VAL:HG23	1.97	0.46
2:G:972:LEU:O	2:G:1044:ARG:NH2	2.48	0.46
2:G:2236:LEU:HD23	2:G:2275:VAL:HG21	1.98	0.46
2:G:3779:VAL:HG23	2:G:3780:LEU:HD12	1.97	0.46
2:E:2277:ALA:HB1	2:E:2337:PHE:HD2	1.81	0.46
2:I:972:LEU:O	2:I:1044:ARG:NH2	2.48	0.46
2:G:1812:LEU:HD21	2:G:1861:GLN:HG2	1.97	0.46
2:E:396:GLU:OE2	2:E:451:TYR:OH	2.28	0.46
2:E:3658:LYS:HA	2:E:3661:TRP:CD2	2.49	0.46
2:E:3923:LEU:HD13	2:E:3961:VAL:HG11	1.98	0.46
2:I:2927:LEU:HD23	2:I:2930:LEU:HD12	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:3779:VAL:HG23	2:I:3780:LEU:HD12	1.97	0.46
2:B:1078:GLU:HG3	2:B:1237:TRP:HE1	1.81	0.46
2:B:2143:THR:O	2:B:3651:ASN:ND2	2.44	0.46
2:G:2751:LEU:HD11	2:G:2823:ILE:HG21	1.97	0.46
2:G:4749:GLU:HA	2:G:4752:ALA:HB3	1.97	0.46
2:B:134:ASP:OD1	2:B:134:ASP:N	2.48	0.46
2:G:765:GLN:NE2	2:G:1521:UNK:O	2.49	0.46
2:G:3923:LEU:HD13	2:G:3961:VAL:HG11	1.98	0.46
2:I:645:ARG:HH11	2:I:778:PHE:HE1	1.64	0.46
2:I:2326:CYS:SG	2:I:2327:GLY:N	2.89	0.46
2:B:2236:LEU:HD23	2:B:2275:VAL:HG21	1.98	0.46
2:E:219:VAL:HG13	2:E:285:VAL:HG21	1.97	0.46
2:I:132:ALA:HA	2:I:194:SER:HB2	1.98	0.46
2:G:698:GLY:HA2	2:G:703:GLY:HA2	1.98	0.46
2:G:1960:ALA:O	2:G:1964:ARG:NE	2.46	0.46
2:G:2326:CYS:SG	2:G:2327:GLY:N	2.89	0.46
2:G:2927:LEU:HD23	2:G:2930:LEU:HD12	1.96	0.46
2:I:4749:GLU:HA	2:I:4752:ALA:HB3	1.97	0.46
2:G:1171:SER:OG	2:G:1175:SER:N	2.42	0.46
2:G:2277:ALA:HB1	2:G:2337:PHE:HD2	1.81	0.46
2:G:3365:UNK:O	2:G:3369:UNK:N	2.49	0.46
2:E:765:GLN:NE2	2:E:1521:UNK:O	2.49	0.46
2:I:134:ASP:OD1	2:I:134:ASP:N	2.48	0.46
2:I:698:GLY:HA2	2:I:703:GLY:HA2	1.98	0.46
2:I:3923:LEU:HD13	2:I:3961:VAL:HG11	1.98	0.46
2:G:134:ASP:OD1	2:G:134:ASP:N	2.48	0.45
2:G:1095:VAL:HB	2:G:1199:VAL:HG23	1.97	0.45
2:E:2326:CYS:SG	2:E:2327:GLY:N	2.89	0.45
2:I:2236:LEU:HD23	2:I:2275:VAL:HG21	1.98	0.45
2:B:4749:GLU:HA	2:B:4752:ALA:HB3	1.97	0.45
2:E:1078:GLU:HG3	2:E:1237:TRP:HE1	1.81	0.45
2:I:765:GLN:NE2	2:I:1521:UNK:O	2.49	0.45
2:I:2277:ALA:HB1	2:I:2337:PHE:HD2	1.81	0.45
2:E:4749:GLU:HA	2:E:4752:ALA:HB3	1.97	0.45
2:E:4767:TRP:HE3	2:E:4770:SER:HB2	1.80	0.45
1:J:23:VAL:HG22	1:J:47:LYS:HG2	1.97	0.45
2:B:2326:CYS:SG	2:B:2327:GLY:N	2.89	0.45
2:B:3923:LEU:HD13	2:B:3961:VAL:HG11	1.98	0.45
2:I:2004:GLU:HA	2:I:2007:ASN:HD22	1.82	0.45
2:B:403:MET:O	2:B:407:THR:N	2.50	0.45
2:B:765:GLN:NE2	2:B:1521:UNK:O	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:4767:TRP:HE3	2:G:4770:SER:HB2	1.80	0.45
2:E:551:LEU:HD21	2:E:589:LEU:HD13	1.98	0.45
2:E:1095:VAL:HB	2:E:1199:VAL:HG23	1.97	0.45
2:E:4713:SER:HG	2:E:4775:TYR:HH	1.64	0.45
2:I:4657:CYS:HB3	2:I:4792:LEU:HD11	1.99	0.45
2:B:551:LEU:HD21	2:B:589:LEU:HD13	1.98	0.45
2:B:645:ARG:HH11	2:B:778:PHE:HE1	1.64	0.45
2:B:2004:GLU:HA	2:B:2007:ASN:HD22	1.82	0.45
2:G:645:ARG:HH11	2:G:778:PHE:HE1	1.64	0.45
2:G:2004:GLU:HA	2:G:2007:ASN:HD22	1.82	0.45
2:E:2751:LEU:HD11	2:E:2823:ILE:HG21	1.97	0.45
2:E:2753:SER:O	2:E:2757:LYS:N	2.48	0.45
2:E:3365:UNK:O	2:E:3369:UNK:N	2.49	0.45
2:I:1078:GLU:HG3	2:I:1237:TRP:HE1	1.81	0.45
1:F:23:VAL:HG22	1:F:47:LYS:HG2	1.97	0.45
2:B:132:ALA:HA	2:B:194:SER:HB2	1.98	0.45
2:B:698:GLY:HA2	2:B:703:GLY:HA2	1.98	0.45
2:G:551:LEU:HD21	2:G:589:LEU:HD13	1.98	0.45
2:G:1078:GLU:HG3	2:G:1237:TRP:HE1	1.81	0.45
2:G:1457:UNK:N	2:G:1497:UNK:O	2.50	0.45
2:I:1095:VAL:HB	2:I:1199:VAL:HG23	1.98	0.45
2:B:4657:CYS:HB3	2:B:4792:LEU:HD11	1.99	0.45
2:E:132:ALA:HA	2:E:194:SER:HB2	1.98	0.45
2:I:1812:LEU:HD21	2:I:1861:GLN:HG2	1.97	0.45
2:I:4925:ILE:HA	2:I:4929:LEU:HD23	1.99	0.45
2:B:3365:UNK:O	2:B:3369:UNK:N	2.49	0.45
2:G:3756:LYS:HA	2:G:3759:GLU:HG2	1.99	0.45
2:G:3992:PHE:O	2:G:3996:PHE:N	2.41	0.45
2:E:4558:ASN:OD1	2:E:4558:ASN:N	2.50	0.45
2:I:3365:UNK:O	2:I:3369:UNK:N	2.49	0.45
1:F:35:LYS:HD3	2:E:636:ASN:HD21	1.82	0.45
2:B:379:HIS:CD2	2:B:381:GLU:H	2.35	0.45
2:E:4142:ASN:HA	2:E:4145:VAL:HG12	1.99	0.45
2:B:886:ARG:HB3	2:B:891:TRP:HB2	2.00	0.44
2:B:2753:SER:O	2:B:2757:LYS:N	2.48	0.44
2:E:2004:GLU:HA	2:E:2007:ASN:HD22	1.82	0.44
2:E:4925:ILE:HA	2:E:4929:LEU:HD23	1.99	0.44
2:I:45:ARG:HG2	2:I:443:LEU:HD21	1.99	0.44
2:I:1171:SER:OG	2:I:1175:SER:N	2.42	0.44
2:I:4142:ASN:HA	2:I:4145:VAL:HG12	1.99	0.44
2:B:4142:ASN:HA	2:B:4145:VAL:HG12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:978:THR:HB	2:G:980:ALA:H	1.82	0.44
2:G:4142:ASN:HA	2:G:4145:VAL:HG12	1.99	0.44
2:E:346:CYS:N	2:E:388:LEU:O	2.50	0.44
2:E:4229:GLU:HA	2:E:4232:GLU:HB3	2.00	0.44
2:I:143:GLY:HA3	2:I:147:TRP:HE1	1.82	0.44
2:B:346:CYS:N	2:B:388:LEU:O	2.50	0.44
2:G:2880:GLU:O	2:G:2884:ASN:N	2.46	0.44
2:E:379:HIS:CD2	2:E:381:GLU:H	2.35	0.44
2:E:698:GLY:HA2	2:E:703:GLY:HA2	1.98	0.44
2:E:886:ARG:HB3	2:E:891:TRP:HB2	2.00	0.44
2:E:1457:UNK:N	2:E:1497:UNK:O	2.50	0.44
2:I:1457:UNK:N	2:I:1497:UNK:O	2.50	0.44
2:I:3676:ASP:OD1	2:I:3676:ASP:N	2.50	0.44
2:B:1973:GLN:HA	2:B:1976:ARG:HB3	2.00	0.44
2:B:4227:GLU:HG3	2:B:4228:ALA:H	1.82	0.44
2:G:4657:CYS:HB3	2:G:4792:LEU:HD11	1.99	0.44
2:E:978:THR:HB	2:E:980:ALA:H	1.82	0.44
2:I:403:MET:O	2:I:407:THR:N	2.50	0.44
2:I:579:GLN:H	2:I:582:HIS:HD2	1.66	0.44
2:B:1457:UNK:N	2:B:1497:UNK:O	2.50	0.44
2:B:3676:ASP:OD1	2:B:3676:ASP:N	2.50	0.44
2:B:4229:GLU:HA	2:B:4232:GLU:HB3	2.00	0.44
2:E:220:LEU:O	2:E:260:TRP:N	2.50	0.44
2:E:645:ARG:HH11	2:E:778:PHE:HE1	1.64	0.44
2:I:218:HIS:HB3	2:I:392:ARG:HD3	2.00	0.44
2:I:379:HIS:CD2	2:I:381:GLU:H	2.35	0.44
2:I:470:SER:O	2:I:474:ARG:NE	2.43	0.44
2:I:2226:PRO:HA	2:I:2229:VAL:HG12	2.00	0.44
2:I:4227:GLU:HG3	2:I:4228:ALA:H	1.82	0.44
2:B:1972:ASN:O	2:B:1976:ARG:N	2.49	0.44
2:B:4925:ILE:HA	2:B:4929:LEU:HD23	1.99	0.44
2:I:551:LEU:HD21	2:I:589:LEU:HD13	1.98	0.44
2:I:2880:GLU:O	2:I:2884:ASN:N	2.47	0.44
2:I:4886:HIS:O	2:I:4890:GLY:N	2.46	0.44
2:B:978:THR:HB	2:B:980:ALA:H	1.82	0.44
2:G:143:GLY:HA3	2:G:147:TRP:HE1	1.82	0.44
2:G:2226:PRO:HA	2:G:2229:VAL:HG12	2.00	0.44
2:G:3676:ASP:OD1	2:G:3676:ASP:N	2.50	0.44
2:G:4925:ILE:HA	2:G:4929:LEU:HD23	1.99	0.44
2:I:606:LEU:HG	2:I:617:ASN:HD22	1.82	0.44
2:I:1760:HIS:CE1	2:I:2041:HIS:HA	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:3756:LYS:HA	2:I:3759:GLU:HG2	1.99	0.44
2:B:143:GLY:HA3	2:B:147:TRP:HE1	1.82	0.44
2:G:379:HIS:CD2	2:G:381:GLU:H	2.35	0.44
2:G:886:ARG:HB3	2:G:891:TRP:HB2	2.00	0.44
2:B:3850:GLN:HA	2:B:3853:ALA:HB3	2.00	0.44
2:B:4558:ASN:OD1	2:B:4558:ASN:N	2.50	0.44
2:B:4886:HIS:O	2:B:4890:GLY:N	2.46	0.44
2:G:346:CYS:N	2:G:388:LEU:O	2.50	0.44
