



## Full wwPDB EM Validation Report ⓘ

Nov 2, 2022 – 05:24 AM EDT

PDB ID : 5TAU  
EMDB ID : EMD-8385  
Title : Structure of rabbit RyR1 (Caffeine/ATP/EGTA dataset, class 3)  
Authors : Clarke, O.B.; des Georges, A.; Zalk, R.; Marks, A.R.; Hendrickson, W.A.;  
Frank, J.  
Deposited on : 2016-09-10  
Resolution : 6.20 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

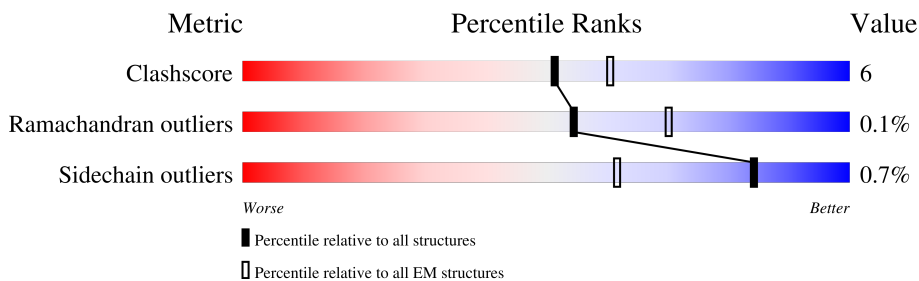
EMDB validation analysis : 0.0.1.dev43  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal 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 6.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	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 5 unique types of molecules in this entry. The entry contains 121436 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.

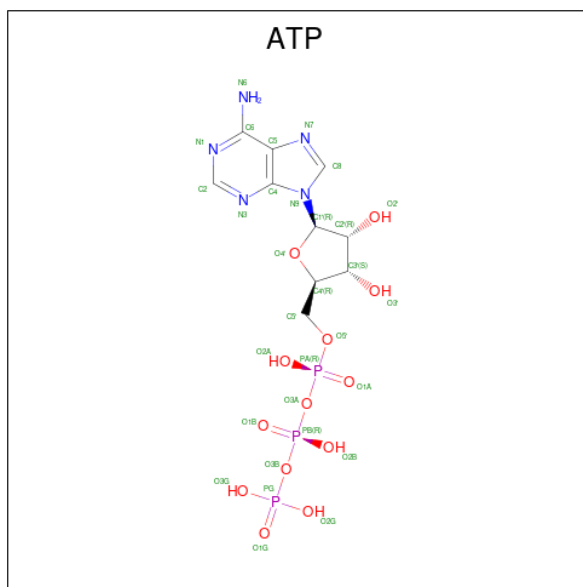
- Molecule 1 is a protein called Peptidyl-prolyl cis-trans isomerase FKBP1B.

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.

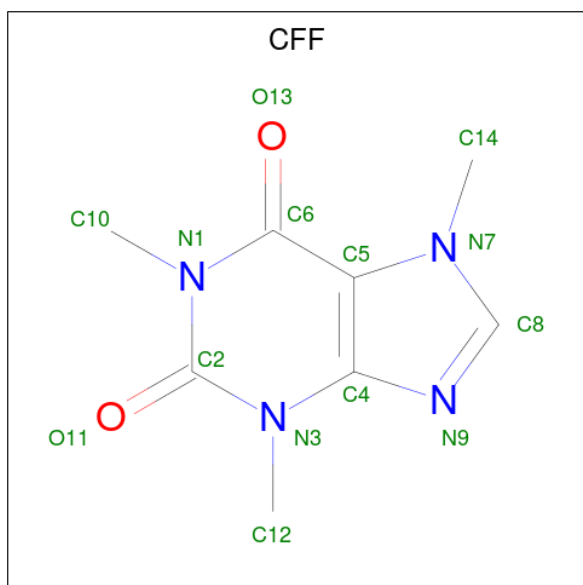
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	4194	29495	18683	5227	5428	157	0	0
2	I	4194	29495	18683	5227	5428	157	0	0
2	E	4194	29495	18683	5227	5428	157	0	0
2	G	4194	29495	18683	5227	5428	157	0	0

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
3	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	I	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	E	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	G	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 4 is CAFFEINE (three-letter code: CFF) (formula:  $C_8H_{10}N_4O_2$ ).



Mol	Chain	Residues	Atoms				AltConf
4	B	1	Total	C	N	O	0
			14	8	4	2	
4	I	1	Total	C	N	O	0
			14	8	4	2	
4	E	1	Total	C	N	O	0
			14	8	4	2	
4	G	1	Total	C	N	O	0
			14	8	4	2	

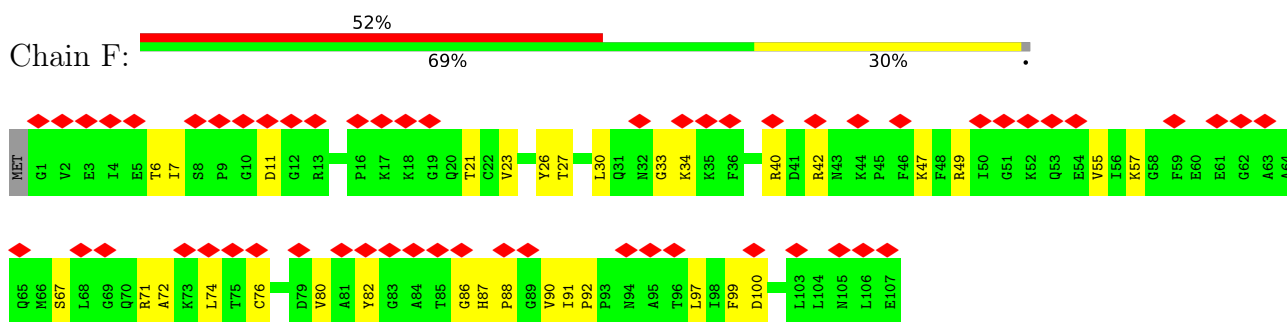
- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

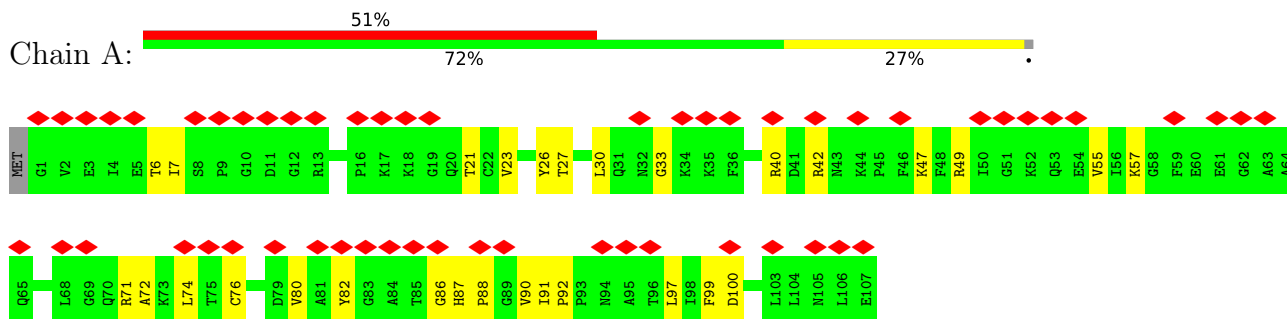
### 3 Residue-property plots [i](#)

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.

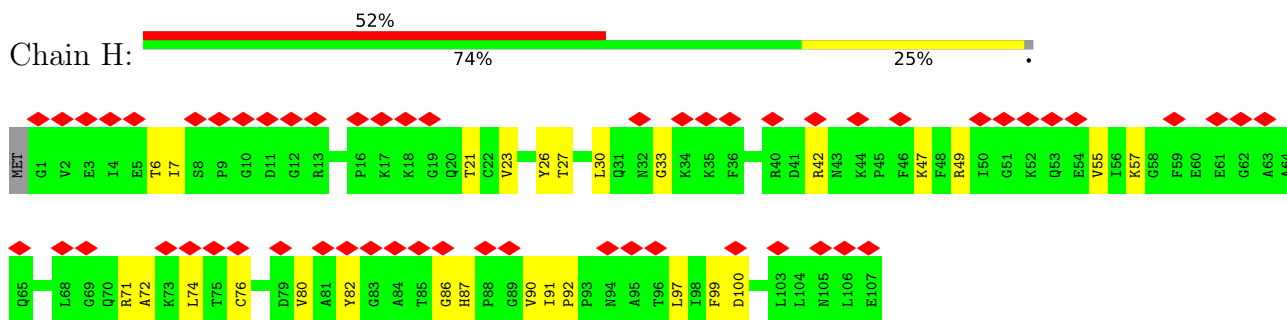
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B



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

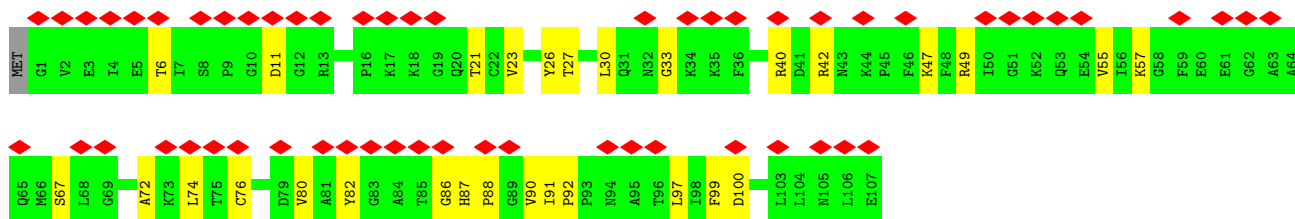


- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

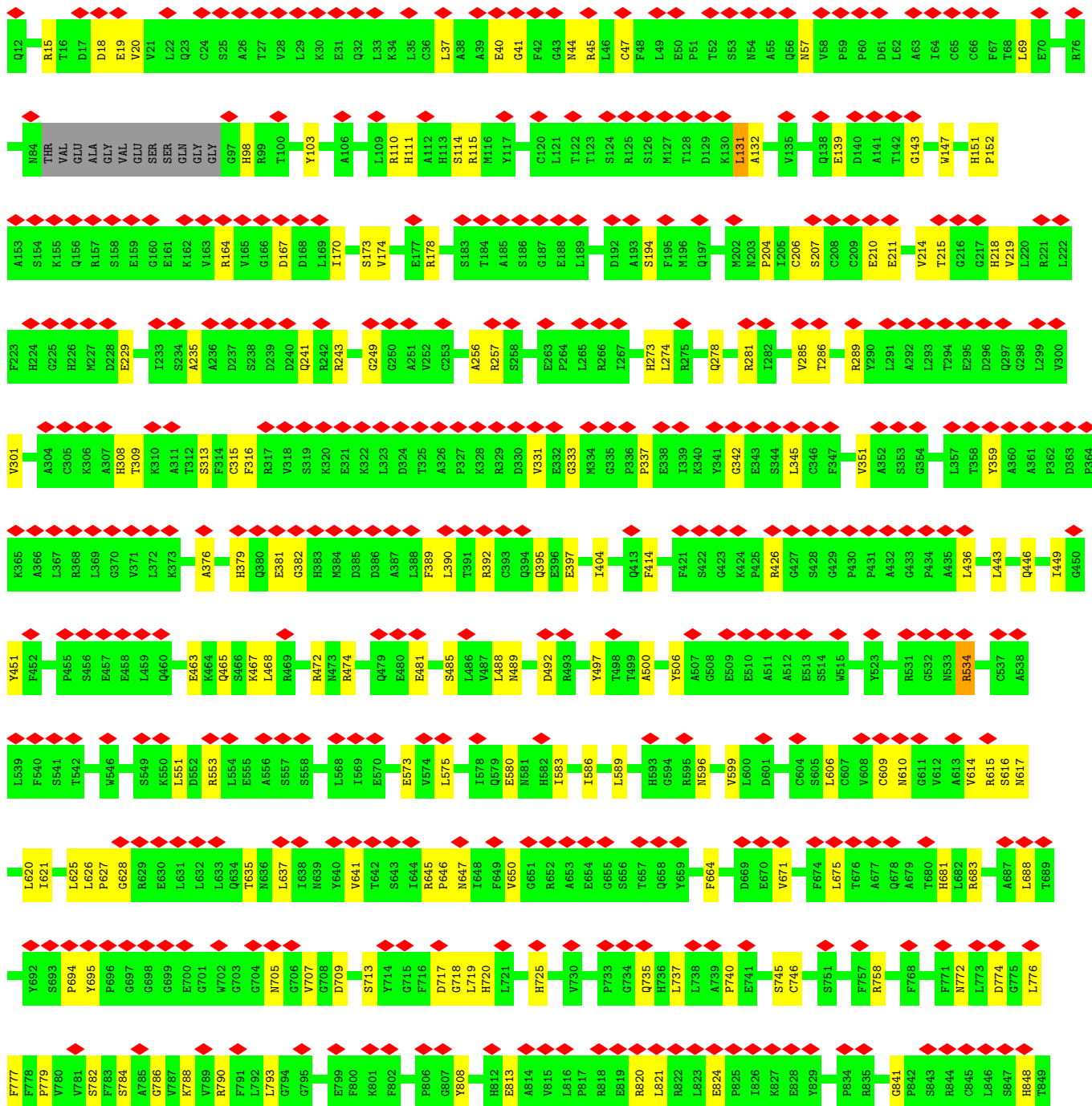
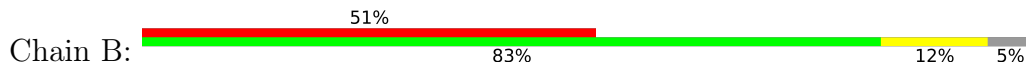


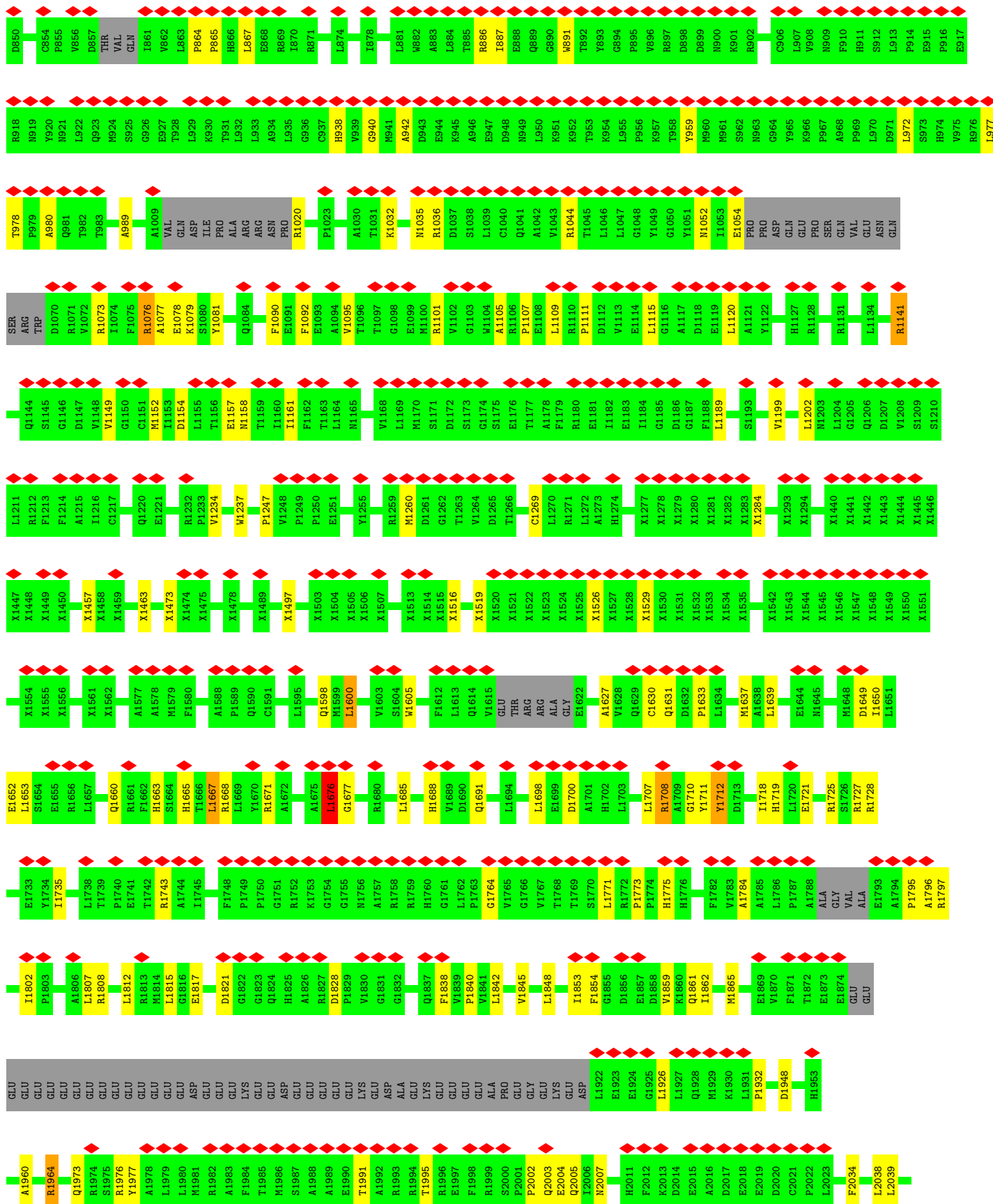
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B





• Molecule 2: Ryanodine receptor 1

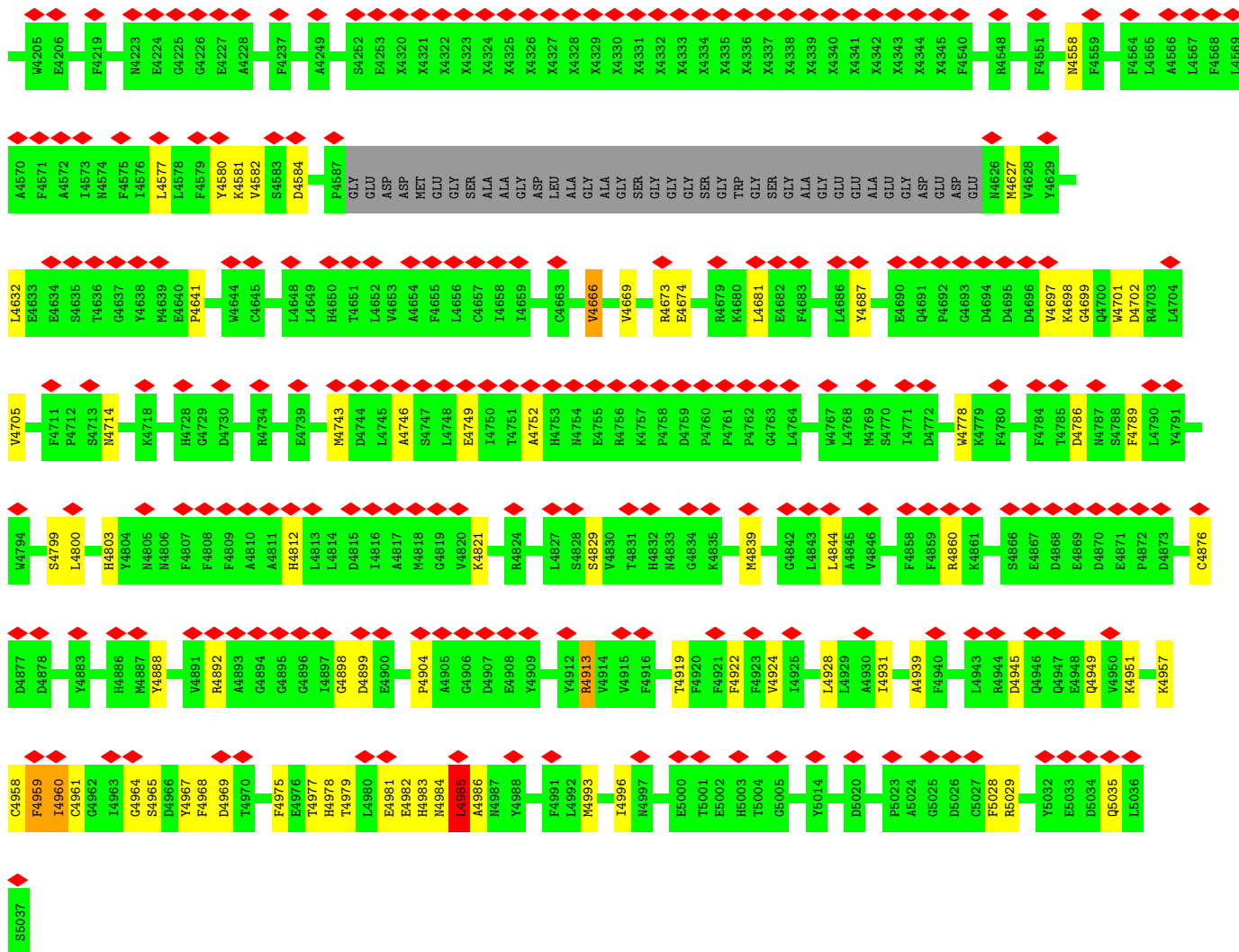




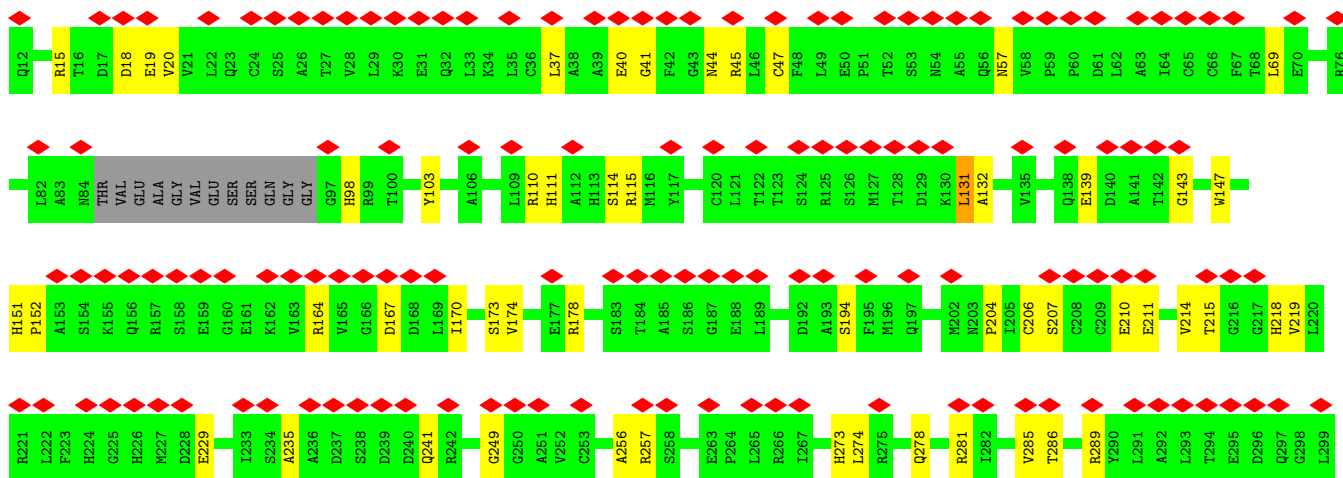
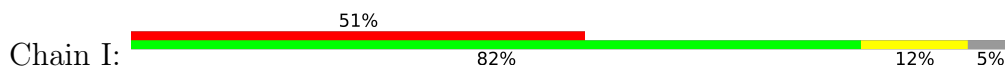


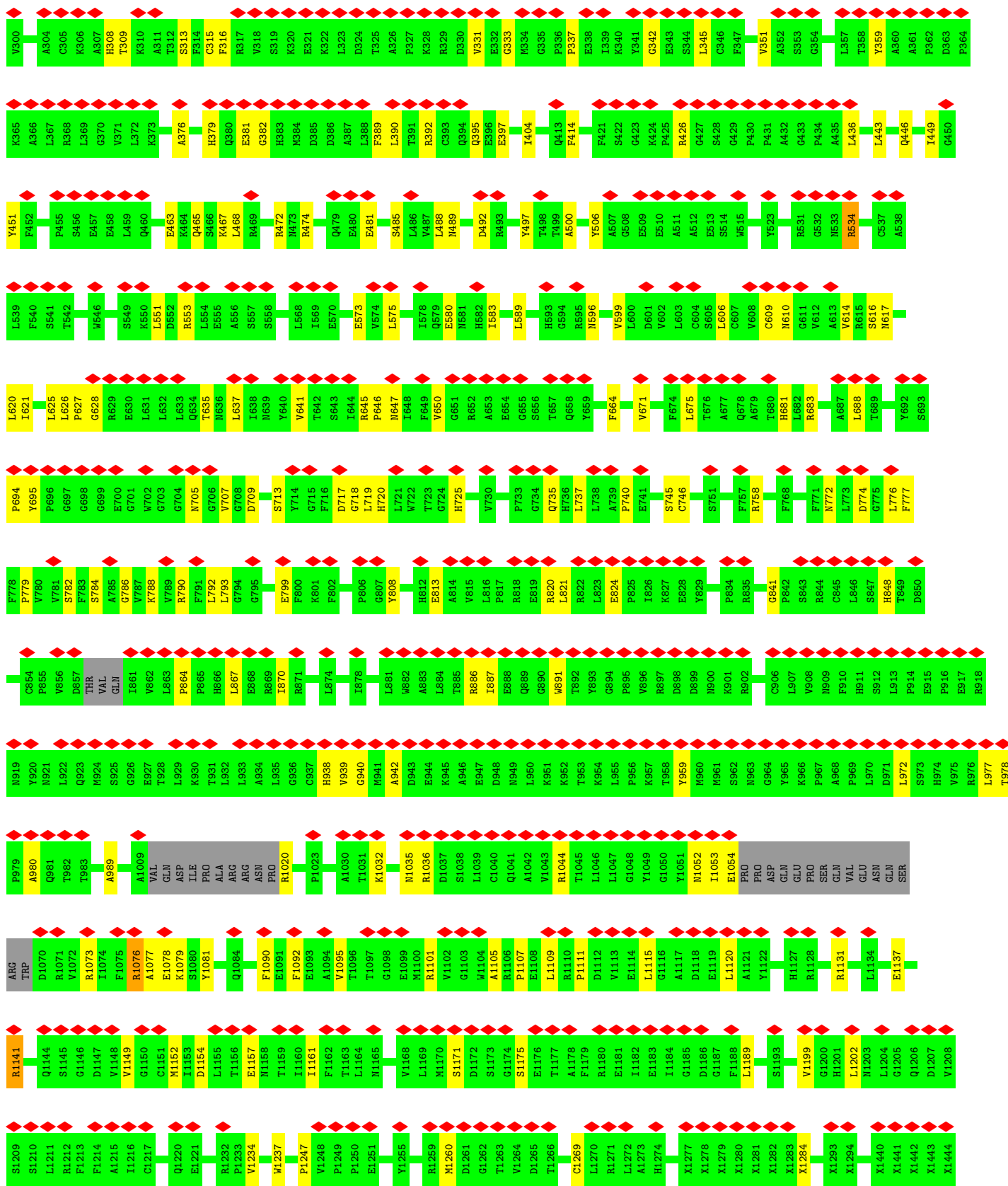
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R2126	Q2127	Y2128	D2129	G2130	L2131	G2132	R2136	A2141	S2145	P2146	S2147	E2150	L2155	L2166	M2170	N2187	N2188	K2189	V2190	F2191	Y2192	N2196	R2199	A2200	H2204	N2213	V2214	L2215	G2216	G2217	G2218	E2219	T2220	K2221	E2222	I2223	Q2308	S2309	C2310	C2311	M2312	L2313	L2314	A2315	K2316	P2319	D2320														
R2248	F2251	D2252	H2253	L2254	S2255	L2256	L2257	L2258	E2259	N2260	S2261	G2262	I2263	G2264	L2265	G2266	M2267	Q2268	G2269	S2270	T2271	P2272	L2273	A2276	A2277	E2285	L2286	A2287	L2288	A2289	L2290	Q2291	E2292	G2293	D2294	L2295	Y2301	G2304	C2305	L2307	Q2308	S2309	C2310	C2311	M2312	L2313	L2314	A2315	K2316	P2319	D2320										
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X2693	X2694	X2695	X2696	X2697	X2698	X2699	X2700	X2701	X2702	X2703	N2734	F2735	D2736	P2737	R2738	P2739	V2740	E2741	T2742	L2743	N2744	V2745	I2746	I2747	P2748	E2749	K2750	L2751	D2752	S2753	F2754	I2755	N2756	K2757	F2758	A2759	E2760	V2761	T2762	H2763	E2764	K2765	V2766	A2767	F2768	D2769	K2770	I2771	Q2772	N2773	N2774	W2775	I2777	G2778	E2779	N2780	V2781	D2782			
E2783	E2784	L2785	K2786	T2787	H2788	P2789	M2790	L2791	R2792	P2793	Y2794	T2795	K2796	F2797	S2798	E2799	K2800	D2801	K2802	E2803	I2804	Y2805	R2806	N2807	P2808	I2809	K2810	E2811	S2812	L2813	K2814	A2815	N2816	I2817	A2818	W2819	E2820	W2821	T2822	I2823	E2824	K2825	A2826	R2827	E2828	G2829	E2830	GLU	GLU	ARG	THR	GLY	LYS	LYS	LYS	THR	THR	ARG	LYS	ILE	
SER	GLN	THR	ALA	THR	TYR	ASP	PRO	ARG	GLU	GLY	Y2855	N2856	P2857	Q2858	P2859	P2860	D2861	L2862	S2863	G2864	V2865	T2866	L2867	S2868	R2869	E2870	L2871	Q2872	A2873	M2874	E2875	A2876	L2877	Q2877	L2878	A2879	E2880	N2881	Y2882	H2883	T2884	S2885	W2886	G2887	L2888	K2889	K2890	K2891	Q2892	E2893	L2894	L2895	A2896	E2897	X2956	X2957	X2958	X2959	X2960	T2901	H2902
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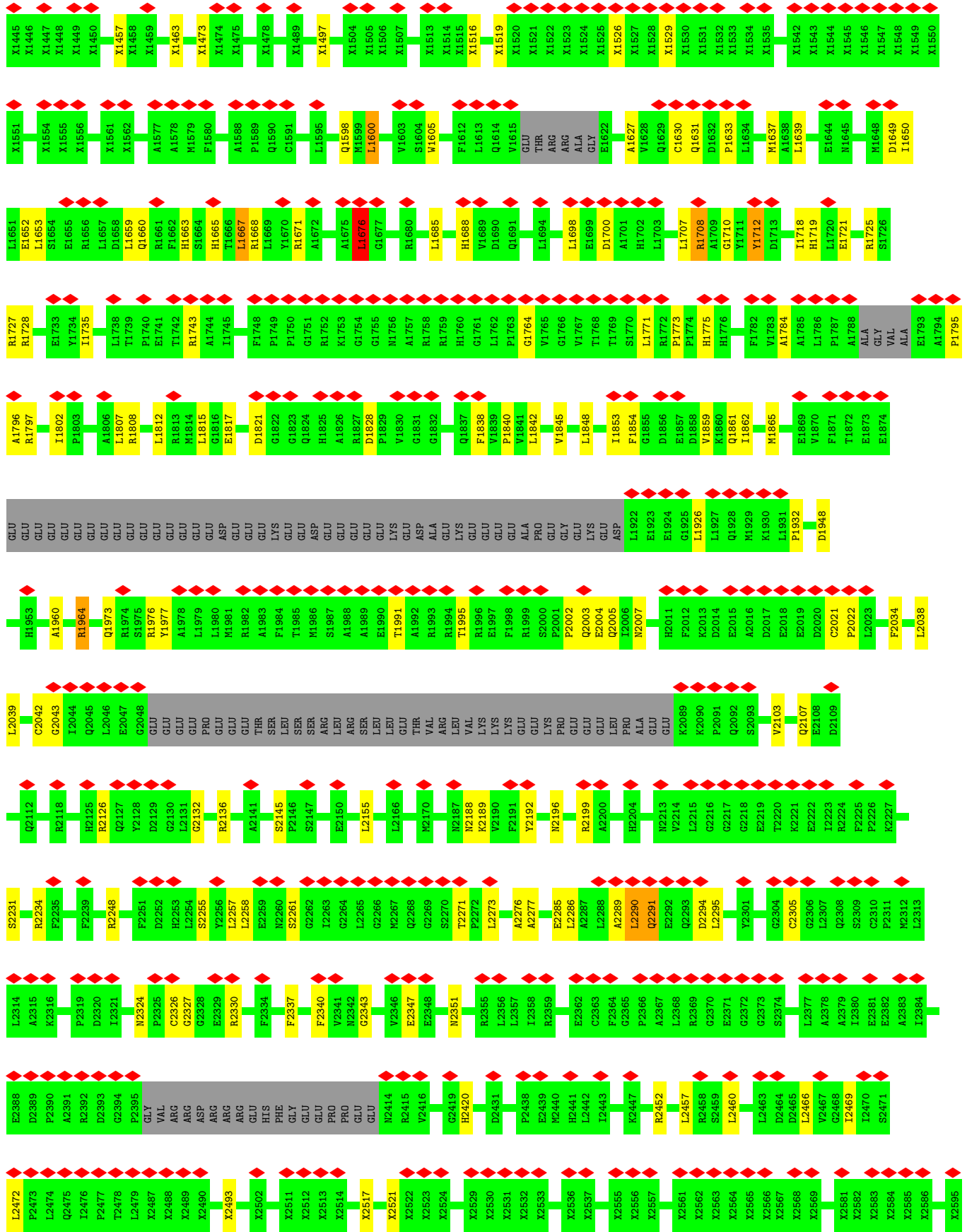
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S3548	S3549	S3550	S3551	S3552	S3553	S3554	S3555	S3556	S3557	S3558	S3559	S3560	S3561	S3562	S3563	S3564	S3565	S3566	S3567	S3568	S3569	S3570	S3571	S3572	S3573	S3574	S3575	S3576	S3577	S3578	S3579	S3580	S3581	S3582	S3583	S3584	S3585	S3586	S3587	S3588	S3589	S3590	S3591	S3592	S3593	S3594	S3595	S3596	S3597	S3598	S3599	S3600	S3601	S3602	S3603	S3604	S3605	S3606	S3607																																									
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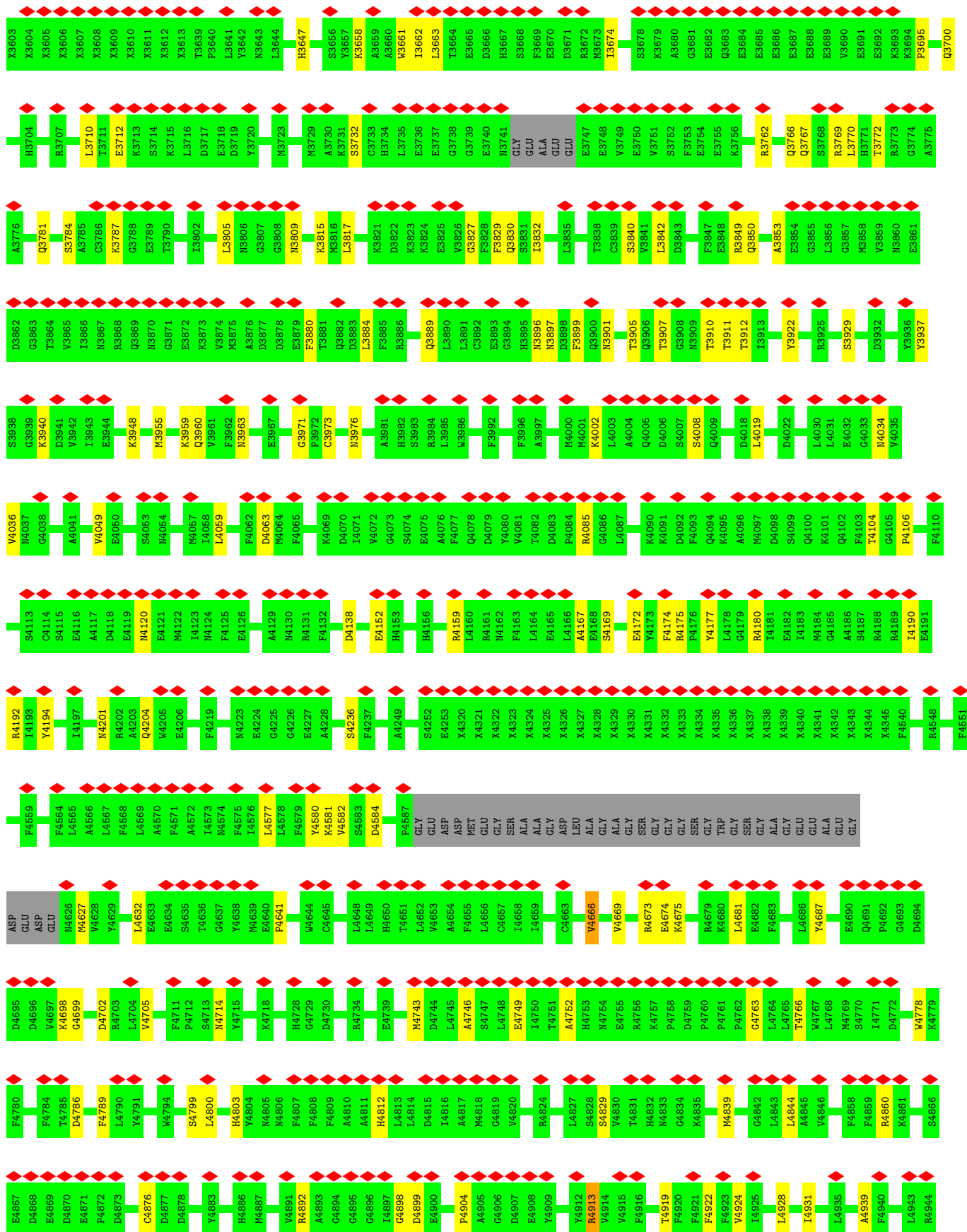
• Molecule 2: Ryanodine receptor 1