2:G:606:LEU:HG	2:G:617:ASN:HD22	1.82	0.44
2:G:4227:GLU:HG3	2:G:4228:ALA:H	1.82	0.44
2:E:143:GLY:HA3	2:E:147:TRP:HE1	1.82	0.44
2:I:1973:GLN:HA	2:I:1976:ARG:HB3	2.00	0.44
2:I:4229:GLU:HA	2:I:4232:GLU:HB3	2.00	0.44
2:G:218:HIS:HB3	2:G:392:ARG:HD3	2.00	0.43
2:G:220:LEU:O	2:G:260:TRP:N	2.50	0.43
2:E:243:ARG:NH1	2:E:301:VAL:O	2.46	0.43
2:E:403:MET:O	2:E:407:THR:N	2.50	0.43
2:E:3756:LYS:HA	2:E:3759:GLU:HG2	1.99	0.43
2:I:886:ARG:HB3	2:I:891:TRP:HB2	2.00	0.43
2:B:278:GLN:N	2:B:315:CYS:SG	2.91	0.43
2:B:1760:HIS:CE1	2:B:2041:HIS:HA	2.53	0.43
2:G:451:TYR:O	2:G:474:ARG:NH1	2.45	0.43
2:G:579:GLN:H	2:G:582:HIS:HD2	1.66	0.43
2:G:718:GLY:HA3	2:G:737:LEU:HA	2.01	0.43
2:E:606:LEU:HG	2:E:617:ASN:HD22	1.82	0.43
2:E:4227:GLU:HG3	2:E:4228:ALA:H	1.82	0.43
2:E:4657:CYS:HB3	2:E:4792:LEU:HD11	1.99	0.43
2:I:101:LEU:HB3	2:I:150:MET:HE1	1.99	0.43
2:I:346:CYS:N	2:I:388:LEU:O	2.50	0.43
2:B:218:HIS:HB3	2:B:392:ARG:HD3	2.00	0.43
2:B:718:GLY:HA3	2:B:737:LEU:HA	2.01	0.43
2:B:3756:LYS:HA	2:B:3759:GLU:HG2	1.99	0.43
2:G:243:ARG:NH1	2:G:301:VAL:O	2.46	0.43
2:G:915:GLU:O	2:G:919:ASN:ND2	2.51	0.43
2:G:3362:UNK:O	2:G:3366:UNK:N	2.52	0.43
2:G:4229:GLU:HA	2:G:4232:GLU:HB3	2.00	0.43
2:E:530:ILE:HD13	2:E:536:ASN:HB3	2.01	0.43
2:E:3362:UNK:O	2:E:3366:UNK:N	2.52	0.43
2:B:4586:PRO:HB3	2:B:4628:VAL:HG21	2.01	0.43
2:G:1972:ASN:O	2:G:1976:ARG:N	2.49	0.43
2:E:959:TYR:HB3	2:E:967:PRO:HD2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:907:LEU:O	2:I:963:ASN:ND2	2.39	0.43
2:G:530:ILE:HD13	2:G:536:ASN:HB3	2.01	0.43
2:E:3850:GLN:HA	2:E:3853:ALA:HB3	2.00	0.43
2:I:2095:GLN:NE2	2:I:2127:GLN:O	2.50	0.43
2:I:4586:PRO:HB3	2:I:4628:VAL:HG21	2.01	0.43
2:B:579:GLN:H	2:B:582:HIS:HD2	1.66	0.43
2:G:101:LEU:HB3	2:G:150:MET:HE1	2.00	0.43
2:G:1973:GLN:HA	2:G:1976:ARG:HB3	2.00	0.43
2:G:4586:PRO:HB3	2:G:4628:VAL:HG21	2.01	0.43
2:E:345:LEU:HD22	2:E:387:ALA:HB1	2.01	0.43
2:E:915:GLU:O	2:E:919:ASN:ND2	2.51	0.43
2:E:3955:MET:HG3	2:E:4019:LEU:HD22	2.01	0.43
2:E:4886:HIS:O	2:E:4890:GLY:N	2.46	0.43
2:I:978:THR:HB	2:I:980:ALA:H	1.82	0.43
2:B:309:THR:O	2:B:313:SER:OG	2.37	0.43
2:B:2226:PRO:HA	2:B:2229:VAL:HG12	2.00	0.43
2:B:4712:PRO:HG2	2:B:4718:LYS:HG2	2.01	0.43
2:G:3850:GLN:HA	2:G:3853:ALA:HB3	2.00	0.43
2:E:718:GLY:HA3	2:E:737:LEU:HA	2.01	0.43
2:E:1760:HIS:CE1	2:E:2041:HIS:HA	2.53	0.43
2:I:580:GLU:HG3	2:I:620:LEU:HD22	2.01	0.43
2:I:2271:THR:HG22	2:I:2273:LEU:H	1.83	0.43
2:I:3362:UNK:O	2:I:3366:UNK:N	2.52	0.43
2:B:45:ARG:HG2	2:B:443:LEU:HD21	1.99	0.43
2:B:915:GLU:O	2:B:919:ASN:ND2	2.51	0.43
2:G:45:ARG:HG2	2:G:443:LEU:HD21	1.99	0.43
2:E:45:ARG:HG2	2:E:443:LEU:HD21	2.00	0.43
2:E:62:LEU:O	2:E:261:ARG:NH2	2.52	0.43
2:E:218:HIS:HB3	2:E:392:ARG:HD3	2.00	0.43
2:E:470:SER:O	2:E:474:ARG:NE	2.43	0.43
2:E:2271:THR:HG22	2:E:2273:LEU:H	1.83	0.43
2:I:111:HIS:HD2	2:I:114:SER:H	1.66	0.43
2:I:195:PHE:HB3	2:I:196:MET:HG2	2.01	0.43
2:I:530:ILE:HD13	2:I:536:ASN:HB3	2.01	0.43
2:I:718:GLY:HA3	2:I:737:LEU:HA	2.01	0.43
2:I:1109:LEU:HA	2:I:1120:LEU:HD21	2.01	0.43
2:B:21:VAL:HG12	2:B:66:CYS:HA	2.00	0.43
2:B:345:LEU:HD22	2:B:387:ALA:HB1	2.01	0.43
2:B:530:ILE:HD13	2:B:536:ASN:HB3	2.01	0.43
2:B:898:ASP:HB3	2:B:901:LYS:HB2	2.01	0.43
2:B:2102:VAL:HB	2:B:2124:LEU:HD12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2271:THR:HG22	2:B:2273:LEU:H	1.83	0.43
2:B:2880:GLU:O	2:B:2884:ASN:N	2.46	0.43
2:G:309:THR:O	2:G:313:SER:OG	2.37	0.43
2:G:403:MET:O	2:G:407:THR:N	2.50	0.43
2:G:1760:HIS:CE1	2:G:2041:HIS:HA	2.53	0.43
2:G:2095:GLN:NE2	2:G:2127:GLN:O	2.50	0.43
2:E:195:PHE:HB3	2:E:196:MET:HG2	2.01	0.43
2:E:2226:PRO:HA	2:E:2229:VAL:HG12	2.00	0.43
2:I:1972:ASN:O	2:I:1976:ARG:N	2.49	0.43
2:G:345:LEU:HD22	2:G:387:ALA:HB1	2.01	0.43
2:I:932:LEU:HA	2:I:935:LEU:HD12	2.01	0.43
2:I:4712:PRO:HG2	2:I:4718:LYS:HG2	2.01	0.43
2:B:101:LEU:HB3	2:B:150:MET:HE1	2.01	0.42
2:B:111:HIS:HD2	2:B:114:SER:H	1.66	0.42
2:B:734:GLY:O	2:B:736:HIS:ND1	2.52	0.42
2:B:3955:MET:HG3	2:B:4019:LEU:HD22	2.01	0.42
2:B:4763:GLY:O	2:B:4766:THR:OG1	2.34	0.42
2:G:4712:PRO:HG2	2:G:4718:LYS:HG2	2.01	0.42
2:E:309:THR:O	2:E:313:SER:OG	2.37	0.42
2:E:579:GLN:H	2:E:582:HIS:HD2	1.66	0.42
2:I:793:LEU:HD22	2:I:821:LEU:HD13	2.01	0.42
2:I:915:GLU:O	2:I:919:ASN:ND2	2.51	0.42
2:G:195:PHE:HB3	2:G:196:MET:HG2	2.01	0.42
2:G:959:TYR:HB3	2:G:967:PRO:HD2	2.01	0.42
2:G:1109:LEU:HA	2:G:1120:LEU:HD21	2.01	0.42
2:E:103:TYR:HB3	2:E:152:PRO:HD3	2.01	0.42
2:E:111:HIS:HD2	2:E:114:SER:H	1.66	0.42
2:E:1931:LEU:HB3	2:E:1935:VAL:HB	2.02	0.42
2:E:2143:THR:O	2:E:3651:ASN:ND2	2.44	0.42
2:E:4586:PRO:HB3	2:E:4628:VAL:HG21	2.01	0.42
2:I:3850:GLN:HA	2:I:3853:ALA:HB3	2.00	0.42
2:B:1109:LEU:HA	2:B:1120:LEU:HD21	2.01	0.42
2:G:940:GLY:O	2:G:1052:ASN:N	2.50	0.42
2:G:1931:LEU:HB3	2:G:1935:VAL:HB	2.02	0.42
2:E:580:GLU:HG3	2:E:620:LEU:HD22	2.01	0.42
2:I:309:THR:O	2:I:313:SER:OG	2.37	0.42
2:I:898:ASP:HB3	2:I:901:LYS:HB2	2.01	0.42
2:B:959:TYR:HB3	2:B:967:PRO:HD2	2.01	0.42
2:G:62:LEU:O	2:G:261:ARG:NH2	2.52	0.42
2:G:2102:VAL:HB	2:G:2124:LEU:HD12	2.00	0.42
2:E:793:LEU:HD12	2:E:797:HIS:HB2	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:62:LEU:O	2:B:261:ARG:NH2	2.52	0.42
2:B:220:LEU:O	2:B:260:TRP:N	2.50	0.42
2:B:580:GLU:HG3	2:B:620:LEU:HD22	2.01	0.42
2:B:606:LEU:HG	2:B:617:ASN:HD22	1.82	0.42
2:B:1171:SER:OG	2:B:1175:SER:N	2.42	0.42
2:E:21:VAL:HG12	2:E:66:CYS:HA	2.00	0.42
2:E:932:LEU:HA	2:E:935:LEU:HD12	2.01	0.42
2:E:4712:PRO:HG2	2:E:4718:LYS:HG2	2.01	0.42
2:I:21:VAL:HG12	2:I:66:CYS:HA	2.00	0.42
2:I:123:THR:OG1	2:I:134:ASP:OD1	2.38	0.42
2:I:3992:PHE:O	2:I:3996:PHE:N	2.41	0.42
2:G:3955:MET:HG3	2:G:4019:LEU:HD22	2.01	0.42
2:G:4558:ASN:OD1	2:G:4558:ASN:N	2.50	0.42
2:E:451:TYR:O	2:E:474:ARG:NH1	2.45	0.42
2:I:3955:MET:HG3	2:I:4019:LEU:HD22	2.01	0.42
1:F:34:LYS:HD3	2:E:629:ARG:HD2	2.01	0.42
2:B:195:PHE:HB3	2:B:196:MET:HG2	2.01	0.42
2:B:793:LEU:HD22	2:B:821:LEU:HD13	2.01	0.42
2:B:3362:UNK:O	2:B:3366:UNK:N	2.52	0.42
2:G:103:TYR:HB3	2:G:152:PRO:HD3	2.01	0.42
2:E:1973:GLN:HA	2:E:1976:ARG:HB3	2.00	0.42
2:I:261:ARG:HB3	2:I:283:ARG:HB3	2.02	0.42
2:I:2102:VAL:HB	2:I:2124:LEU:HD12	2.00	0.42
2:B:932:LEU:HA	2:B:935:LEU:HD12	2.01	0.42
2:G:2753:SER:O	2:G:2757:LYS:N	2.48	0.42
2:G:4101:LYS:HD3	2:G:4101:LYS:HA	1.86	0.42
2:E:898:ASP:HB3	2:E:901:LYS:HB2	2.01	0.42
2:E:3676:ASP:N	2:E:3676:ASP:OD1	2.50	0.42