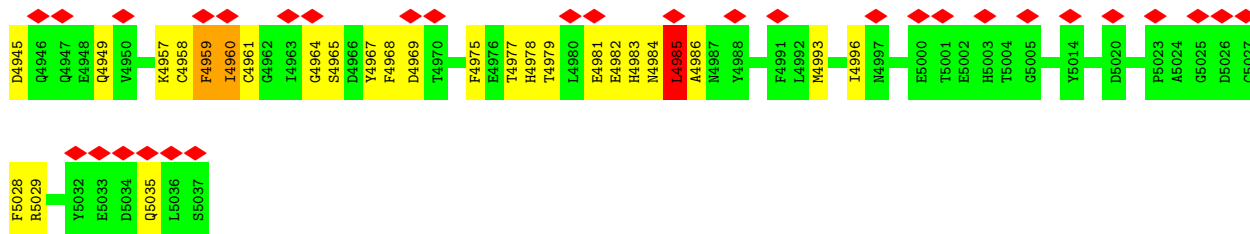




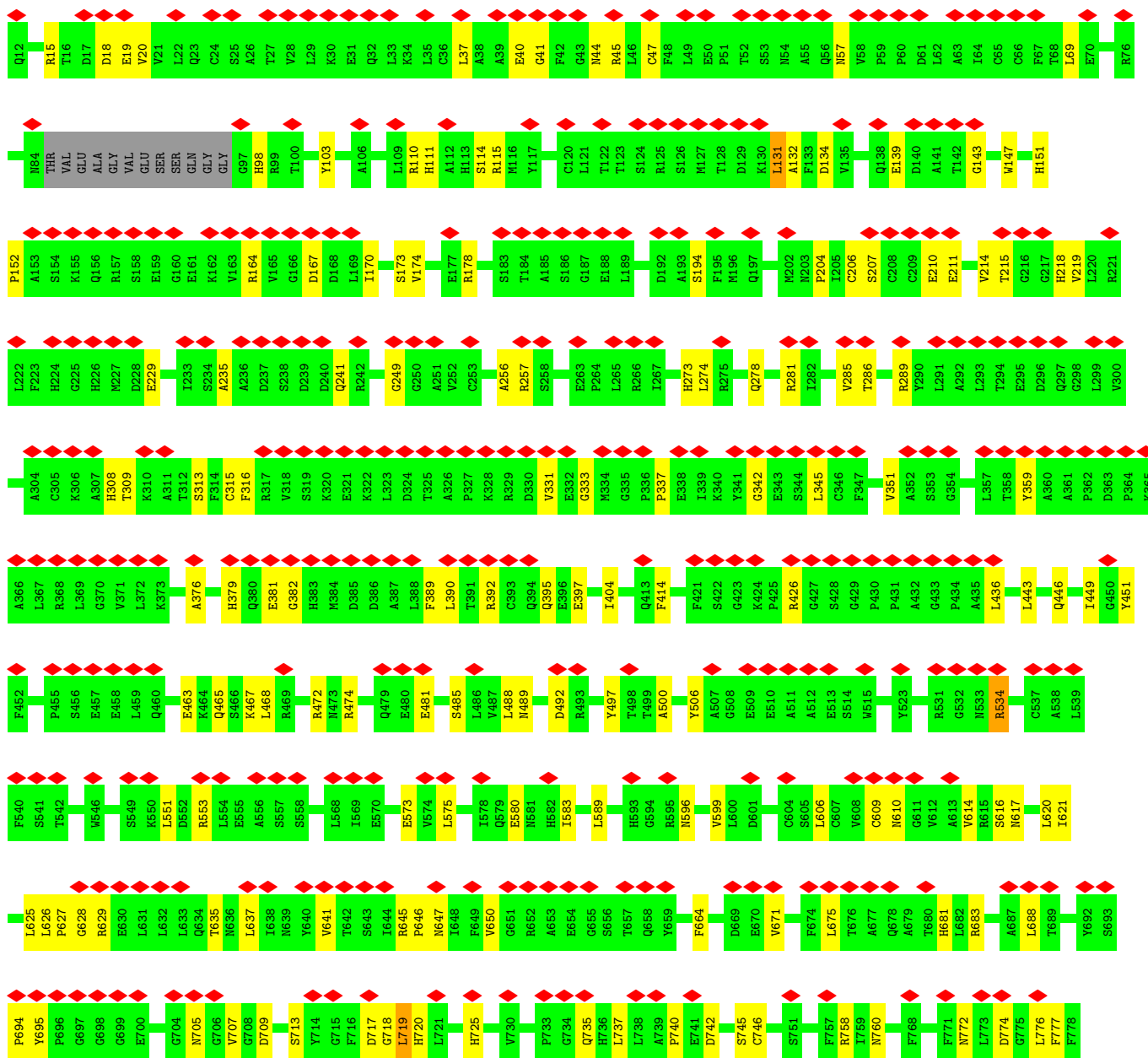
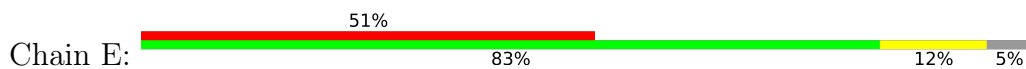


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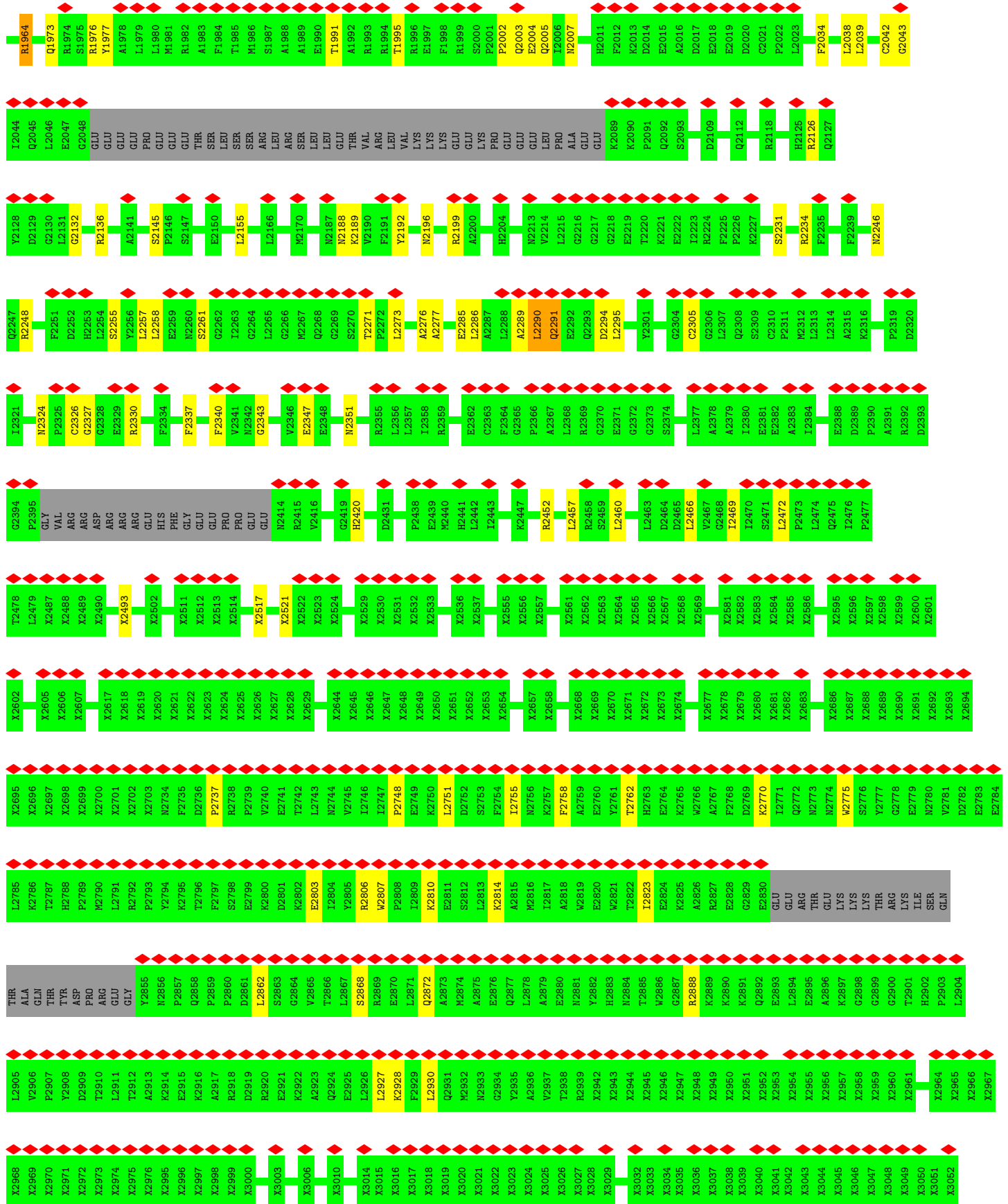