2:I:2753:SER:O	2:I:2757:LYS:N	2.48	0.42
2:B:649:PHE:HB3	2:B:776:LEU:HB3	2.02	0.42
2:B:1665:HIS:HA	2:B:1668:ARG:HG2	2.02	0.42
2:G:580:GLU:HG3	2:G:620:LEU:HD22	2.01	0.42
2:G:870:ILE:HD12	2:G:870:ILE:HA	1.95	0.42
2:E:123:THR:OG1	2:E:134:ASP:OD1	2.38	0.42
2:E:793:LEU:HD22	2:E:821:LEU:HD13	2.01	0.42
2:I:62:LEU:O	2:I:261:ARG:NH2	2.52	0.42
2:I:220:LEU:O	2:I:260:TRP:N	2.50	0.42
2:I:940:GLY:O	2:I:1052:ASN:N	2.50	0.42
2:B:23:GLN:HB3	2:B:201:ASN:HB2	2.02	0.42
2:B:1723:ALA:HB1	2:B:1775:HIS:HD2	1.85	0.42
2:G:21:VAL:HG12	2:G:66:CYS:HA	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:472:ARG:NH2	2:G:3712:GLU:OE2	2.53	0.42
2:G:2271:THR:HG22	2:G:2273:LEU:H	1.83	0.42
2:E:23:GLN:HB3	2:E:201:ASN:HB2	2.02	0.42
2:I:345:LEU:HD22	2:I:387:ALA:HB1	2.01	0.42
2:I:1665:HIS:HA	2:I:1668:ARG:HG2	2.02	0.42
2:I:4056:GLU:HG2	2:I:4166:LEU:HD23	2.02	0.42
2:I:4558:ASN:OD1	2:I:4558:ASN:N	2.50	0.42
2:B:583:ILE:H	2:B:583:ILE:HG13	1.70	0.41
2:B:880:GLU:OE1	2:B:968:ALA:N	2.43	0.41
2:B:4056:GLU:HG2	2:B:4166:LEU:HD23	2.02	0.41
2:G:470:SER:O	2:G:474:ARG:NE	2.43	0.41
2:E:2102:VAL:HB	2:E:2124:LEU:HD12	2.00	0.41
2:I:670:GLU:HG3	2:I:787:VAL:HG13	2.03	0.41
2:B:793:LEU:HD12	2:B:797:HIS:HB2	2.01	0.41
2:B:914:PRO:HD2	2:B:917:GLU:HB2	2.02	0.41
2:B:940:GLY:O	2:B:1052:ASN:N	2.50	0.41
2:G:23:GLN:HB3	2:G:201:ASN:HB2	2.02	0.41
2:G:123:THR:OG1	2:G:134:ASP:OD1	2.38	0.41
2:E:472:ARG:NH2	2:E:3712:GLU:OE2	2.53	0.41
2:E:914:PRO:HD2	2:E:917:GLU:HB2	2.02	0.41
2:E:1109:LEU:HA	2:E:1120:LEU:HD21	2.01	0.41
2:E:1723:ALA:HB1	2:E:1775:HIS:HD2	1.85	0.41
2:I:243:ARG:NH1	2:I:301:VAL:O	2.46	0.41
2:I:959:TYR:HB3	2:I:967:PRO:HD2	2.01	0.41
2:G:793:LEU:HD12	2:G:797:HIS:HB2	2.01	0.41
2:G:898:ASP:HB3	2:G:901:LYS:HB2	2.01	0.41
2:G:4239:GLU:OE2	2:G:5014:TYR:OH	2.27	0.41
2:E:649:PHE:HB3	2:E:776:LEU:HB3	2.02	0.41
2:E:983:THR:O	2:E:987:ARG:N	2.52	0.41
2:I:793:LEU:HD12	2:I:797:HIS:HB2	2.01	0.41
2:I:1931:LEU:HB3	2:I:1935:VAL:HB	2.02	0.41
2:B:103:TYR:HB3	2:B:152:PRO:HD3	2.01	0.41
2:B:1931:LEU:HB3	2:B:1935:VAL:HB	2.02	0.41
2:G:793:LEU:HD22	2:G:821:LEU:HD13	2.01	0.41
2:E:2868:SER:O	2:E:2872:GLN:N	2.39	0.41
2:I:1676:LEU:HD23	2:I:2167:ILE:HG23	2.03	0.41
2:I:1735:ILE:HG23	2:I:1771:LEU:HB2	2.02	0.41
2:B:261:ARG:HB3	2:B:283:ARG:HB3	2.02	0.41
2:B:1676:LEU:HD23	2:B:2167:ILE:HG23	2.03	0.41
2:G:1665:HIS:HA	2:G:1668:ARG:HG2	2.02	0.41
2:G:1723:ALA:HB1	2:G:1775:HIS:HD2	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:2874:MET:O	2:G:2878:LEU:N	2.43	0.41
2:G:4056:GLU:HG2	2:G:4166:LEU:HD23	2.02	0.41
2:E:1665:HIS:HA	2:E:1668:ARG:HG2	2.02	0.41
2:E:1972:ASN:O	2:E:1976:ARG:N	2.49	0.41
2:E:4056:GLU:HG2	2:E:4166:LEU:HD23	2.02	0.41
1:J:87:HIS:HA	1:J:88:PRO:HD3	1.90	0.41
2:G:111:HIS:HD2	2:G:114:SER:H	1.66	0.41
2:I:472:ARG:NH2	2:I:3712:GLU:OE2	2.53	0.41
2:I:1723:ALA:HB1	2:I:1775:HIS:HD2	1.85	0.41
2:I:4763:GLY:O	2:I:4766:THR:OG1	2.34	0.41
2:B:2862:LEU:HB3	2:B:2928:LYS:HB3	2.03	0.41
2:G:261:ARG:HB3	2:G:283:ARG:HB3	2.02	0.41
2:G:670:GLU:HG3	2:G:787:VAL:HG13	2.03	0.41
2:E:734:GLY:O	2:E:736:HIS:ND1	2.52	0.41
2:G:932:LEU:HA	2:G:935:LEU:HD12	2.01	0.41
2:G:1735:ILE:HG23	2:G:1771:LEU:HB2	2.02	0.41
2:G:1865:MET:N	2:G:1865:MET:SD	2.94	0.41
2:G:2022:PRO:HB2	2:G:2024:PRO:HD2	2.03	0.41
2:G:4860:ARG:HG3	2:G:4876:CYS:HB3	2.03	0.41
2:E:1676:LEU:HD23	2:E:2167:ILE:HG23	2.03	0.41
2:E:1735:ILE:HG23	2:E:1771:LEU:HB2	2.02	0.41
2:I:103:TYR:HB3	2:I:152:PRO:HD3	2.01	0.41
2:I:451:TYR:O	2:I:474:ARG:NH1	2.45	0.41
2:I:914:PRO:HD2	2:I:917:GLU:HB2	2.02	0.41
2:B:472:ARG:NH2	2:B:3712:GLU:OE2	2.53	0.41
2:B:582:HIS:O	2:B:585:SER:OG	2.30	0.41
2:B:2095:GLN:NE2	2:B:2127:GLN:O	2.50	0.41
2:G:939:VAL:HG22	2:G:1053:ILE:HG12	2.03	0.41
2:G:2674:UNK:O	2:G:2676:UNK:N	2.54	0.41
2:E:2862:LEU:HB3	2:E:2928:LYS:HB3	2.03	0.41
2:E:3889:GLN:HG3	2:E:3967:GLU:HG3	2.03	0.41
2:E:4005:GLN:HE21	2:E:4110:PHE:HE1	1.69	0.41
2:I:734:GLY:O	2:I:736:HIS:ND1	2.52	0.41
2:I:2674:UNK:O	2:I:2676:UNK:N	2.54	0.41
2:I:2868:SER:O	2:I:2872:GLN:N	2.39	0.41
2:B:123:THR:OG1	2:B:134:ASP:OD1	2.38	0.41
2:G:256:ALA:HB1	2:G:286:THR:HG21	2.03	0.41
2:G:2868:SER:O	2:G:2872:GLN:N	2.39	0.41
2:G:3733:CYS:HB2	2:G:3803:SER:HB3	2.03	0.41
2:E:2022:PRO:HB2	2:E:2024:PRO:HD2	2.03	0.41
2:I:278:GLN:N	2:I:315:CYS:SG	2.91	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:1865:MET:SD	2:I:1865:MET:N	2.94	0.41
2:I:2022:PRO:HB2	2:I:2024:PRO:HD2	2.03	0.41
2:I:4848:VAL:O	2:I:4852:THR:OG1	2.32	0.41
2:I:4860:ARG:HG3	2:I:4876:CYS:HB3	2.03	0.41
2:B:2022:PRO:HB2	2:B:2024:PRO:HD2	2.03	0.40
2:B:4860:ARG:HG3	2:B:4876:CYS:HB3	2.03	0.40
2:G:649:PHE:HB3	2:G:776:LEU:HB3	2.02	0.40
2:G:914:PRO:HD2	2:G:917:GLU:HB2	2.02	0.40
2:G:2143:THR:O	2:G:3651:ASN:ND2	2.44	0.40
2:I:23:GLN:HB3	2:I:201:ASN:HB2	2.02	0.40
2:I:500:ALA:HB1	2:I:504:ALA:HB2	2.03	0.40
2:B:57:ASN:HD22	2:B:308:HIS:HB2	1.87	0.40
2:B:359:TYR:HA	2:B:376:ALA:HA	2.03	0.40
2:B:1865:MET:SD	2:B:1865:MET:N	2.94	0.40
2:B:2674:UNK:O	2:B:2676:UNK:N	2.54	0.40
2:B:3889:GLN:HG3	2:B:3967:GLU:HG3	2.03	0.40
2:G:1671:ARG:NH2	2:G:1713:ASP:HB3	2.36	0.40
2:G:1676:LEU:HD23	2:G:2167:ILE:HG23	2.03	0.40
2:G:4886:HIS:O	2:G:4890:GLY:N	2.46	0.40
2:E:57:ASN:HD22	2:E:308:HIS:HB2	1.87	0.40
2:E:670:GLU:HG3	2:E:787:VAL:HG13	2.03	0.40
2:E:1671:ARG:NH2	2:E:1713:ASP:HB3	2.36	0.40
2:E:2880:GLU:O	2:E:2884:ASN:N	2.47	0.40
2:I:1671:ARG:NH2	2:I:1713:ASP:HB3	2.36	0.40
2:I:2022:PRO:O	2:I:2028:ARG:NH2	2.54	0.40
2:B:1111:PRO:HD3	2:B:1605:TRP:HE1	1.86	0.40
2:B:1671:ARG:NH2	2:B:1713:ASP:HB3	2.36	0.40
2:B:4848:VAL:O	2:B:4852:THR:OG1	2.32	0.40
2:G:57:ASN:HD22	2:G:308:HIS:HB2	1.87	0.40
2:I:256:ALA:HB1	2:I:286:THR:HG21	2.03	0.40
2:I:983:THR:O	2:I:987:ARG:N	2.52	0.40
2:I:1111:PRO:HD3	2:I:1605:TRP:HE1	1.86	0.40
2:B:256:ALA:HB1	2:B:286:THR:HG21	2.03	0.40
2:G:1641:ILE:HA	2:G:1642:PRO:HD3	1.90	0.40
2:G:4929:LEU:HD13	2:G:4929:LEU:HA	1.95	0.40
2:E:870:ILE:HD12	2:E:873:LYS:HB2	2.04	0.40
2:B:451:TYR:O	2:B:474:ARG:NH1	2.45	0.40
2:B:939:VAL:HG22	2:B:1053:ILE:HG12	2.03	0.40
2:B:2022:PRO:O	2:B:2028:ARG:NH2	2.54	0.40
2:B:2318:TYR:HA	2:B:2319:PRO:HD3	1.94	0.40
2:G:734:GLY:O	2:G:736:HIS:ND1	2.52	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:261:ARG:HB3	2:E:283:ARG:HB3	2.02	0.40
2:I:57:ASN:HD22	2:I:308:HIS:HB2	1.87	0.40
2:I:116:MET:HB2	2:I:137:LEU:HD12	2.04	0.40
2:I:649:PHE:HB3	2:I:776:LEU:HB3	2.02	0.40
2:I:3733:CYS:HB2	2:I:3803:SER:HB3	2.03	0.40

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	105/108 (97%)	95 (90%)	10 (10%)	0	100	100
1	F	105/108 (97%)	95 (90%)	10 (10%)	0	100	100
1	H	105/108 (97%)	95 (90%)	10 (10%)	0	100	100
1	J	105/108 (97%)	95 (90%)	10 (10%)	0	100	100
2	B	3235/4416 (73%)	2874 (89%)	357 (11%)	4 (0%)	51	85
2	E	3235/4416 (73%)	2873 (89%)	358 (11%)	4 (0%)	51	85
2	G	3235/4416 (73%)	2875 (89%)	356 (11%)	4 (0%)	51	85
2	I	3235/4416 (73%)	2873 (89%)	358 (11%)	4 (0%)	51	85
All	All	13360/18096 (74%)	11875 (89%)	1469 (11%)	16 (0%)	54	85

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	1708	ARG
2	G	1708	ARG
2	E	1708	ARG
2	I	1708	ARG
2	B	1932	PRO

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Mol	Chain	Res	Type
2	G	1932	PRO
2	E	1932	PRO
2	I	1932	PRO
2	B	1840	PRO
2	B	4641	PRO
2	G	1840	PRO
2	G	4641	PRO
2	E	1840	PRO
2	E	4641	PRO
2	I	1840	PRO
2	I	4641	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	88/89 (99%)	88 (100%)	0	100	100
1	F	88/89 (99%)	88 (100%)	0	100	100
1	H	88/89 (99%)	88 (100%)	0	100	100
1	J	88/89 (99%)	88 (100%)	0	100	100
2	B	2493/3022 (82%)	2476 (99%)	17 (1%)	84	90
2	E	2493/3022 (82%)	2476 (99%)	17 (1%)	84	90
2	G	2493/3022 (82%)	2476 (99%)	17 (1%)	84	90
2	I	2493/3022 (82%)	2476 (99%)	17 (1%)	84	90
All	All	10324/12444 (83%)	10256 (99%)	68 (1%)	84	90

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	131	LEU
2	B	309	THR
2	B	534	ARG
2	B	553	ARG

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Mol	Chain	Res	Type
2	B	1076	ARG
2	B	1141	ARG
2	B	1600	LEU
2	B	1676	LEU
2	B	1964	ARG
2	B	3762	ARG
2	B	3787	LYS
2	B	3805	LEU
2	B	3896	ASN
2	B	4034	ASN
2	B	4085	ARG
2	B	4120	ASN
2	B	4983	HIS
2	G	131	LEU
2	G	309	THR
2	G	534	ARG
2	G	553	ARG
2	G	1076	ARG
2	G	1141	ARG
2	G	1600	LEU
2	G	1676	LEU
2	G	1964	ARG
2	G	3762	ARG
2	G	3787	LYS
2	G	3805	LEU
2	G	3896	ASN
2	G	4034	ASN
2	G	4085	ARG
2	G	4120	ASN
2	G	4983	HIS
2	E	131	LEU
2	E	309	THR
2	E	534	ARG
2	E	553	ARG
2	E	1076	ARG
2	E	1141	ARG
2	E	1600	LEU
2	E	1676	LEU
2	E	1964	ARG
2	E	3762	ARG
2	E	3787	LYS
2	E	3805	LEU

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Mol	Chain	Res	Type
2	E	3896	ASN
2	E	4034	ASN
2	E	4085	ARG
2	E	4120	ASN
2	E	4983	HIS
2	I	131	LEU
2	I	309	THR
2	I	534	ARG
2	I	553	ARG
2	I	1076	ARG
2	I	1141	ARG
2	I	1600	LEU
2	I	1676	LEU
2	I	1964	ARG
2	I	3762	ARG
2	I	3787	LYS
2	I	3805	LEU
2	I	3896	ASN
2	I	4034	ASN
2	I	4085	ARG
2	I	4120	ASN
2	I	4983	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (97) such sidechains are listed below:

Mol	Chain	Res	Type
1	F	87	HIS
1	A	87	HIS
1	H	87	HIS
1	J	87	HIS
2	B	57	ASN
2	B	111	HIS
2	B	113	HIS
2	B	273	HIS
2	B	379	HIS
2	B	479	GLN
2	B	582	HIS
2	B	1158	ASN
2	B	1598	GLN
2	B	1679	ASN
2	B	1688	HIS
2	B	1691	GLN

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Mol	Chain	Res	Type
2	B	1719	HIS
2	B	1775	HIS
2	B	2005	GLN
2	B	3767	GLN
2	B	3809	ASN
2	B	3896	ASN
2	B	3960	GLN
2	B	3976	ASN
2	B	4034	ASN
2	B	4120	ASN
2	B	4553	ASN
2	B	4806	ASN
2	G	57	ASN
2	G	111	HIS
2	G	113	HIS
2	G	273	HIS
2	G	379	HIS
2	G	479	GLN
2	G	582	HIS
2	G	1158	ASN
2	G	1598	GLN
2	G	1679	ASN
2	G	1688	HIS
2	G	1691	GLN
2	G	1719	HIS
2	G	1775	HIS
2	G	2005	GLN
2	G	3767	GLN
2	G	3809	ASN
2	G	3896	ASN
2	G	3960	GLN
2	G	4034	ASN
2	G	4120	ASN
2	G	4553	ASN
2	G	4806	ASN
2	E	57	ASN
2	E	111	HIS
2	E	113	HIS
2	E	273	HIS
2	E	379	HIS
2	E	479	GLN
2	E	582	HIS