• Molecule 2: Ryanodine receptor 1

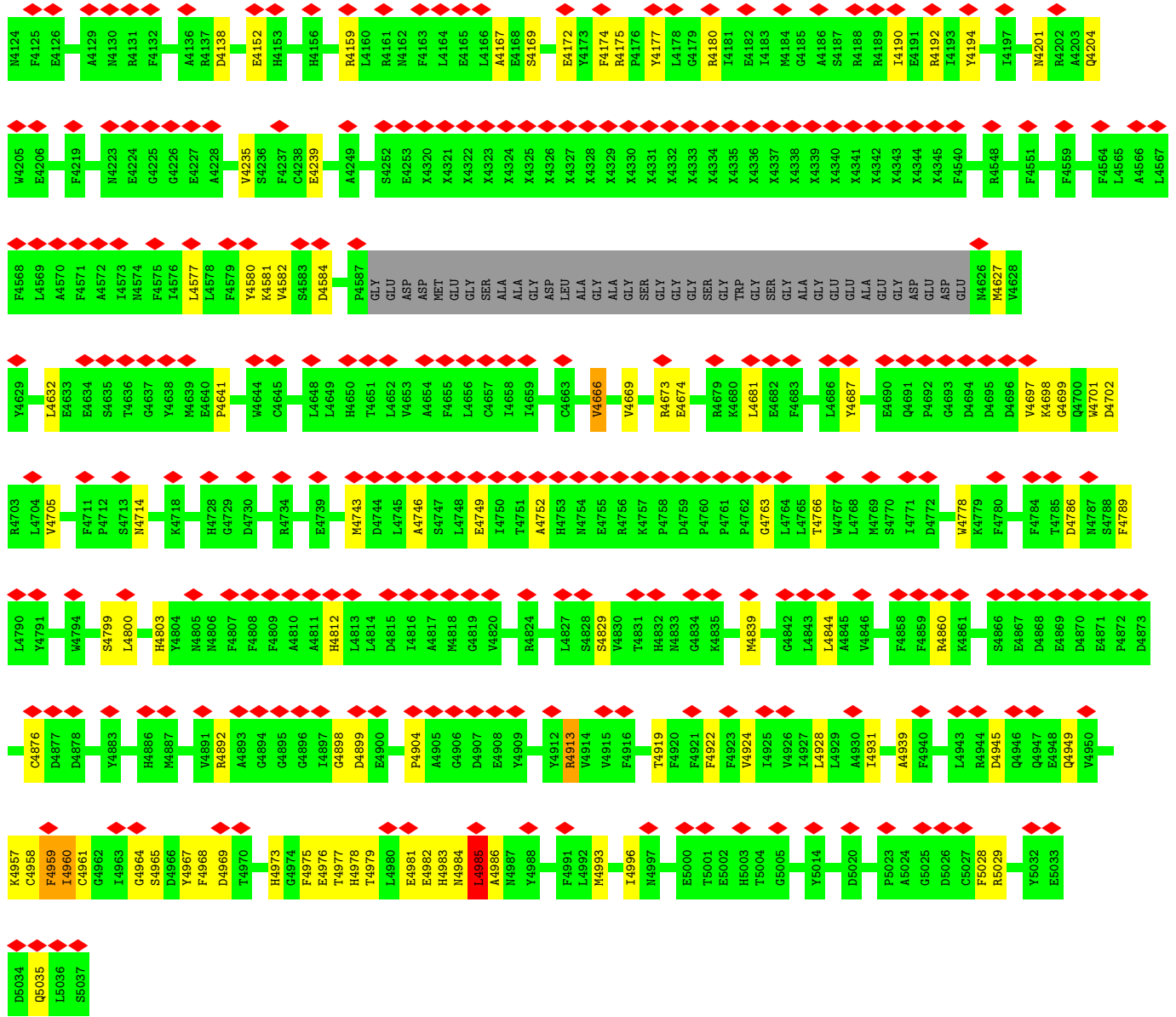




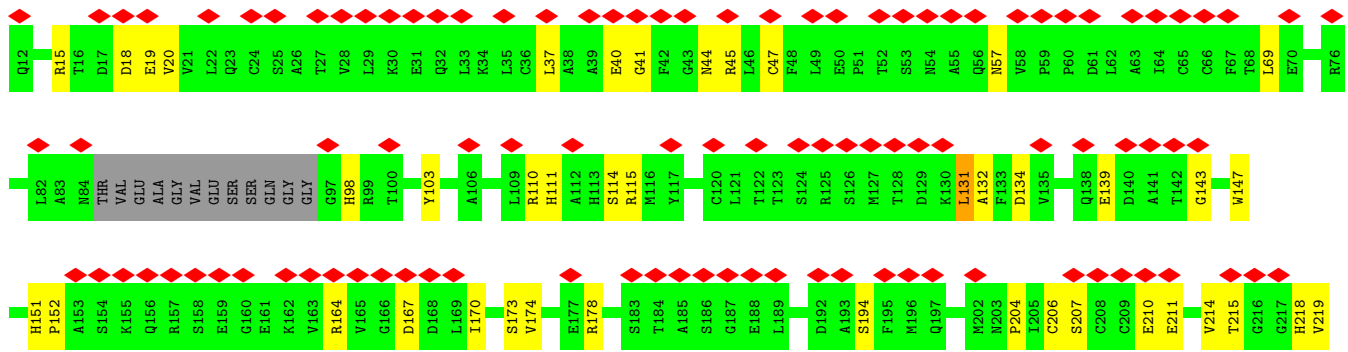
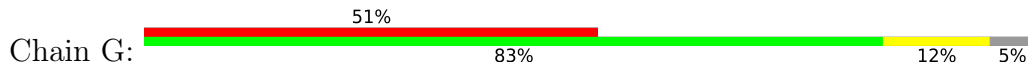
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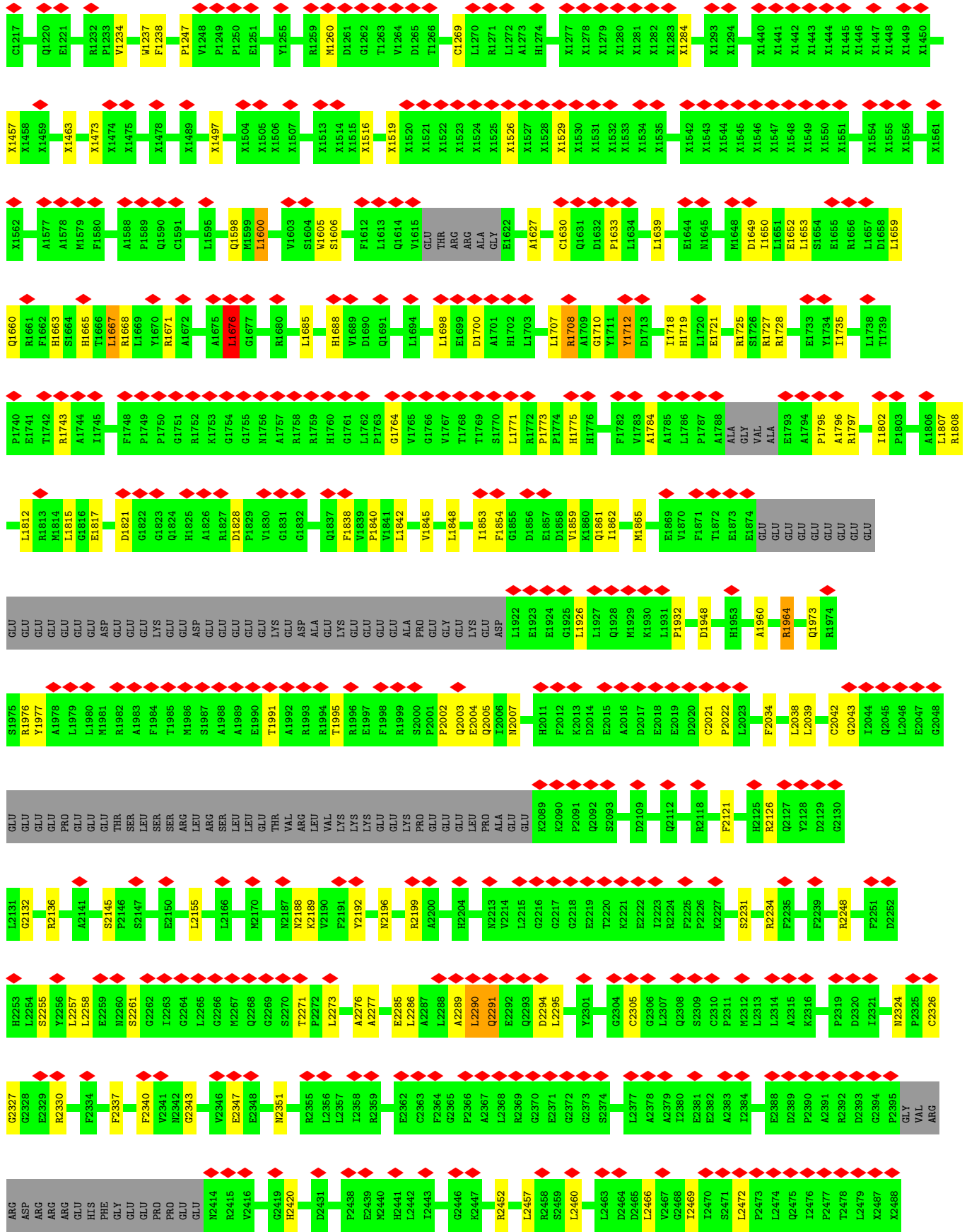
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• Molecule 2: Ryanodine receptor 1



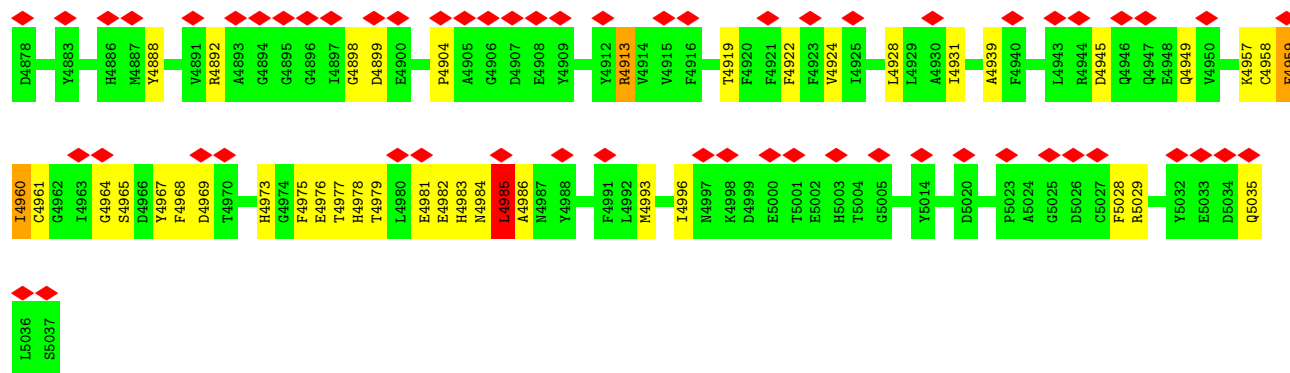
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X3198	X3199	X3200	X3201	X3202	X3203	X3204	X3205	X3206	X3207	X3208	X3209	X3210	X3211	X3212	X3213	X3214	X3215	X3216	X3217	X3218	X3219	X3220	X3221	X3222	X3223	X3224	X3225	X3226	X3227	X3228	X3229	X3230	X3231	X3232	X3233	X3234	X3235	X3236	X3241	X3242	X3243	X3244	X3245	X3246	X3247	X3248	X3249	X3250	X3251	X3252	X3253	X3254	X3255	X3256	X3257																																			
X3268	X3269	X3270	X3271	X3272	X3273	X3274	X3275	X3276	X3277	X3278	X3279	X3280	X3281	X3282	X3283	X3284	X3285	X3286	X3287	X3288	X3289	X3290	X3291	X3292	X3293	X3294	X3295	X3296	X3297	X3298	X3299	X3300	X3301	X3302	X3303	X3304	X3305	X3306	X3307	X3308	X3309	X3310	X3311	X3312	X3313	X3314	X3315	X3316	X3317	X3318	X3319	X3320	X3321	X3322	X3323	X3324	X3325	X3326	X3327																															
X3328	X3329	X3330	X3331	X3332	X3333	X3334	X3335	X3336	X3337	X3338	X3339	X3340	X3341	X3342	X3343	X3344	X3345	X3346	X3347	X3348	X3349	X3350	X3351	X3352	X3353	X3354	X3355	X3356	X3357	X3358	X3359	X3360	X3361	X3362	X3363	X3364	X3365	X3366	X3367	X3368	X3369	X3370	X3371	X3372	X3373	X3374	X3375	X3376	X3377	X3378	X3379	X3380	X3381	X3382	X3383	X3384	X3385	X3386	X3387																															
X3388	X3389	X3390	X3391	X3392	X3393	X3394	X3395	X3396	X3397	X3398	X3399	X3400	X3401	X3402	X3403	X3404	X3405	X3406	X3407	X3408	X3409	X3410	X3411	X3412	X3413	X3414	X3415	X3416	X3417	X3418	X3419	X3420	X3421	X3422	X3423	X3424	X3425	X3426	X3427	X3428	X3429	X3430	X3431	X3432	X3433	X3434	X3435	X3436	X3437	X3438	X3439	X3440	X3441	X3442	X3443	X3444	X3445	X3446	X3447																															
X3450	X3451	X3452	X3453	X3454	X3455	X3456	X3457	X3458	X3459	X3460	X3461	X3462	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	X3537	X3538	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	X3571	X3572	X3573	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	X3601	X3602	X3603	X3604	X3605	X3606	X3607	X3608	X3609	X3610
X3611	X3612	X3613	T3639	P3640	L3641	X3642	N3643	L3644	H3647	S3656	Y3657	K3658	A3659	A3660	W3661	I3662	L3663	T3664	D3665	D3666	H3667	S3668	P3669	E3670	D3671	R3672	H3673	I3674	S3678	K3679	A3680	G3681	E3682	Q3683	E3684	E3685	E3686	E3687	E3688	E3689	V3690	Q3766	Q3767	S3768	R3769	L3770	R3773	G3774	A3775	A3776	Q3781	S3784	A3785	L3710	L3711	E3712			
K3713	S3714	K3715	L3716	E3717	D3718	D3719	Y3720	M3723	G3807	A3724	Y3725	M3729	A3730	K3731	S3732	C3733	H3734	L3735	E3736	E3737	D3738	G3739	E3740	N3741	GLY	GLU	ALA	GLU	E3747	C3839	E3748	V3749	E3750	V3751	S3752	F3753	E3754	E3755	R3849	Q3850	A3853	E3854	G3855	L3856	G3857	M3858	V3859	N3860	E3861	D3862	G3863	T3864	V3865	I3866	R3868	Q3869			
C3786	K3787	G3788	E3789	T3790	I3802	L3805	N3806	G3807	A3724	N3808	N3809	L3817	K3821	D3822	K3823	K3824	E3825	V3826	G3827	F3828	F3829	Q3830	S3831	I3832	L3835	T3838	C3839	S3840	V3841	L3842	D3843	F3847	E3848	R3849	Q3850	A3853	E3854	G3855	L3856	G3857	M3858	V3859	N3860	E3861	D3862	G3863	T3864	V3865	I3866	R3868	Q3869								
N3870	G3871	E3872	K3873	V3874	M3875	A3876	D3877	E3879	F3880	T3881	D3882	L3884	F3885	R3886	Q3889	L3890	L3891	C3892	E3893	G3894	H3895	F3896	A3897	M4000	M4001	K4002	L4003	A4004	Q4005	D4006	S4007	G4008	R3909	T3910	T3911	T3912	I3913	Y3922	R3925	S3929	D3932	Y3936	Y3937	S3938	C3939	K3940	D3941	V3942	I3943	E3944									
K3955	K3959	Q3960	V3961	F3962	N3963	E3967	G3971	A3724	C3973	N3976	A3981	H3982	S3983	K3984	L3985	K3986	F3992	F3996	A3997	M4000	M4001	K4002	L4003	A4004	Q4005	D4006	S4007	G4008	R3909	T3910	T3911	T3912	I3913	Y3922	R3925	S3929	D3932	Y3936	Y3937	S3938	C3939	K3940	D3941	V3942	I3943	E3944													
M4054	M4057	L4058	L4059	F4062	D4063	M4064	F4065	K4069	D4070	I4071	V4072	G4073	S4074	E4075	A4076	F4077	Q4078	D4079	Y4080	V4081	T4082	D4083	F4084	R4085	G4086	L4087	K4090	K4091	D4092	F4093	Q4094	K4095	A4096	M4097	D4098	S4099	Q4100	K4101	Q4102	F4103	T4104	G4105	P4106	F4110	S4113	C4114	S4115	E4116	A4117	D4118	E4119	M4120	E4121						
M4123	I4123	M4124	F4125	E4126	A4129	M4130	R4131	F4132	D4138	E4152	H4153	H4156	R4159	L4160	R4161	M4162	F4163	L4164	E4165	L4166	A4167	E4168	S4169	E4172	F4173	F4174	R4175	R4176	F4177	L4178	Q4179	I4181	E4182	L4183	M4184	Q4185	A4186	S4187	R4188	R4189	L4190	E4191	R4192	T4193	Y4194	I4197	M4201	R4202	A4203	Q4204									
V4205	E4206	F4219	M4223	E4224	G4225	M4226	E4227	A4228	F4237	A4249	S4252	E4253	X4320	X4321	X4322	X4323	X4324	X4325	X4326	X4327	X4328	X4329	X4330	X4331	X4332	X4333	X4334	X4335	X4336	X4337	X4338	X4339	X4340	X4341	X4342	X4343	X4344	X4345	F4540	R4548	F4551	F4559	F4564	L4565	A4566	L4567	F4568	L4569	F4571										
A4572	I4573	M4574	F4575	I4576	L4577	L4578	F4579	Y4580	K4581	V4582	S4583	D4584	P4587	GLY	GLU	ASP	NET	GLY	GLU	SER	ALA	ALA	ASP	LEU	ALA	ALA	GLY	GLY	SER	GLY	GLY	GLY	GLU	GLU	ALA	ALA	GLY	ASP	ASP	ASP	GLU	M4526	M4627	V4628	Y4629	L4632	E4633												
E4634	S4635	T4636	G4637	Y4638	M4639	E4640	Y4641	V4644	C4645	L4648	L4649	H4650	T4651	L4652	V4653	A4654	F4655	L4656	C4657	I4658	L4659	C4663	V4666	V4669	R4673	E4674	R4679	K4680	L4681	E4682	F4683	L4686	Y4687	E4690	Q4691	P4692	C4693	D4694	D4695	D4696	V4697	K4699	D4702	R4703	L4704	V4705	F4711												
P4712	S4713	N4714	Y4715	K4716	H4728	G4729	D4730	R4734	E4739	M4743	D4744	L4745	A4746	S4747	L4748	E4749	I4750	T4751	A4752	H4753	M4754	E4755	V4756	K4757	P4758	D4759	P4760	P4761	P4762	G4763	L4764	L4765	T4766	M4767	L4768	M4769	S4770	I4771	D4772	M4775	F4778	F4780	F4784	T4785	E4786	M4787	S4788	F4789	L4790	Y4791	M4794								
S4799	L4800	H4803	Y4804	M4805	N4806	F4807	F4808	F4809	A4810	A4811	H4812	L4813	L4814	D4815	L4816	A4817	M4818	G4819	V4820	R4824	T4825	L4826	L4827	S4828	S4829	V4830	T4831	H4832	N4833	G4834	K4835	M4839	G4842	A4845	L4844	V4846	F4858	F4859	R4860	K4861	S4866	E4867	D4868	E4869	D4870	E4871	P4872	D4873	C4876	D4877									