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Mol	Chain	Res	Type
2	E	1158	ASN
2	E	1598	GLN
2	E	1679	ASN
2	E	1688	HIS
2	E	1691	GLN
2	E	1719	HIS
2	E	1775	HIS
2	E	2005	GLN
2	E	3767	GLN
2	E	3809	ASN
2	E	3896	ASN
2	E	3960	GLN
2	E	4034	ASN
2	E	4120	ASN
2	E	4553	ASN
2	E	4806	ASN
2	I	57	ASN
2	I	111	HIS
2	I	113	HIS
2	I	273	HIS
2	I	379	HIS
2	I	479	GLN
2	I	582	HIS
2	I	1158	ASN
2	I	1598	GLN
2	I	1679	ASN
2	I	1688	HIS
2	I	1691	GLN
2	I	1719	HIS
2	I	1775	HIS
2	I	2005	GLN
2	I	3767	GLN
2	I	3809	ASN
2	I	3896	ASN
2	I	3960	GLN
2	I	4034	ASN
2	I	4120	ASN
2	I	4553	ASN
2	I	4806	ASN

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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	B	14
2	G	14
2	E	14
2	I	14

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	4345:UNK	C	4540:PHE	N	73.03
1	G	4345:UNK	C	4540:PHE	N	73.03
1	E	4345:UNK	C	4540:PHE	N	73.03
1	I	4345:UNK	C	4540:PHE	N	73.03
1	B	3613:UNK	C	3639:THR	N	46.34
1	G	3613:UNK	C	3639:THR	N	46.34
1	E	3613:UNK	C	3639:THR	N	46.34
1	I	3613:UNK	C	3639:THR	N	46.34
1	B	4253:GLU	C	4320:UNK	N	27.01
1	G	4253:GLU	C	4320:UNK	N	27.01
1	E	4253:GLU	C	4320:UNK	N	27.01
1	I	4253:GLU	C	4320:UNK	N	27.01
1	B	3163:UNK	C	3170:UNK	N	16.37
1	G	3163:UNK	C	3170:UNK	N	16.37
1	E	3163:UNK	C	3170:UNK	N	16.37
1	I	3163:UNK	C	3170:UNK	N	16.37
1	B	3063:UNK	C	3134:UNK	N	15.02
1	E	3063:UNK	C	3134:UNK	N	15.02
1	G	3063:UNK	C	3134:UNK	N	15.01
1	I	3063:UNK	C	3134:UNK	N	15.01
1	B	3468:UNK	C	3511:UNK	N	14.70
1	G	3468:UNK	C	3511:UNK	N	14.70
1	E	3468:UNK	C	3511:UNK	N	14.70
1	I	3468:UNK	C	3511:UNK	N	14.70
1	B	2703:UNK	C	2734:ASN	N	14.05
1	G	2703:UNK	C	2734:ASN	N	14.05
1	E	2703:UNK	C	2734:ASN	N	14.05
1	I	2703:UNK	C	2734:ASN	N	14.05
1	B	3236:UNK	C	3241:UNK	N	13.51
1	G	3236:UNK	C	3241:UNK	N	13.51
1	E	3236:UNK	C	3241:UNK	N	13.51
1	I	3236:UNK	C	3241:UNK	N	13.50
1	B	2976:UNK	C	2995:UNK	N	12.41
1	G	2976:UNK	C	2995:UNK	N	12.41
1	E	2976:UNK	C	2995:UNK	N	12.41
1	I	2976:UNK	C	2995:UNK	N	12.41
1	B	1564:UNK	C	1573:MET	N	12.19
1	G	1564:UNK	C	1573:MET	N	12.19
1	E	1564:UNK	C	1573:MET	N	12.19
1	I	1564:UNK	C	1573:MET	N	12.19
1	B	3254:UNK	C	3261:UNK	N	8.04
1	G	3254:UNK	C	3261:UNK	N	8.04
1	E	3254:UNK	C	3261:UNK	N	8.04

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	I	3254:UNK	C	3261:UNK	N	8.04
1	B	1297:UNK	C	1430:UNK	N	5.71
1	G	1297:UNK	C	1430:UNK	N	5.71
1	E	1297:UNK	C	1430:UNK	N	5.71
1	I	1297:UNK	C	1430:UNK	N	5.71
1	B	2479:LEU	C	2487:UNK	N	3.30
1	G	2479:LEU	C	2487:UNK	N	3.30
1	E	2479:LEU	C	2487:UNK	N	3.30
1	I	2479:LEU	C	2487:UNK	N	3.30
1	B	2939:ARG	C	2942:UNK	N	3.28
1	G	2939:ARG	C	2942:UNK	N	3.28
1	E	2939:ARG	C	2942:UNK	N	3.28
1	I	2939:ARG	C	2942:UNK	N	3.28

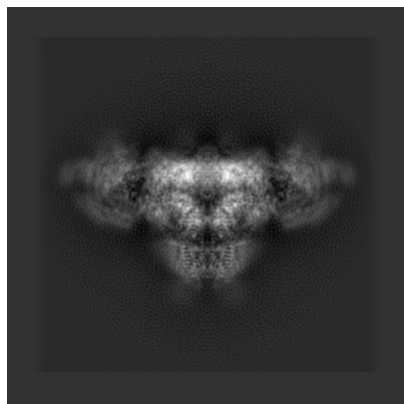
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8391. These allow visual inspection of the internal detail of the map and identification of artifacts.

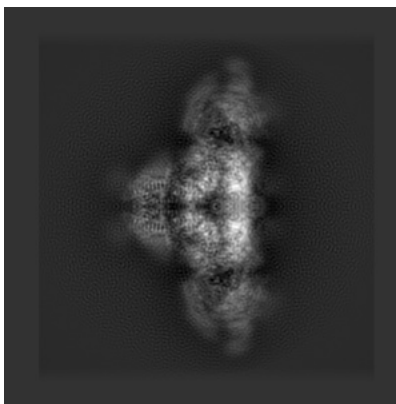
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

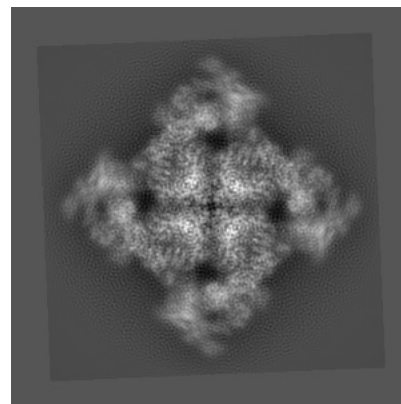
6.1.1 Primary map



X

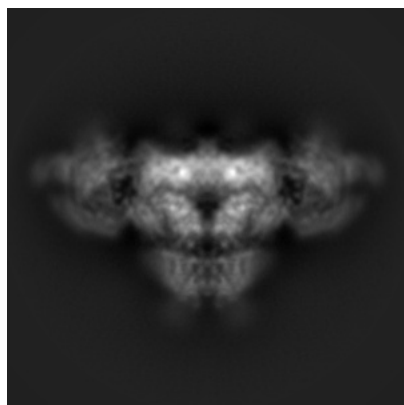


Y

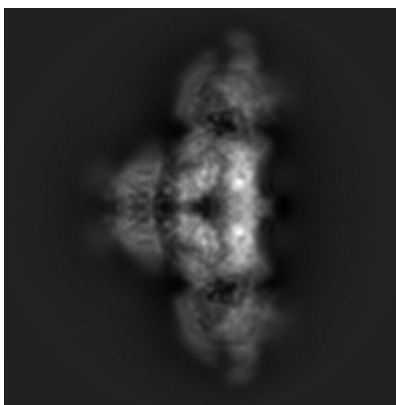


Z

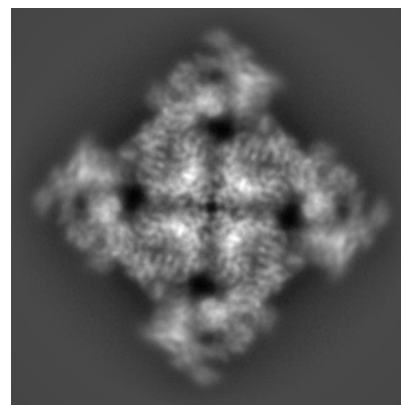
6.1.2 Raw map



X



Y



Z

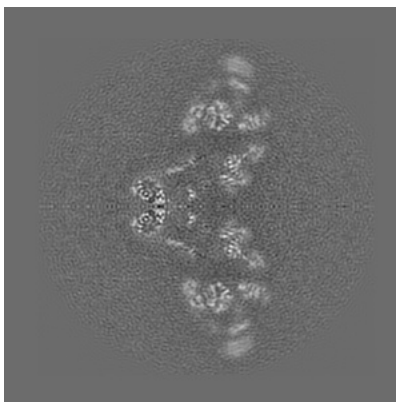
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

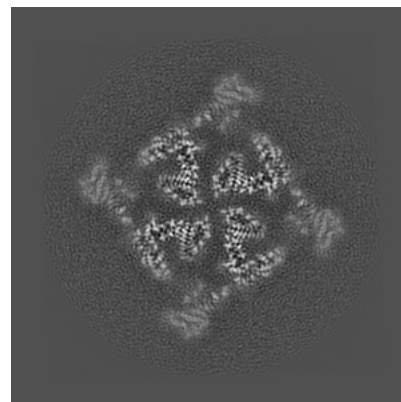
6.2.1 Primary map



X Index: 200

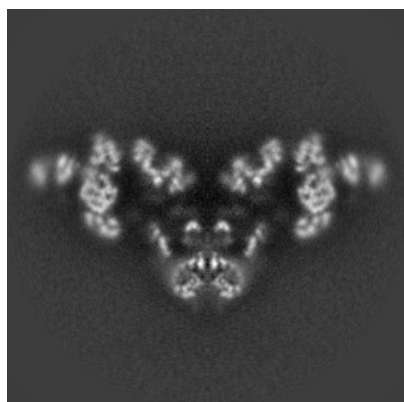


Y Index: 200

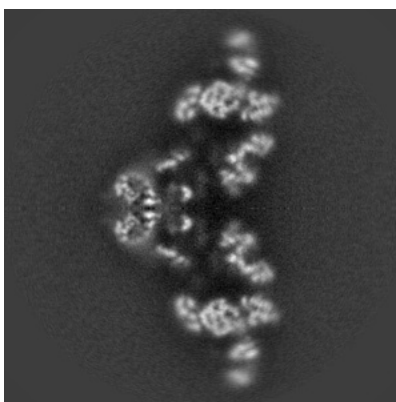


Z Index: 200

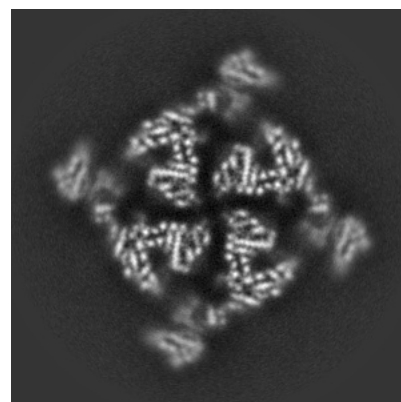
6.2.2 Raw map



X Index: 168



Y Index: 168

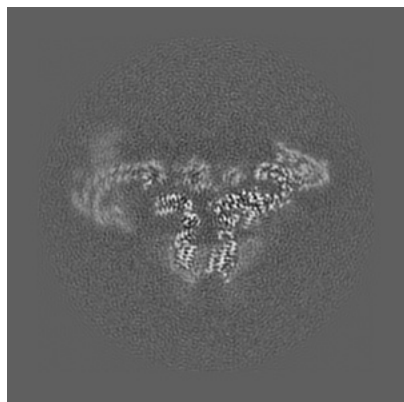


Z Index: 168

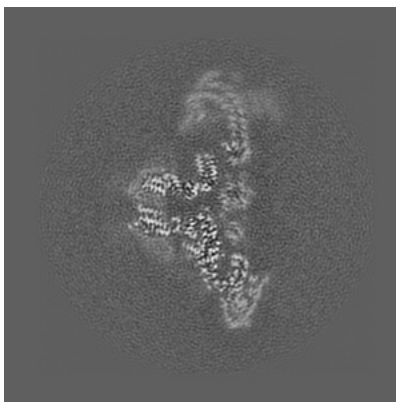
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

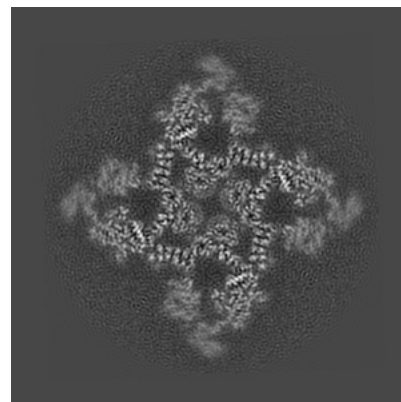
6.3.1 Primary map



X Index: 176

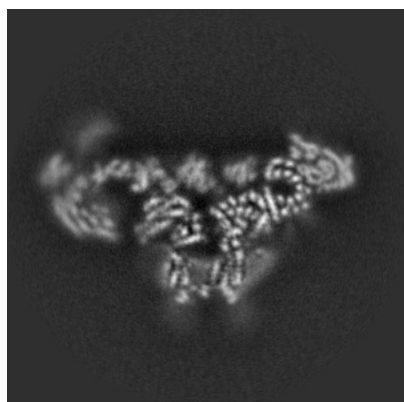


Y Index: 176

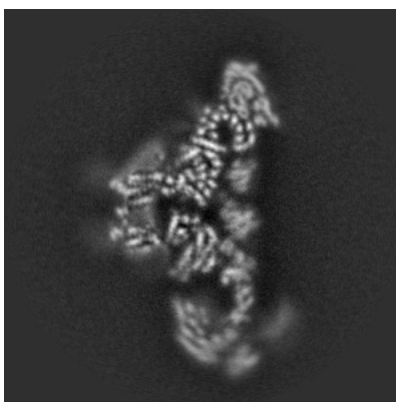


Z Index: 228

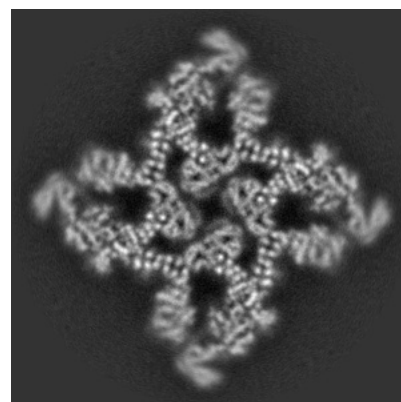
6.3.2 Raw map



X Index: 147



Y Index: 189

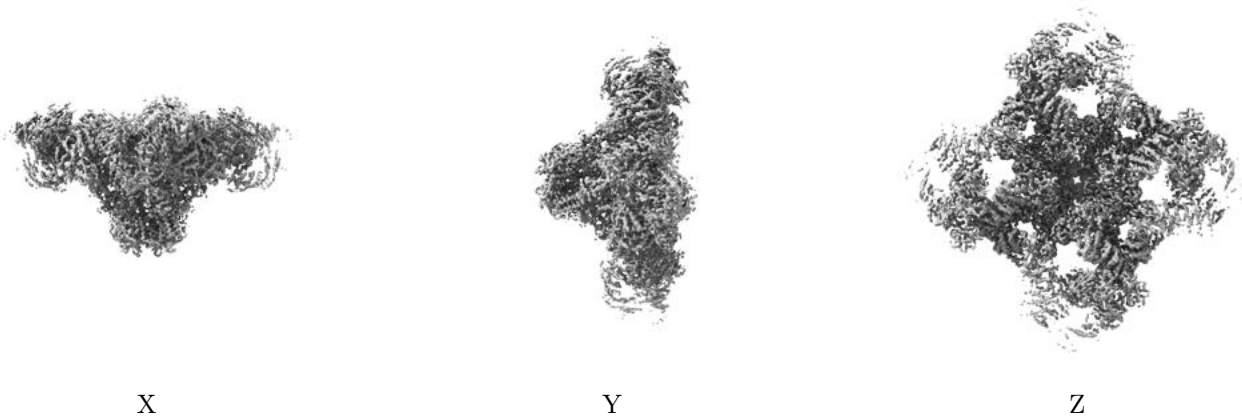


Z Index: 196

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



The images above show the 3D surface view of the map at the recommended contour level 0.025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

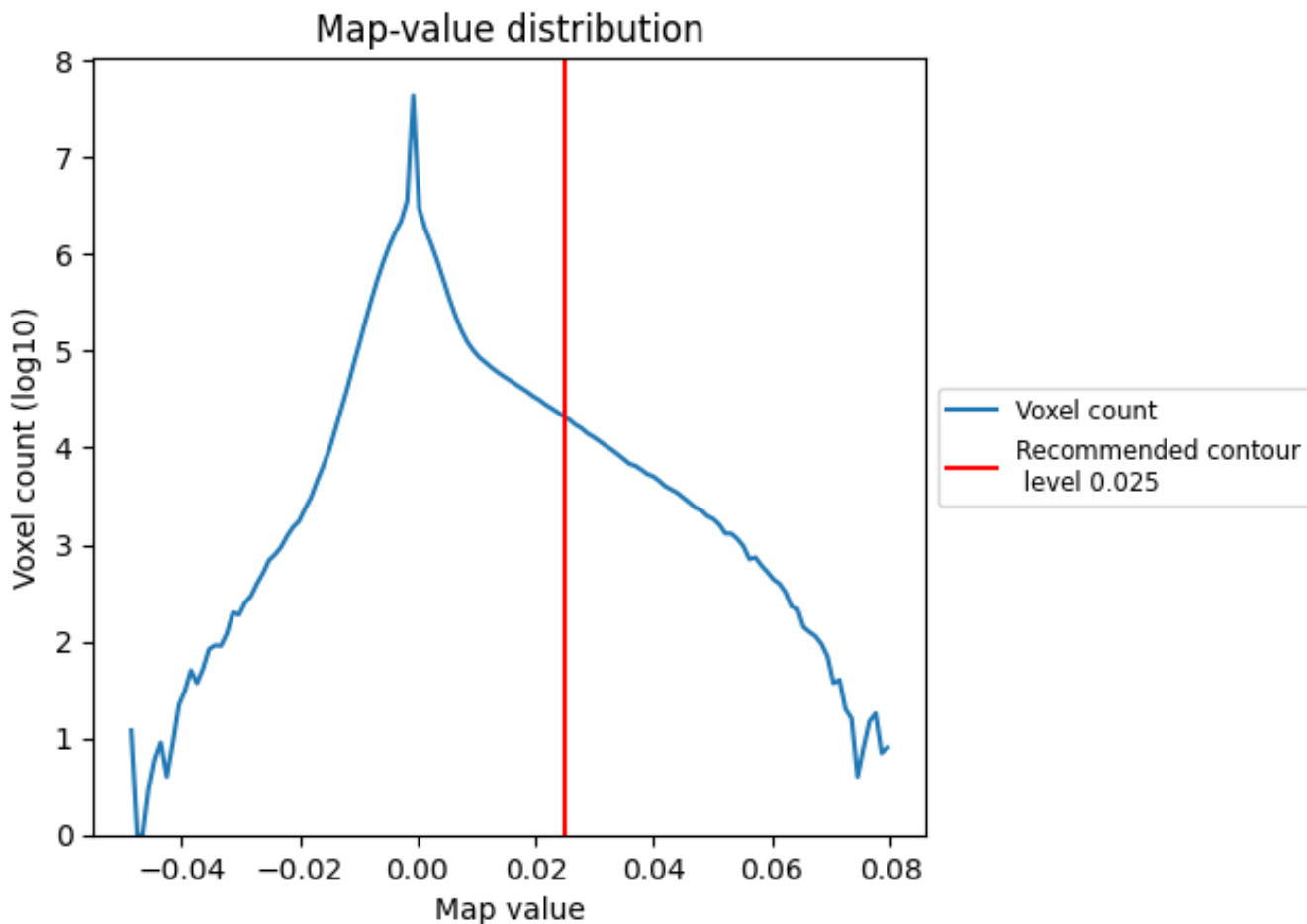
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