## 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	0.076	Depositor
Minimum map value	-0.032	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.032	Depositor
Map size (Å)	502.0, 502.0, 502.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.255, 1.255, 1.255	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: CFF, ZN, ATP

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	0.30	0/834	0.52	0/1123
1	F	0.30	0/834	0.52	0/1123
1	H	0.30	0/834	0.52	0/1123
1	J	0.30	0/834	0.52	0/1123
2	B	0.29	0/25424	0.53	8/34530 (0.0%)
2	E	0.29	0/25424	0.53	9/34530 (0.0%)
2	G	0.29	0/25424	0.53	8/34530 (0.0%)
2	I	0.29	0/25424	0.53	8/34530 (0.0%)
All	All	0.29	0/105032	0.53	33/142612 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	13
2	E	0	13
2	G	0	13
2	I	0	13
All	All	0	52

There are no bond length outliers.

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	131	LEU	CA-CB-CG	8.24	134.26	115.30
2	E	131	LEU	CA-CB-CG	8.24	134.25	115.30
2	I	131	LEU	CA-CB-CG	8.23	134.24	115.30
2	G	131	LEU	CA-CB-CG	8.23	134.22	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	4985	LEU	CA-CB-CG	7.85	133.36	115.30
2	G	4985	LEU	CA-CB-CG	7.85	133.35	115.30
2	B	4985	LEU	CA-CB-CG	7.84	133.33	115.30
2	I	4985	LEU	CA-CB-CG	7.82	133.29	115.30
2	E	1600	LEU	CA-CB-CG	6.92	131.21	115.30
2	B	1600	LEU	CA-CB-CG	6.90	131.17	115.30
2	I	1600	LEU	CA-CB-CG	6.90	131.17	115.30
2	G	1600	LEU	CA-CB-CG	6.90	131.16	115.30
2	G	1676	LEU	CA-CB-CG	6.54	130.34	115.30
2	B	1676	LEU	CA-CB-CG	6.53	130.32	115.30
2	I	1676	LEU	CA-CB-CG	6.52	130.31	115.30
2	E	1676	LEU	CA-CB-CG	6.52	130.29	115.30
2	G	977	LEU	CA-CB-CG	5.94	128.96	115.30
2	E	977	LEU	CA-CB-CG	5.93	128.94	115.30
2	B	977	LEU	CA-CB-CG	5.93	128.94	115.30
2	I	977	LEU	CA-CB-CG	5.93	128.94	115.30
2	I	2290	LEU	CA-CB-CG	5.65	128.30	115.30
2	E	2290	LEU	CA-CB-CG	5.65	128.29	115.30
2	B	2290	LEU	CA-CB-CG	5.64	128.27	115.30
2	G	2290	LEU	CA-CB-CG	5.63	128.25	115.30
2	G	1667	LEU	CA-CB-CG	5.36	127.63	115.30
2	I	1667	LEU	CA-CB-CG	5.36	127.62	115.30
2	E	1667	LEU	CA-CB-CG	5.35	127.60	115.30
2	B	1667	LEU	CA-CB-CG	5.34	127.59	115.30
2	I	688	LEU	CA-CB-CG	5.32	127.53	115.30
2	G	688	LEU	CA-CB-CG	5.30	127.50	115.30
2	B	688	LEU	CA-CB-CG	5.30	127.49	115.30
2	E	688	LEU	CA-CB-CG	5.29	127.47	115.30
2	E	719	LEU	CA-CB-CG	5.00	126.80	115.30

There are no chirality outliers.

All (52) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	139	GLU	Peptide
2	B	1676	LEU	Peptide
2	B	1712	TYR	Peptide
2	B	1795	PRO	Peptide
2	B	1828	ASP	Peptide
2	B	2291	GLN	Peptide
2	B	2343	GLY	Peptide
2	B	2472	LEU	Peptide

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
2	B	2807	TRP	Peptide
2	B	3971	GLY	Peptide
2	B	4666	VAL	Peptide
2	B	694	PRO	Peptide
2	B	808	TYR	Peptide
2	E	139	GLU	Peptide
2	E	1676	LEU	Peptide
2	E	1712	TYR	Peptide
2	E	1795	PRO	Peptide
2	E	1828	ASP	Peptide
2	E	2291	GLN	Peptide
2	E	2343	GLY	Peptide
2	E	2472	LEU	Peptide
2	E	2807	TRP	Peptide
2	E	3971	GLY	Peptide
2	E	4666	VAL	Peptide
2	E	694	PRO	Peptide
2	E	808	TYR	Peptide
2	G	139	GLU	Peptide
2	G	1676	LEU	Peptide
2	G	1712	TYR	Peptide
2	G	1795	PRO	Peptide
2	G	1828	ASP	Peptide
2	G	2291	GLN	Peptide
2	G	2343	GLY	Peptide
2	G	2472	LEU	Peptide
2	G	2807	TRP	Peptide
2	G	3971	GLY	Peptide
2	G	4666	VAL	Peptide
2	G	694	PRO	Peptide
2	G	808	TYR	Peptide
2	I	139	GLU	Peptide
2	I	1676	LEU	Peptide
2	I	1712	TYR	Peptide
2	I	1795	PRO	Peptide
2	I	1828	ASP	Peptide
2	I	2291	GLN	Peptide
2	I	2343	GLY	Peptide
2	I	2472	LEU	Peptide
2	I	2807	TRP	Peptide
2	I	3971	GLY	Peptide
2	I	4666	VAL	Peptide

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Mol	Chain	Res	Type	Group
2	I	694	PRO	Peptide
2	I	808	TYR	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	18	0
1	F	818	0	824	20	0
1	H	818	0	824	15	0
1	J	818	0	824	17	0
2	B	29495	0	24734	313	0
2	E	29495	0	24734	312	0
2	G	29495	0	24734	310	0
2	I	29495	0	24734	314	0
3	B	31	0	12	1	0
3	E	31	0	12	1	0
3	G	31	0	12	1	0
3	I	31	0	12	1	0
4	B	14	0	10	0	0
4	E	14	0	10	0	0
4	G	14	0	10	0	0
4	I	14	0	10	0	0
5	B	1	0	0	0	0
5	E	1	0	0	0	0
5	G	1	0	0	0	0
5	I	1	0	0	0	0
All	All	121436	0	102320	1289	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (1289) 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:B:4968:PHE:CZ	2:B:4978:HIS:CE1	2.60	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:4968:PHE:CZ	2:E:4978:HIS:CE1	2.60	0.90
2:G:4968:PHE:CZ	2:G:4978:HIS:CE1	2.60	0.89
2:I:4968:PHE:CZ	2:I:4978:HIS:CE1	2.60	0.89
2:B:4975:PHE:O	2:B:4979:THR:HG23	1.86	0.76
2:E:4975:PHE:O	2:E:4979:THR:HG23	1.86	0.75
2:G:4975:PHE:O	2:G:4979:THR:HG23	1.86	0.75
2:I:4975:PHE:O	2:I:4979:THR:HG23	1.86	0.74
2:I:788:LYS:HG2	2:I:1630:CYS:H	1.54	0.72
2:E:4960:ILE:HD13	2:E:4960:ILE:N	2.04	0.72
2:G:788:LYS:HG2	2:G:1630:CYS:H	1.54	0.72
2:B:4960:ILE:N	2:B:4960:ILE:HD13	2.04	0.72
2:I:4960:ILE:N	2:I:4960:ILE:HD13	2.04	0.71
2:B:788:LYS:HG2	2:B:1630:CYS:H	1.54	0.71
2:E:788:LYS:HG2	2:E:1630:CYS:H	1.54	0.70
2:G:4960:ILE:N	2:G:4960:ILE:HD13	2.04	0.70
2:I:4978:HIS:HA	2:I:4982:GLU:HB2	1.75	0.69
2:E:4978:HIS:HA	2:E:4982:GLU:HB2	1.75	0.69
2:B:4968:PHE:CE2	2:B:4978:HIS:CE1	2.81	0.69
2:B:4978:HIS:HA	2:B:4982:GLU:HB2	1.75	0.69
2:E:379:HIS:HD2	2:E:382:GLY:H	1.40	0.69
2:I:2291:GLN:HB3	2:I:2294:ASP:H	1.58	0.68
2:G:4968:PHE:CE2	2:G:4978:HIS:CE1	2.81	0.68
2:B:379:HIS:HD2	2:B:382:GLY:H	1.40	0.68
2:B:2291:GLN:HB3	2:B:2294:ASP:H	1.58	0.68
2:I:4968:PHE:CE2	2:I:4978:HIS:CE1	2.81	0.68
2:E:4968:PHE:CE2	2:E:4978:HIS:CE1	2.81	0.68
2:G:4978:HIS:HA	2:G:4982:GLU:HB2	1.75	0.68
2:G:2291:GLN:HB3	2:G:2294:ASP:H	1.58	0.68
2:E:2291:GLN:HB3	2:E:2294:ASP:H	1.58	0.67
2:B:1764:GLY:HA3	2:B:1859:VAL:HG11	1.77	0.67
2:G:379:HIS:HD2	2:G:382:GLY:H	1.40	0.67
2:B:745:SER:HB2	2:B:758:ARG:HB3	1.77	0.66
2:E:2291:GLN:HB2	2:E:2295:LEU:HG	1.78	0.66
2:I:745:SER:HB2	2:I:758:ARG:HB3	1.77	0.66
2:I:1764:GLY:HA3	2:I:1859:VAL:HG11	1.77	0.66
2:I:379:HIS:HD2	2:I:382:GLY:H	1.40	0.66
2:I:2291:GLN:HB2	2:I:2295:LEU:HG	1.78	0.66
2:G:2291:GLN:HB2	2:G:2295:LEU:HG	1.78	0.66
2:I:4674:GLU:HG3	2:I:4714:ASN:HB3	1.78	0.65
2:B:4674:GLU:HG3	2:B:4714:ASN:HB3	1.78	0.65
2:E:1764:GLY:HA3	2:E:1859:VAL:HG11	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:1764:GLY:HA3	2:G:1859:VAL:HG11	1.77	0.65
2:G:4674:GLU:HG3	2:G:4714:ASN:HB3	1.78	0.65
2:B:2291:GLN:HB2	2:B:2295:LEU:HG	1.78	0.65
2:E:745:SER:HB2	2:E:758:ARG:HB3	1.77	0.65
2:G:745:SER:HB2	2:G:758:ARG:HB3	1.77	0.64
2:E:2755:ILE:HD13	2:E:2810:LYS:HG2	1.79	0.64
2:E:331:VAL:HG12	2:E:333:GLY:H	1.62	0.64
2:B:110:ARG:HH21	2:B:115:ARG:HB3	1.62	0.64
2:G:110:ARG:HH21	2:G:115:ARG:HB3	1.62	0.64
2:G:331:VAL:HG12	2:G:333:GLY:H	1.62	0.64
2:I:2755:ILE:HD13	2:I:2810:LYS:HG2	1.79	0.64
2:G:2755:ILE:HD13	2:G:2810:LYS:HG2	1.79	0.64
2:E:4674:GLU:HG3	2:E:4714:ASN:HB3	1.78	0.64
2:I:110:ARG:HH21	2:I:115:ARG:HB3	1.62	0.63
2:I:173:SER:HB3	2:I:178:ARG:H	1.64	0.63
2:I:683:ARG:HB2	2:I:782:SER:HB3	1.81	0.63
2:E:664:PHE:HB2	2:E:746:CYS:HB2	1.81	0.63
2:B:683:ARG:HB2	2:B:782:SER:HB3	1.81	0.63
2:E:110:ARG:HH21	2:E:115:ARG:HB3	1.62	0.63
2:B:173:SER:HB3	2:B:178:ARG:H	1.64	0.63
2:B:2755:ILE:HD13	2:B:2810:LYS:HG2	1.79	0.63
2:B:664:PHE:HB2	2:B:746:CYS:HB2	1.81	0.63
2:I:664:PHE:HB2	2:I:746:CYS:HB2	1.81	0.63
2:G:173:SER:HB3	2:G:178:ARG:H	1.64	0.63
2:G:683:ARG:HB2	2:G:782:SER:HB3	1.81	0.63
2:I:1092:PHE:HB3	2:I:1149:VAL:HB	1.82	0.62
2:G:1671:ARG:NH2	2:G:1710:GLY:O	2.32	0.62
2:G:664:PHE:HB2	2:G:746:CYS:HB2	1.81	0.62
2:B:331:VAL:HG12	2:B:333:GLY:H	1.62	0.62
2:B:1092:PHE:HB3	2:B:1149:VAL:HB	1.82	0.62
2:B:1671:ARG:NH2	2:B:1710:GLY:O	2.32	0.62
2:B:4860:ARG:HD2	2:E:4582:VAL:HG11	1.80	0.62
2:I:1671:ARG:NH2	2:I:1710:GLY:O	2.32	0.62
2:I:4582:VAL:HG11	2:G:4860:ARG:HD2	1.80	0.62
2:E:1671:ARG:NH2	2:E:1710:GLY:O	2.32	0.62
2:E:426:ARG:HB2	2:E:506:TYR:HA	1.82	0.62
2:E:173:SER:HB3	2:E:178:ARG:H	1.64	0.62
2:E:683:ARG:HB2	2:E:782:SER:HB3	1.81	0.62
2:E:4860:ARG:HD2	2:G:4582:VAL:HG11	1.80	0.62
2:G:1092:PHE:HB3	2:G:1149:VAL:HB	1.82	0.62
2:B:580:GLU:HG2	2:B:583:ILE:HD11	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:426:ARG:HB2	2:G:506:TYR:HA	1.82	0.62
2:G:580:GLU:HG2	2:G:583:ILE:HD11	1.82	0.61
2:B:4582:VAL:HG11	2:I:4860:ARG:HD2	1.81	0.61
2:E:1092:PHE:HB3	2:E:1149:VAL:HB	1.81	0.61
2:I:331:VAL:HG12	2:I:333:GLY:H	1.62	0.61
2:I:580:GLU:HG2	2:I:583:ILE:HD11	1.82	0.61
2:G:3937:TYR:O	2:G:4002:LYS:NZ	2.33	0.61
2:I:3937:TYR:O	2:I:4002:LYS:NZ	2.33	0.61
2:E:580:GLU:HG2	2:E:583:ILE:HD11	1.82	0.61
2:B:18:ASP:HB2	2:B:69:LEU:HD12	1.83	0.61
2:I:18:ASP:HB2	2:I:69:LEU:HD12	1.83	0.61
2:I:3955:MET:HG3	2:I:4019:LEU:HD22	1.83	0.61
2:E:4968:PHE:CZ	2:E:4978:HIS:HE1	2.19	0.61
2:G:3955:MET:HG3	2:G:4019:LEU:HD22	1.83	0.61
2:B:3937:TYR:O	2:B:4002:LYS:NZ	2.33	0.60
2:E:3937:TYR:O	2:E:4002:LYS:NZ	2.34	0.60
2:B:1743:ARG:O	2:B:1964:ARG:NH2	2.34	0.60
2:I:426:ARG:HB2	2:I:506:TYR:HA	1.82	0.60
2:B:2748:PRO:HD2	2:B:2751:LEU:HD12	1.84	0.60
2:G:1743:ARG:O	2:G:1964:ARG:NH2	2.34	0.60
2:I:4104:THR:HG22	2:I:4106:PRO:HD2	1.83	0.60
2:E:4104:THR:HG22	2:E:4106:PRO:HD2	1.83	0.60
2:B:313:SER:HB3	2:B:351:VAL:HB	1.84	0.60
2:B:1079:LYS:NZ	2:B:1107:PRO:O	2.35	0.60
2:B:3955:MET:HG3	2:B:4019:LEU:HD22	1.83	0.59
2:E:18:ASP:HB2	2:E:69:LEU:HD12	1.83	0.59
2:E:313:SER:HB3	2:E:351:VAL:HB	1.84	0.59
2:G:18:ASP:HB2	2:G:69:LEU:HD12	1.83	0.59
2:G:4104:THR:HG22	2:G:4106:PRO:HD2	1.83	0.59
2:I:4844:LEU:HD13	2:I:4928:LEU:HG	1.84	0.59
2:E:3955:MET:HG3	2:E:4019:LEU:HD22	1.83	0.59
2:G:281:ARG:NH2	2:G:309:THR:OG1	2.34	0.59
2:B:111:HIS:HD2	2:B:114:SER:H	1.51	0.59
2:B:4844:LEU:HD13	2:B:4928:LEU:HG	1.85	0.59
2:B:4968:PHE:CZ	2:B:4978:HIS:HE1	2.19	0.59
2:I:281:ARG:NH2	2:I:309:THR:OG1	2.34	0.59
2:E:1079:LYS:NZ	2:E:1107:PRO:O	2.35	0.59
2:E:2748:PRO:HD2	2:E:2751:LEU:HD12	1.84	0.59
1:F:6:THR:HA	1:F:72:ALA:HA	1.84	0.59
2:B:426:ARG:HB2	2:B:506:TYR:HA	1.82	0.59
2:I:1519:UNK:HA	2:I:1526:UNK:HA	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:4844:LEU:HD13	2:E:4928:LEU:HG	1.85	0.59
2:G:1079:LYS:NZ	2:G:1107:PRO:O	2.35	0.59
2:I:111:HIS:HD2	2:I:114:SER:H	1.51	0.59
2:B:1519:UNK:HA	2:B:1526:UNK:HA	1.84	0.59
2:G:111:HIS:HD2	2:G:114:SER:H	1.51	0.59
2:G:4844:LEU:HD13	2:G:4928:LEU:HG	1.84	0.59
2:I:2748:PRO:HD2	2:I:2751:LEU:HD12	1.84	0.59
2:E:111:HIS:HD2	2:E:114:SER:H	1.51	0.59
1:A:6:THR:HA	1:A:72:ALA:HA	1.84	0.59
1:J:6:THR:HA	1:J:72:ALA:HA	1.84	0.59
2:B:4104:THR:HG22	2:B:4106:PRO:HD2	1.83	0.59
2:E:281:ARG:NH2	2:E:309:THR:OG1	2.34	0.58
2:E:1519:UNK:HA	2:E:1526:UNK:HA	1.84	0.58
1:H:6:THR:HA	1:H:72:ALA:HA	1.84	0.58
2:G:1519:UNK:HA	2:G:1526:UNK:HA	1.84	0.58
2:I:1079:LYS:NZ	2:I:1107:PRO:O	2.35	0.58
2:I:1700:ASP:OD2	2:I:1708:ARG:NH2	2.36	0.58
2:G:2748:PRO:HD2	2:G:2751:LEU:HD12	1.84	0.58
1:J:74:LEU:HB2	1:J:99:PHE:HB2	1.85	0.58
2:E:4180:ARG:HH22	2:E:4981:GLU:HA	1.68	0.58
2:G:313:SER:HB3	2:G:351:VAL:HB	1.84	0.58
2:I:313:SER:HB3	2:I:351:VAL:HB	1.84	0.58
2:I:1743:ARG:O	2:I:1964:ARG:NH2	2.34	0.58
2:E:1700:ASP:OD2	2:E:1708:ARG:NH2	2.36	0.58
2:B:609:CYS:SG	2:B:610:ASN:N	2.77	0.58
2:B:4190:ILE:HG21	2:B:5028:PHE:HA	1.86	0.58
1:H:74:LEU:HB2	1:H:99:PHE:HB2	1.85	0.57
2:B:2452:ARG:NH1	2:I:174:VAL:O	2.36	0.57
2:E:1743:ARG:O	2:E:1964:ARG:NH2	2.34	0.57
2:G:609:CYS:SG	2:G:610:ASN:N	2.77	0.57
2:I:4180:ARG:HH22	2:I:4981:GLU:HA	1.68	0.57
2:I:4190:ILE:HG21	2:I:5028:PHE:HA	1.86	0.57
2:E:463:GLU:OE2	2:E:467:LYS:NZ	2.38	0.57
2:E:609:CYS:SG	2:E:610:ASN:N	2.77	0.57
2:G:497:TYR:HB3	2:G:500:ALA:HB2	1.87	0.57
2:E:497:TYR:HB3	2:E:500:ALA:HB2	1.87	0.57
1:A:74:LEU:HB2	1:A:99:PHE:HB2	1.85	0.57
2:I:609:CYS:SG	2:I:610:ASN:N	2.77	0.57
2:B:1700:ASP:OD2	2:B:1708:ARG:NH2	2.36	0.57
2:G:4180:ARG:HH22	2:G:4981:GLU:HA	1.68	0.57
1:F:74:LEU:HB2	1:F:99:PHE:HB2	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1667:LEU:HD23	2:E:1671:ARG:HH12	1.70	0.57
2:I:463:GLU:OE2	2:I:467:LYS:NZ	2.38	0.57
2:B:463:GLU:OE2	2:B:467:LYS:NZ	2.38	0.56
2:B:497:TYR:HB3	2:B:500:ALA:HB2	1.87	0.56
2:I:1667:LEU:HD23	2:I:1671:ARG:HH12	1.70	0.56
2:G:1667:LEU:HD23	2:G:1671:ARG:HH12	1.70	0.56
2:B:281:ARG:NH2	2:B:309:THR:OG1	2.34	0.56
2:B:4180:ARG:HH22	2:B:4981:GLU:HA	1.68	0.56
2:E:4190:ILE:HG21	2:E:5028:PHE:HA	1.86	0.56
2:G:4945:ASP:O	2:G:4949:GLN:NE2	2.38	0.56
2:B:229:GLU:HA	2:B:249:GLY:HA2	1.87	0.56
2:B:4945:ASP:O	2:B:4949:GLN:NE2	2.38	0.56
2:G:463:GLU:OE2	2:G:467:LYS:NZ	2.38	0.56
2:G:4190:ILE:HG21	2:G:5028:PHE:HA	1.86	0.56
2:B:4666:VAL:HG23	2:B:4669:VAL:HB	1.87	0.56
2:B:4892:ARG:NH2	2:I:4899:ASP:OD1	2.38	0.56
2:B:4899:ASP:OD1	2:E:4892:ARG:NH2	2.39	0.56
2:I:2189:LYS:HA	2:I:2192:TYR:HD2	1.71	0.56
2:I:4945:ASP:O	2:I:4949:GLN:NE2	2.38	0.56
2:E:174:VAL:O	2:G:2452:ARG:NH1	2.38	0.56
2:B:1685:LEU:HA	2:B:1688:HIS:HD2	1.71	0.56
2:I:2452:ARG:NH1	2:G:174:VAL:O	2.38	0.56