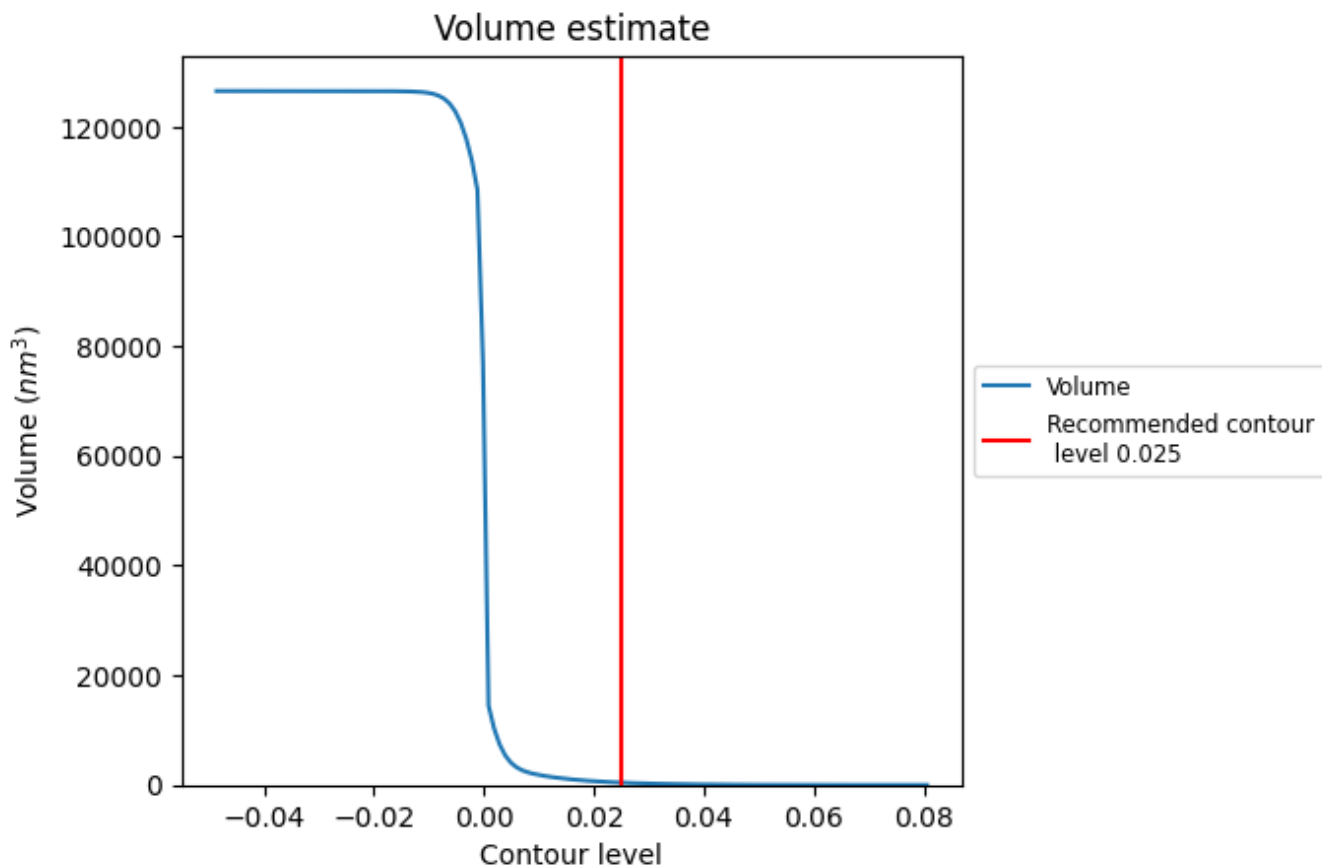
This section contains the results of statistical analysis of the map.

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.

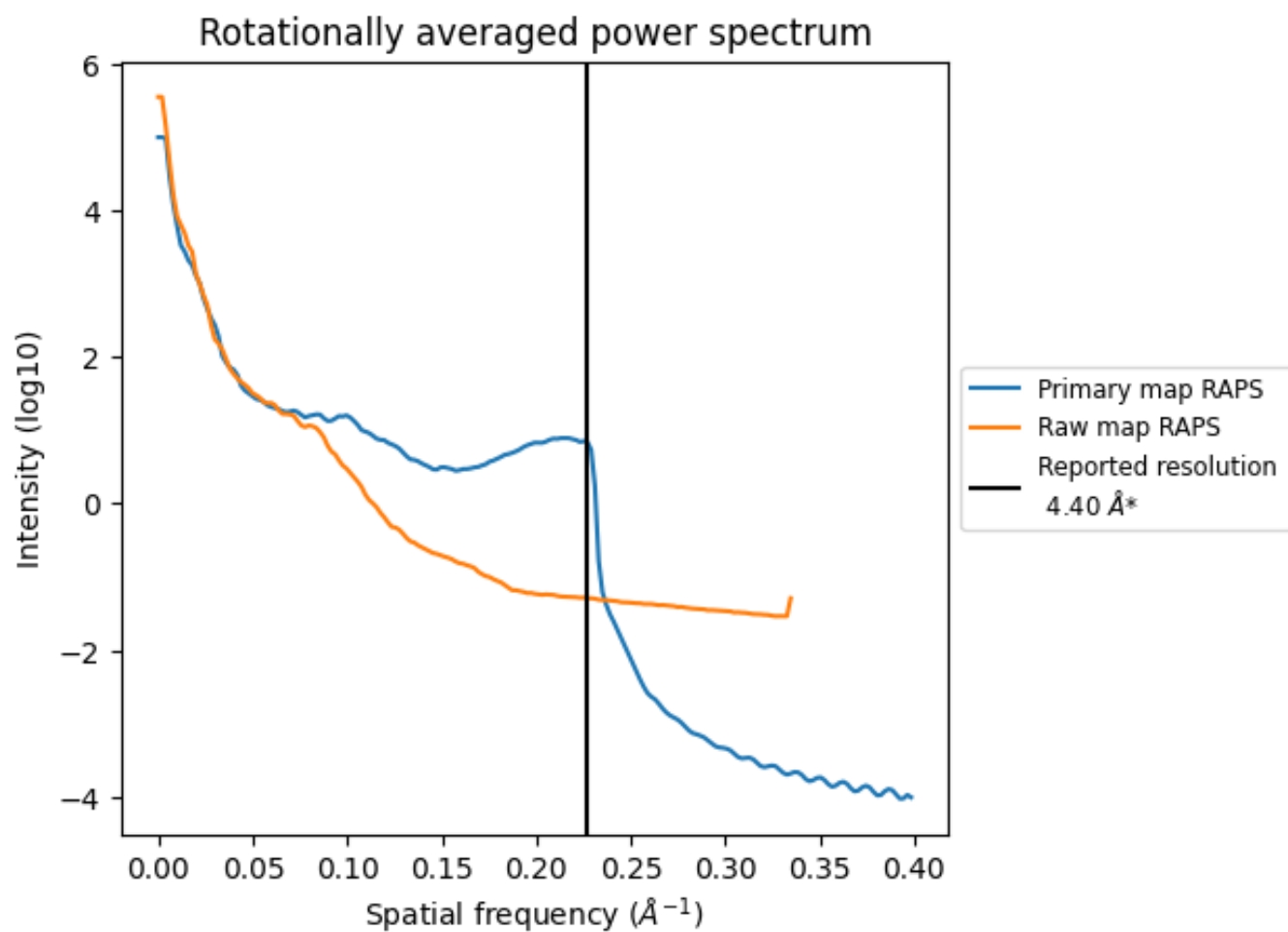
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 422 nm³; this corresponds to an approximate mass of 381 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