2:I:4666:VAL:HG23	2:I:4669:VAL:HB	1.87	0.56
2:E:229:GLU:HA	2:E:249:GLY:HA2	1.87	0.56
1:F:27:THR:HB	1:F:100:ASP:HB3	1.88	0.56
2:B:641:VAL:HG21	2:B:705:ASN:HA	1.88	0.56
2:I:4892:ARG:NH2	2:G:4899:ASP:OD1	2.39	0.56
2:E:4666:VAL:HG23	2:E:4669:VAL:HB	1.87	0.56
2:E:4945:ASP:O	2:E:4949:GLN:NE2	2.38	0.56
1:J:27:THR:HB	1:J:100:ASP:HB3	1.88	0.56
2:B:1667:LEU:HD23	2:B:1671:ARG:HH12	1.70	0.56
2:B:2189:LYS:HA	2:B:2192:TYR:HD2	1.71	0.56
2:I:497:TYR:HB3	2:I:500:ALA:HB2	1.87	0.56
2:I:4968:PHE:CZ	2:I:4978:HIS:HE1	2.19	0.56
2:E:1109:LEU:HA	2:E:1120:LEU:HD21	1.88	0.56
2:B:1152:MET:HB2	2:B:1161:ILE:HB	1.88	0.55
2:E:1152:MET:HB2	2:E:1161:ILE:HB	1.88	0.55
2:G:4666:VAL:HG23	2:G:4669:VAL:HB	1.87	0.55
2:I:641:VAL:HG21	2:I:705:ASN:HA	1.88	0.55
2:E:2189:LYS:HA	2:E:2192:TYR:HD2	1.71	0.55
2:G:1152:MET:HB2	2:G:1161:ILE:HB	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:1685:LEU:HA	2:G:1688:HIS:HD2	1.71	0.55
2:E:1685:LEU:HA	2:E:1688:HIS:HD2	1.71	0.55
2:G:2189:LYS:HA	2:G:2192:TYR:HD2	1.71	0.55
1:A:27:THR:HB	1:A:100:ASP:HB3	1.88	0.55
2:B:1109:LEU:HA	2:B:1120:LEU:HD21	1.88	0.55
2:E:4860:ARG:HG3	2:E:4876:CYS:HB3	1.89	0.55
2:G:621:ILE:O	2:G:625:LEU:N	2.40	0.55
2:G:4829:SER:HB2	2:G:4939:ALA:HB1	1.88	0.55
1:F:26:TYR:OH	1:F:42:ARG:NH2	2.40	0.55
2:I:1152:MET:HB2	2:I:1161:ILE:HB	1.88	0.55
2:G:229:GLU:HA	2:G:249:GLY:HA2	1.87	0.55
2:B:3897:ASN:O	2:B:3901:ASN:ND2	2.40	0.55
2:I:1649:ASP:HB3	2:I:1652:GLU:HG2	1.89	0.55
2:I:1685:LEU:HA	2:I:1688:HIS:HD2	1.71	0.55
2:G:641:VAL:HG21	2:G:705:ASN:HA	1.88	0.55
2:G:1649:ASP:HB3	2:G:1652:GLU:HG2	1.89	0.55
1:H:27:THR:HB	1:H:100:ASP:HB3	1.88	0.55
2:B:174:VAL:O	2:E:2452:ARG:NH1	2.39	0.55
2:B:972:LEU:O	2:B:1044:ARG:NH2	2.40	0.55
2:B:1808:ARG:HD2	2:B:1854:PHE:HA	1.89	0.55
2:I:229:GLU:HA	2:I:249:GLY:HA2	1.87	0.55
2:I:4829:SER:HB2	2:I:4939:ALA:HB1	1.88	0.55
2:E:4899:ASP:OD1	2:G:4892:ARG:NH2	2.40	0.55
2:G:1109:LEU:HA	2:G:1120:LEU:HD21	1.88	0.55
2:G:4968:PHE:CZ	2:G:4978:HIS:HE1	2.19	0.55
2:I:938:HIS:HB2	2:I:1054:GLU:HB2	1.89	0.55
2:I:1808:ARG:HD2	2:I:1854:PHE:HA	1.89	0.55
2:E:621:ILE:O	2:E:625:LEU:N	2.40	0.55
2:G:938:HIS:HB2	2:G:1054:GLU:HB2	1.89	0.55
2:B:3973:CYS:SG	2:B:3976:ASN:ND2	2.81	0.55
2:I:1105:ALA:HB1	2:I:1109:LEU:HD21	1.89	0.55
2:G:3805:LEU:HA	2:G:3809:ASN:HD22	1.72	0.55
2:G:3889:GLN:OE1	2:G:3960:GLN:NE2	2.40	0.55
2:E:641:VAL:HG21	2:E:705:ASN:HA	1.88	0.54
2:E:3897:ASN:O	2:E:3901:ASN:ND2	2.40	0.54
2:E:3973:CYS:SG	2:E:3976:ASN:ND2	2.80	0.54
2:G:2803:GLU:OE2	2:G:2806:ARG:NH1	2.41	0.54
1:H:26:TYR:OH	1:H:42:ARG:NH2	2.40	0.54
1:J:26:TYR:OH	1:J:42:ARG:NH2	2.40	0.54
2:B:4673:ARG:HH22	2:B:4698:LYS:HB2	1.72	0.54
2:E:4829:SER:HB2	2:E:4939:ALA:HB1	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:132:ALA:HA	2:I:194:SER:HB2	1.89	0.54
2:I:3805:LEU:HA	2:I:3809:ASN:HD22	1.72	0.54
2:I:3889:GLN:OE1	2:I:3960:GLN:NE2	2.40	0.54
2:I:3973:CYS:SG	2:I:3976:ASN:ND2	2.81	0.54
2:I:4860:ARG:HG3	2:I:4876:CYS:HB3	1.89	0.54
2:E:886:ARG:HB3	2:E:891:TRP:HB2	1.90	0.54
2:E:2420:HIS:ND1	2:E:2493:UNK:O	2.40	0.54
2:G:132:ALA:HA	2:G:194:SER:HB2	1.89	0.54
2:G:3973:CYS:SG	2:G:3976:ASN:ND2	2.81	0.54
2:B:4829:SER:HB2	2:B:4939:ALA:HB1	1.88	0.54
2:E:1808:ARG:HD3	2:E:1853:ILE:HG22	1.90	0.54
2:G:972:LEU:O	2:G:1044:ARG:NH2	2.40	0.54
2:G:3897:ASN:O	2:G:3901:ASN:ND2	2.40	0.54
2:G:4673:ARG:HH22	2:G:4698:LYS:HB2	1.72	0.54
2:G:4860:ARG:HG3	2:G:4876:CYS:HB3	1.89	0.54
2:B:3889:GLN:OE1	2:B:3960:GLN:NE2	2.40	0.54
2:B:4860:ARG:HG3	2:B:4876:CYS:HB3	1.89	0.54
2:I:1109:LEU:HA	2:I:1120:LEU:HD21	1.88	0.54
2:I:2803:GLU:OE2	2:I:2806:ARG:NH1	2.41	0.54
2:E:671:VAL:HG22	2:E:740:PRO:HG3	1.90	0.54
2:E:683:ARG:NH1	2:E:707:VAL:O	2.39	0.54
1:A:26:TYR:OH	1:A:42:ARG:NH2	2.40	0.54
2:B:886:ARG:HB3	2:B:891:TRP:HB2	1.90	0.54
2:B:1105:ALA:HB1	2:B:1109:LEU:HD21	1.89	0.54
2:B:1649:ASP:HB3	2:B:1652:GLU:HG2	1.89	0.54
2:B:2803:GLU:OE2	2:B:2806:ARG:NH1	2.41	0.54
2:I:972:LEU:O	2:I:1044:ARG:NH2	2.40	0.54
2:I:2420:HIS:ND1	2:I:2493:UNK:O	2.40	0.54
2:B:4786:ASP:OD2	2:B:4789:PHE:N	2.41	0.54
2:I:621:ILE:O	2:I:625:LEU:N	2.40	0.54
2:E:1105:ALA:HB1	2:E:1109:LEU:HD21	1.89	0.54
2:E:1808:ARG:HD2	2:E:1854:PHE:HA	1.89	0.54
2:E:3889:GLN:OE1	2:E:3960:GLN:NE2	2.40	0.54
2:B:2420:HIS:ND1	2:B:2493:UNK:O	2.40	0.54
2:I:646:PRO:HD2	2:I:779:PRO:HB2	1.90	0.54
2:I:671:VAL:HG22	2:I:740:PRO:HG3	1.90	0.54
2:I:3897:ASN:O	2:I:3901:ASN:ND2	2.40	0.54
2:E:972:LEU:O	2:E:1044:ARG:NH2	2.40	0.54
2:B:671:VAL:HG22	2:B:740:PRO:HG3	1.90	0.54
2:B:938:HIS:HB2	2:B:1054:GLU:HB2	1.89	0.54
2:E:695:TYR:OH	2:E:1073:ARG:NH1	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1649:ASP:HB3	2:E:1652:GLU:HG2	1.89	0.54
2:E:1735:ILE:HG23	2:E:1771:LEU:HD23	1.90	0.54
2:E:4673:ARG:HH22	2:E:4698:LYS:HB2	1.72	0.54
2:B:621:ILE:O	2:B:625:LEU:N	2.40	0.54
2:I:1808:ARG:HD3	2:I:1853:ILE:HG22	1.90	0.54
2:E:2803:GLU:OE2	2:E:2806:ARG:NH1	2.41	0.54
2:I:4673:ARG:HH22	2:I:4698:LYS:HB2	1.72	0.53
2:I:4786:ASP:OD2	2:I:4789:PHE:N	2.41	0.53
2:E:132:ALA:HA	2:E:194:SER:HB2	1.89	0.53
2:E:938:HIS:HB2	2:E:1054:GLU:HB2	1.89	0.53
2:G:1735:ILE:HG23	2:G:1771:LEU:HD23	1.89	0.53
2:G:671:VAL:HG22	2:G:740:PRO:HG3	1.90	0.53
2:I:695:TYR:OH	2:I:1073:ARG:NH1	2.41	0.53
2:E:219:VAL:HG13	2:E:285:VAL:HG21	1.90	0.53
2:G:695:TYR:OH	2:G:1073:ARG:NH1	2.41	0.53
2:B:1735:ILE:HG23	2:B:1771:LEU:HD23	1.89	0.53
2:B:132:ALA:HA	2:B:194:SER:HB2	1.89	0.53
2:B:695:TYR:OH	2:B:1073:ARG:NH1	2.41	0.53
2:E:646:PRO:HD2	2:E:779:PRO:HB2	1.90	0.53
2:E:717:ASP:OD1	2:E:720:HIS:ND1	2.42	0.53
2:G:1808:ARG:HD2	2:G:1854:PHE:HA	1.89	0.53
2:G:1808:ARG:HD3	2:G:1853:ILE:HG22	1.90	0.53
2:G:4577:LEU:HG	2:G:4580:TYR:HE2	1.73	0.53
2:I:1735:ILE:HG23	2:I:1771:LEU:HD23	1.90	0.53
2:I:3910:THR:HG23	2:I:3911:THR:HG23	1.91	0.53
2:E:4577:LEU:HG	2:E:4580:TYR:HE2	1.73	0.53
2:G:1105:ALA:HB1	2:G:1109:LEU:HD21	1.89	0.53
2:B:717:ASP:OD1	2:B:720:HIS:ND1	2.42	0.53
2:B:3910:THR:HG23	2:B:3911:THR:HG23	1.91	0.53
2:E:3805:LEU:HA	2:E:3809:ASN:HD22	1.72	0.53
2:I:717:ASP:OD1	2:I:720:HIS:ND1	2.42	0.53
2:I:2770:LYS:HB3	2:I:2775:TRP:HB2	1.91	0.53
2:I:4577:LEU:HG	2:I:4580:TYR:HE2	1.73	0.53
2:E:2770:LYS:HB3	2:E:2775:TRP:HB2	1.91	0.53
2:E:4584:ASP:HA	2:E:4627:MET:HA	1.91	0.53
2:G:886:ARG:HB3	2:G:891:TRP:HB2	1.90	0.53
2:G:4584:ASP:HA	2:G:4627:MET:HA	1.91	0.53
2:B:219:VAL:HG13	2:B:285:VAL:HG21	1.90	0.53
2:B:534:ARG:NH2	2:B:573:GLU:OE2	2.42	0.53
2:B:3805:LEU:HA	2:B:3809:ASN:HD22	1.72	0.53
2:I:683:ARG:NH1	2:I:707:VAL:O	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:4687:TYR:OH	2:E:4699:GLY:O	2.27	0.53
2:G:1700:ASP:OD2	2:G:1708:ARG:NH2	2.36	0.53
2:B:1848:LEU:HD22	2:B:1853:ILE:HG13	1.92	0.52
2:I:719:LEU:HD22	2:I:735:GLN:HG2	1.91	0.52
2:I:886:ARG:HB3	2:I:891:TRP:HB2	1.90	0.52
2:G:646:PRO:HD2	2:G:779:PRO:HB2	1.90	0.52
2:B:646:PRO:HD2	2:B:779:PRO:HB2	1.90	0.52
2:I:1457:UNK:N	2:I:1497:UNK:O	2.43	0.52
2:G:719:LEU:HD22	2:G:735:GLN:HG2	1.91	0.52
2:G:3910:THR:HG23	2:G:3911:THR:HG23	1.91	0.52
2:I:1848:LEU:HD22	2:I:1853:ILE:HG13	1.91	0.52
2:E:103:TYR:HB3	2:E:152:PRO:HD3	1.91	0.52
2:E:1457:UNK:N	2:E:1497:UNK:O	2.43	0.52
2:G:645:ARG:N	2:G:824:GLU:O	2.41	0.52
2:G:717:ASP:OD1	2:G:720:HIS:ND1	2.42	0.52
2:G:2420:HIS:ND1	2:G:2493:UNK:O	2.40	0.52
2:G:2770:LYS:HB3	2:G:2775:TRP:HB2	1.91	0.52
2:G:4786:ASP:OD2	2:G:4789:PHE:N	2.41	0.52
2:I:4584:ASP:HA	2:I:4627:MET:HA	1.91	0.52
2:B:1457:UNK:N	2:B:1497:UNK:O	2.43	0.52
2:B:1808:ARG:HD3	2:B:1853:ILE:HG22	1.90	0.52
2:B:4584:ASP:HA	2:B:4627:MET:HA	1.91	0.52
2:G:683:ARG:NH1	2:G:707:VAL:O	2.39	0.52
2:G:1848:LEU:HD22	2:G:1853:ILE:HG13	1.92	0.52
2:B:2770:LYS:HB3	2:B:2775:TRP:HB2	1.91	0.52
2:I:219:VAL:HG13	2:I:285:VAL:HG21	1.90	0.52
2:E:3910:THR:HG23	2:E:3911:THR:HG23	1.91	0.52
2:E:4786:ASP:OD2	2:E:4789:PHE:N	2.41	0.52
2:G:111:HIS:CD2	2:G:114:SER:H	2.28	0.52
2:B:111:HIS:CD2	2:B:114:SER:H	2.28	0.52
2:B:395:GLN:NE2	2:B:397:GLU:OE1	2.43	0.52
2:B:2042:CYS:SG	2:B:2043:GLY:N	2.83	0.52
2:E:210:GLU:HG3	2:E:337:PRO:HG3	1.92	0.52
2:E:451:TYR:O	2:E:474:ARG:NH1	2.43	0.52
1:A:55:VAL:HA	2:B:1784:ALA:HA	1.91	0.52
1:J:55:VAL:HA	2:I:1784:ALA:HA	1.90	0.52
2:B:103:TYR:HB3	2:B:152:PRO:HD3	1.91	0.52
2:B:4577:LEU:HG	2:B:4580:TYR:HE2	1.73	0.52
2:I:111:HIS:CD2	2:I:114:SER:H	2.28	0.52
2:I:4687:TYR:OH	2:I:4699:GLY:O	2.27	0.52
2:E:534:ARG:NH2	2:E:573:GLU:OE2	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:534:ARG:NH2	2:I:573:GLU:OE2	2.42	0.52
2:I:2042:CYS:SG	2:I:2043:GLY:N	2.83	0.52
2:E:395:GLN:NE2	2:E:397:GLU:OE1	2.43	0.52
2:G:219:VAL:HG13	2:G:285:VAL:HG21	1.90	0.52
2:I:451:TYR:O	2:I:474:ARG:NH1	2.43	0.51
2:E:1848:LEU:HD22	2:E:1853:ILE:HG13	1.92	0.51
2:G:451:TYR:O	2:G:474:ARG:NH1	2.43	0.51
2:B:4924:VAL:HA	2:B:4928:LEU:HD23	1.93	0.51
2:G:210:GLU:HG3	2:G:337:PRO:HG3	1.92	0.51
2:G:534:ARG:NH2	2:G:573:GLU:OE2	2.42	0.51
1:H:55:VAL:HA	2:G:1784:ALA:HA	1.92	0.51
1:J:87:HIS:H	1:J:91:ILE:HB	1.75	0.51
2:I:103:TYR:HB3	2:I:152:PRO:HD3	1.91	0.51
2:E:1838:PHE:HB3	2:E:1842:LEU:HD11	1.92	0.51
2:G:978:THR:HB	2:G:980:ALA:H	1.75	0.51
2:B:4152:GLU:OE1	2:B:4194:TYR:OH	2.29	0.51
2:I:395:GLN:NE2	2:I:397:GLU:OE1	2.43	0.51
2:I:978:THR:HB	2:I:980:ALA:H	1.75	0.51