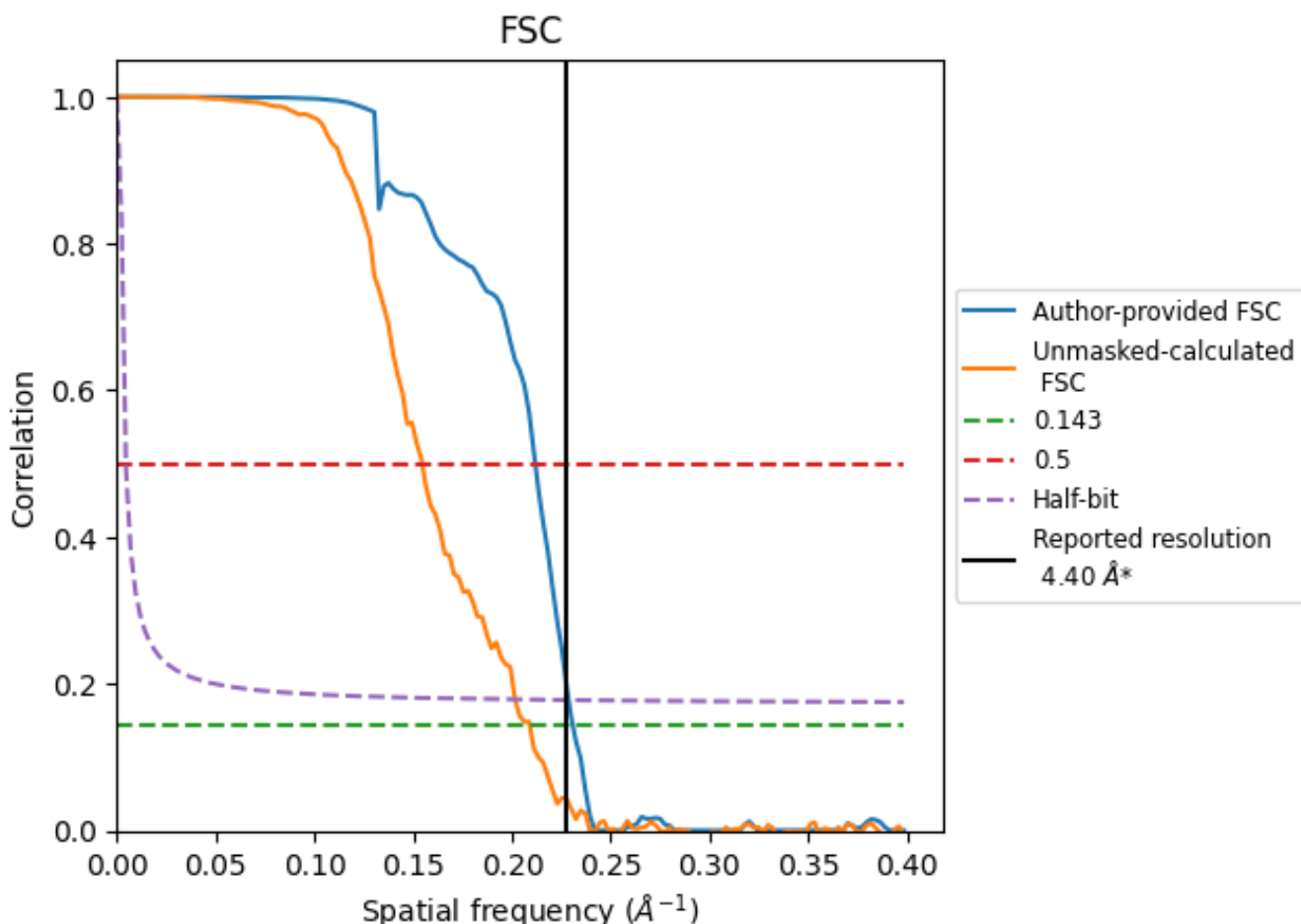


*Reported resolution corresponds to spatial frequency of 0.227 Å⁻¹

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 0.227 Å⁻¹

8.2 Resolution estimates [i](#)

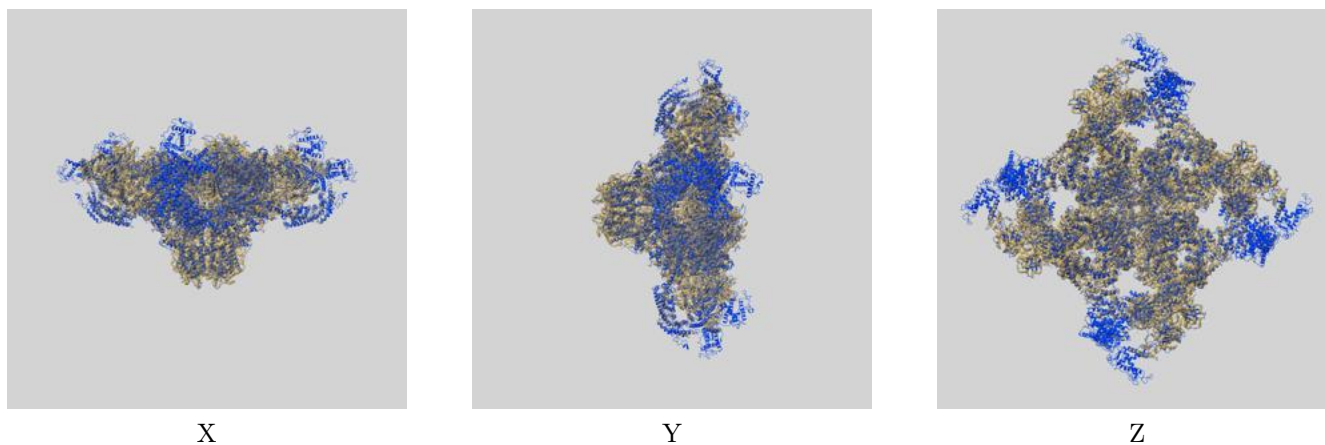
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.40	-	-
Author-provided FSC curve	4.33	4.72	4.37
Unmasked-calculated*	4.78	6.47	4.96

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

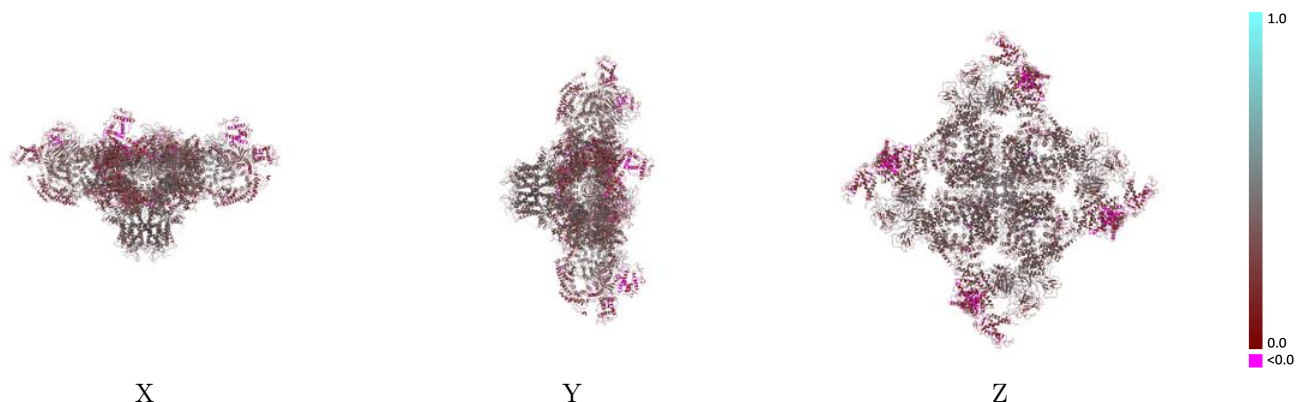
This section contains information regarding the fit between EMDB map EMD-8391 and PDB model 5TB0. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



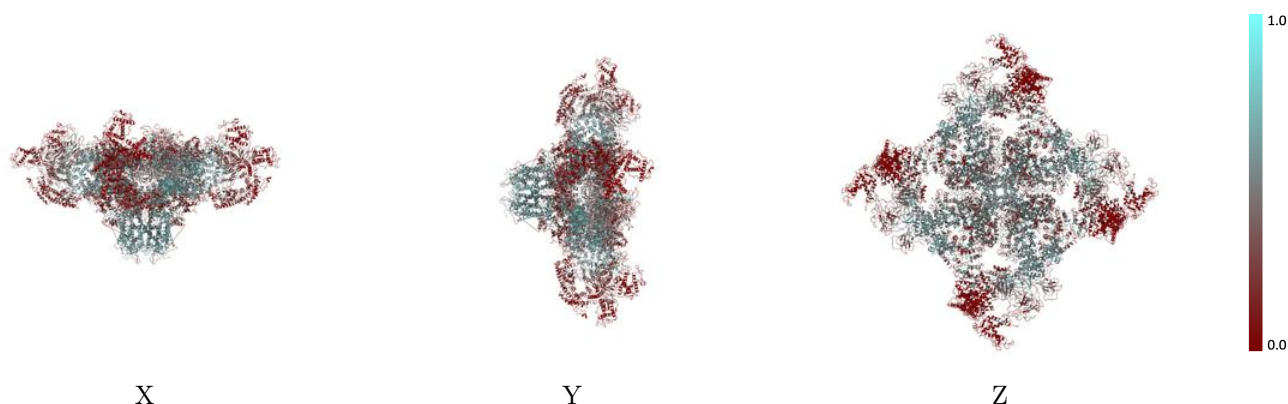
The images above show the 3D surface view of the map at the recommended contour level 0.025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



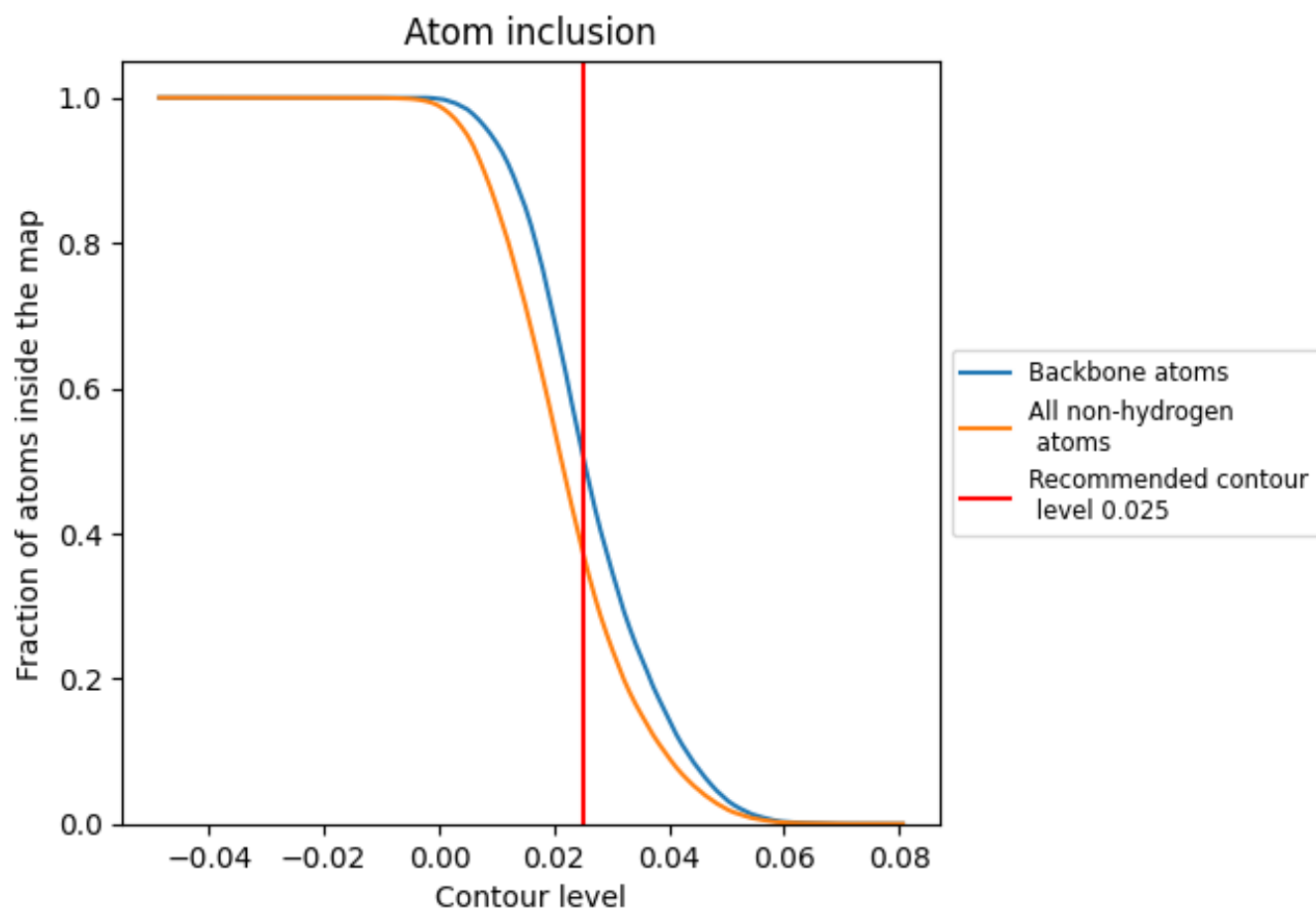
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.025).

9.4 Atom inclusion [i](#)



At the recommended contour level, 51% of all backbone atoms, 37% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.3742	0.3120
A	0.3809	0.3450
B	0.3746	0.3110
E	0.3735	0.3110
F	0.3784	0.3490
G	0.3740	0.3110
H	0.3809	0.3480
I	0.3739	0.3110
J	0.3797	0.3450