2:E:111:HIS:CD2	2:E:114:SER:H	2.28	0.51
2:G:4687:TYR:OH	2:G:4699:GLY:O	2.27	0.51
1:F:87:HIS:H	1:F:91:ILE:HB	1.75	0.51
1:H:23:VAL:HG22	1:H:47:LYS:HG2	1.93	0.51
2:B:719:LEU:HD22	2:B:735:GLN:HG2	1.91	0.51
2:B:3940:LYS:O	2:B:4002:LYS:NZ	2.41	0.51
2:I:210:GLU:HG3	2:I:337:PRO:HG3	1.92	0.51
2:I:645:ARG:N	2:I:824:GLU:O	2.41	0.51
2:I:1838:PHE:HB3	2:I:1842:LEU:HD11	1.92	0.51
2:I:4928:LEU:HD13	2:I:4931:ILE:HD12	1.93	0.51
2:G:1838:PHE:HB3	2:G:1842:LEU:HD11	1.92	0.51
2:G:4152:GLU:OE1	2:G:4194:TYR:OH	2.29	0.51
1:H:87:HIS:H	1:H:91:ILE:HB	1.75	0.51
2:B:210:GLU:HG3	2:B:337:PRO:HG3	1.92	0.51
2:B:4687:TYR:OH	2:B:4699:GLY:O	2.27	0.51
2:B:451:TYR:O	2:B:474:ARG:NH1	2.43	0.51
2:B:978:THR:HB	2:B:980:ALA:H	1.75	0.51
2:I:241:GLN:O	2:I:289:ARG:NH1	2.38	0.51
2:E:1796:ALA:HB1	2:E:1797:ARG:HH21	1.76	0.51
2:G:103:TYR:HB3	2:G:152:PRO:HD3	1.91	0.51
2:G:395:GLN:NE2	2:G:397:GLU:OE1	2.43	0.51
2:G:1457:UNK:N	2:G:1497:UNK:O	2.43	0.51
1:A:87:HIS:H	1:A:91:ILE:HB	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:465:GLN:HG3	2:B:3710:LEU:HB3	1.93	0.51
2:B:1796:ALA:HB1	2:B:1797:ARG:HH21	1.76	0.51
2:B:1838:PHE:HB3	2:B:1842:LEU:HD11	1.92	0.51
2:E:719:LEU:HD22	2:E:735:GLN:HG2	1.91	0.51
2:E:978:THR:HB	2:E:980:ALA:H	1.75	0.51
2:I:465:GLN:HG3	2:I:3710:LEU:HB3	1.93	0.51
2:I:887:ILE:HG21	2:I:959:TYR:HA	1.93	0.51
2:E:2758:PHE:O	2:E:2762:THR:N	2.44	0.51
2:E:4928:LEU:HD13	2:E:4931:ILE:HD12	1.93	0.51
2:G:485:SER:O	2:G:489:ASN:N	2.40	0.51
2:B:635:THR:HB	2:B:1639:LEU:HD23	1.93	0.50
2:I:635:THR:HB	2:I:1639:LEU:HD23	1.93	0.50
2:I:1796:ALA:HB1	2:I:1797:ARG:HH21	1.76	0.50
2:E:465:GLN:HG3	2:E:3710:LEU:HB3	1.93	0.50
2:E:4924:VAL:HA	2:E:4928:LEU:HD23	1.93	0.50
2:G:1815:LEU:HD22	2:G:1845:VAL:HG21	1.94	0.50
1:A:23:VAL:HG22	1:A:47:LYS:HG2	1.93	0.50
2:B:214:VAL:HG12	2:B:274:LEU:HD12	1.94	0.50
2:E:214:VAL:HG12	2:E:274:LEU:HD12	1.93	0.50
2:G:465:GLN:HG3	2:G:3710:LEU:HB3	1.93	0.50
2:G:1796:ALA:HB1	2:G:1797:ARG:HH21	1.76	0.50
2:G:4928:LEU:HD13	2:G:4931:ILE:HD12	1.93	0.50
2:B:887:ILE:HG21	2:B:959:TYR:HA	1.93	0.50
2:E:1815:LEU:HD22	2:E:1845:VAL:HG21	1.94	0.50
2:E:2457:LEU:HD23	2:E:2460:LEU:HD12	1.94	0.50
2:G:214:VAL:HG12	2:G:274:LEU:HD12	1.93	0.50
2:G:635:THR:HB	2:G:1639:LEU:HD23	1.93	0.50
1:A:21:THR:HA	1:A:49:ARG:HA	1.93	0.50
2:B:2751:LEU:HD11	2:B:2823:ILE:HG21	1.94	0.50
2:I:4152:GLU:OE1	2:I:4194:TYR:OH	2.29	0.50
2:E:635:THR:HB	2:E:1639:LEU:HD23	1.93	0.50
2:G:647:ASN:ND2	2:G:820:ARG:O	2.43	0.50
2:B:40:GLU:HB3	2:B:44:ASN:HB3	1.94	0.50
2:I:2751:LEU:HD11	2:I:2823:ILE:HG21	1.94	0.50
2:I:3781:GLN:HA	2:I:3784:SER:HB3	1.94	0.50
2:E:647:ASN:ND2	2:E:820:ARG:O	2.43	0.50
2:E:4152:GLU:OE1	2:E:4194:TYR:OH	2.29	0.50
2:G:4924:VAL:HA	2:G:4928:LEU:HD23	1.93	0.50
1:J:21:THR:HA	1:J:49:ARG:HA	1.93	0.50
2:B:647:ASN:ND2	2:B:820:ARG:O	2.43	0.50
2:I:4059:LEU:HD13	2:I:4167:ALA:HB2	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:15:ARG:HD3	2:B:98:HIS:HB3	1.93	0.50
2:I:214:VAL:HG12	2:I:274:LEU:HD12	1.94	0.50
2:E:2290:LEU:HB3	2:E:3849:ARG:HH12	1.77	0.50
2:E:4049:VAL:HG21	2:E:4159:ARG:HD2	1.93	0.50
2:B:776:LEU:HG	2:B:848:HIS:HA	1.94	0.50
2:B:2290:LEU:HB3	2:B:3849:ARG:HH12	1.77	0.50
2:B:2457:LEU:HD23	2:B:2460:LEU:HD12	1.94	0.50
2:B:3781:GLN:HA	2:B:3784:SER:HB3	1.94	0.50
2:I:315:CYS:SG	2:I:316:PHE:N	2.85	0.50
2:I:772:ASN:ND2	2:I:774:ASP:OD2	2.45	0.50
2:G:241:GLN:O	2:G:289:ARG:NH1	2.38	0.50
2:G:813:GLU:OE2	2:G:1020:ARG:N	2.45	0.50
2:G:2042:CYS:SG	2:G:2043:GLY:N	2.83	0.50
1:H:21:THR:HA	1:H:49:ARG:HA	1.93	0.49
2:B:4049:VAL:HG21	2:B:4159:ARG:HD2	1.93	0.49
2:I:2347:GLU:O	2:I:2351:ASN:N	2.34	0.49
2:I:4924:VAL:HA	2:I:4928:LEU:HD23	1.93	0.49
2:E:645:ARG:N	2:E:824:GLU:O	2.41	0.49
2:E:3766:GLN:O	2:E:3770:LEU:N	2.45	0.49
2:G:2457:LEU:HD23	2:G:2460:LEU:HD12	1.94	0.49
1:J:23:VAL:HG22	1:J:47:LYS:HG2	1.93	0.49
2:B:315:CYS:SG	2:B:316:PHE:N	2.85	0.49
2:B:4898:GLY:O	2:E:4892:ARG:NH2	2.45	0.49
2:E:485:SER:O	2:E:489:ASN:N	2.40	0.49
2:E:650:VAL:HB	2:E:777:PHE:HB2	1.94	0.49
2:E:4898:GLY:O	2:G:4892:ARG:NH2	2.45	0.49
2:G:2290:LEU:HB3	2:G:3849:ARG:HH12	1.77	0.49
2:G:4059:LEU:HD13	2:G:4167:ALA:HB2	1.94	0.49
2:I:40:GLU:HB3	2:I:44:ASN:HB3	1.94	0.49
2:E:315:CYS:SG	2:E:316:PHE:N	2.85	0.49
2:E:1727:ARG:NH2	2:E:1773:PRO:O	2.41	0.49
2:G:15:ARG:HD3	2:G:98:HIS:HB3	1.93	0.49
2:B:2002:PRO:HA	2:B:2005:GLN:HB3	1.94	0.49
2:B:2758:PHE:O	2:B:2762:THR:N	2.44	0.49
2:B:4928:LEU:HD13	2:B:4931:ILE:HD12	1.93	0.49
2:I:1815:LEU:HD22	2:I:1845:VAL:HG21	1.94	0.49
2:E:776:LEU:HG	2:E:848:HIS:HA	1.94	0.49
2:E:813:GLU:OE2	2:E:1020:ARG:N	2.45	0.49
2:E:4059:LEU:HD13	2:E:4167:ALA:HB2	1.94	0.49
2:B:4892:ARG:NH2	2:I:4898:GLY:O	2.46	0.49
2:G:315:CYS:SG	2:G:316:PHE:N	2.85	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:2758:PHE:O	2:G:2762:THR:N	2.44	0.49
1:F:21:THR:HA	1:F:49:ARG:HA	1.93	0.49
2:B:2255:SER:HA	2:B:2258:LEU:HB3	1.94	0.49
2:I:2868:SER:O	2:I:2872:GLN:N	2.43	0.49
2:E:4957:LYS:HG2	2:E:4964:GLY:HA2	1.95	0.49
1:J:87:HIS:HD2	1:J:90:VAL:HB	1.78	0.49
2:B:4965:SER:O	2:B:4969:ASP:N	2.45	0.49
2:I:2002:PRO:HA	2:I:2005:GLN:HB3	1.94	0.49
2:I:2290:LEU:HB3	2:I:3849:ARG:HH12	1.77	0.49
2:I:4965:SER:O	2:I:4969:ASP:N	2.45	0.49
2:E:887:ILE:HG21	2:E:959:TYR:HA	1.93	0.49
2:G:650:VAL:HB	2:G:777:PHE:HB2	1.94	0.49
2:G:4965:SER:O	2:G:4969:ASP:N	2.45	0.49
2:B:650:VAL:HB	2:B:777:PHE:HB2	1.94	0.49
2:B:1815:LEU:HD22	2:B:1845:VAL:HG21	1.94	0.49
2:B:2326:CYS:SG	2:B:2327:GLY:N	2.86	0.49
2:I:650:VAL:HB	2:I:777:PHE:HB2	1.94	0.49
2:I:813:GLU:OE2	2:I:1020:ARG:N	2.45	0.49
2:E:15:ARG:HD3	2:E:98:HIS:HB3	1.93	0.49
2:E:772:ASN:ND2	2:E:774:ASP:OD2	2.45	0.49
2:G:887:ILE:HG21	2:G:959:TYR:HA	1.93	0.49
2:G:2751:LEU:HD11	2:G:2823:ILE:HG21	1.94	0.49
1:F:23:VAL:HG22	1:F:47:LYS:HG2	1.93	0.49
1:A:87:HIS:HD2	1:A:90:VAL:HB	1.78	0.49
2:B:772:ASN:ND2	2:B:774:ASP:OD2	2.45	0.49
2:B:1653:LEU:HB3	2:B:1660:GLN:HB2	1.94	0.49
2:B:3766:GLN:O	2:B:3770:LEU:N	2.45	0.49
2:I:15:ARG:HD3	2:I:98:HIS:HB3	1.93	0.49
2:I:2457:LEU:HD23	2:I:2460:LEU:HD12	1.94	0.49
2:E:485:SER:HA	2:E:488:LEU:HB2	1.95	0.49
2:E:942:ALA:HB2	2:E:1052:ASN:HB2	1.95	0.49
2:E:2042:CYS:SG	2:E:2043:GLY:N	2.83	0.49
2:E:2255:SER:HA	2:E:2258:LEU:HB3	1.94	0.49
2:E:2751:LEU:HD11	2:E:2823:ILE:HG21	1.94	0.49
2:G:485:SER:HA	2:G:488:LEU:HB2	1.95	0.49
2:G:1698:LEU:N	2:G:1712:TYR:OH	2.46	0.49
2:G:2255:SER:HA	2:G:2258:LEU:HB3	1.94	0.49
2:B:1698:LEU:N	2:B:1712:TYR:OH	2.46	0.49
2:I:2255:SER:HA	2:I:2258:LEU:HB3	1.94	0.49
2:I:2326:CYS:SG	2:I:2327:GLY:N	2.86	0.49
2:I:4892:ARG:NH2	2:G:4898:GLY:O	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1698:LEU:N	2:E:1712:TYR:OH	2.46	0.49
1:F:55:VAL:HA	2:E:1784:ALA:HA	1.94	0.48
2:I:4049:VAL:HG21	2:I:4159:ARG:HD2	1.93	0.48
2:E:211:GLU:OE2	2:E:3907:THR:OG1	2.31	0.48
2:E:1516:UNK:N	2:E:1529:UNK:O	2.46	0.48
2:E:2326:CYS:SG	2:E:2327:GLY:N	2.86	0.48
2:G:776:LEU:HG	2:G:848:HIS:HA	1.94	0.48
2:G:1721:GLU:OE2	2:G:1725:ARG:NH2	2.46	0.48
2:G:2326:CYS:SG	2:G:2327:GLY:N	2.86	0.48
2:G:4049:VAL:HG21	2:G:4159:ARG:HD2	1.93	0.48
2:B:614:VAL:HG22	2:B:616:SER:H	1.78	0.48
2:I:485:SER:O	2:I:489:ASN:N	2.40	0.48
2:I:1698:LEU:N	2:I:1712:TYR:OH	2.46	0.48
2:E:575:LEU:HD22	2:E:609:CYS:HB3	1.95	0.48
2:G:1516:UNK:N	2:G:1529:UNK:O	2.46	0.48
2:G:2002:PRO:HA	2:G:2005:GLN:HB3	1.94	0.48
1:H:87:HIS:HD2	1:H:90:VAL:HB	1.78	0.48
2:B:683:ARG:NH1	2:B:707:VAL:O	2.39	0.48
2:B:813:GLU:OE2	2:B:1020:ARG:N	2.45	0.48
2:B:1284:UNK:HA	2:B:1463:UNK:HA	1.96	0.48
2:B:1516:UNK:N	2:B:1529:UNK:O	2.46	0.48
2:B:3850:GLN:HA	2:B:3853:ALA:HB3	1.96	0.48
2:I:485:SER:HA	2:I:488:LEU:HB2	1.95	0.48
2:I:1865:MET:SD	2:I:1865:MET:N	2.86	0.48
2:E:472:ARG:NH2	2:E:3712:GLU:OE2	2.46	0.48
2:G:3781:GLN:HA	2:G:3784:SER:HB3	1.94	0.48
2:B:2862:LEU:HB3	2:B:2928:LYS:HB3	1.96	0.48
2:B:4059:LEU:HD13	2:B:4167:ALA:HB2	1.94	0.48
2:B:4957:LYS:HG2	2:B:4964:GLY:HA2	1.95	0.48
2:G:211:GLU:OE2	2:G:3907:THR:OG1	2.31	0.48
2:G:942:ALA:HB2	2:G:1052:ASN:HB2	1.95	0.48
2:E:2002:PRO:HA	2:E:2005:GLN:HB3	1.94	0.48
2:E:3781:GLN:HA	2:E:3784:SER:HB3	1.94	0.48
2:G:40:GLU:HB3	2:G:44:ASN:HB3	1.94	0.48
2:G:575:LEU:HD22	2:G:609:CYS:HB3	1.96	0.48
2:G:772:ASN:ND2	2:G:774:ASP:OD2	2.45	0.48
2:B:241:GLN:O	2:B:289:ARG:NH1	2.38	0.48
2:I:647:ASN:ND2	2:I:820:ARG:O	2.43	0.48
2:I:776:LEU:HG	2:I:848:HIS:HA	1.94	0.48
2:I:1721:GLU:OE2	2:I:1725:ARG:NH2	2.46	0.48
2:E:40:GLU:HB3	2:E:44:ASN:HB3	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1865:MET:SD	2:E:1865:MET:N	2.87	0.48
2:E:4919:THR:HA	2:E:4922:PHE:HD2	1.79	0.48
1:A:92:PRO:HD3	2:B:627:PRO:HB2	1.96	0.48
2:B:989:ALA:O	2:B:1035:ASN:ND2	2.47	0.48
2:I:1653:LEU:HB3	2:I:1660:GLN:HB2	1.95	0.48
2:E:614:VAL:HG22	2:E:616:SER:H	1.78	0.48
2:E:1991:THR:O	2:E:1995:THR:OG1	2.32	0.48
2:E:3850:GLN:HA	2:E:3853:ALA:HB3	1.96	0.48
2:G:1653:LEU:HB3	2:G:1660:GLN:HB2	1.95	0.48
2:G:4800:LEU:HA	2:G:4803:HIS:HD2	1.79	0.48
2:I:614:VAL:HG22	2:I:616:SER:H	1.78	0.48
2:I:1516:UNK:N	2:I:1529:UNK:O	2.46	0.48
2:I:2277:ALA:HB1	2:I:2337:PHE:HD2	1.79	0.48
2:E:1653:LEU:HB3	2:E:1660:GLN:HB2	1.95	0.48
2:G:1991:THR:O	2:G:1995:THR:OG1	2.32	0.48
2:B:1865:MET:SD	2:B:1865:MET:N	2.87	0.48
2:B:2277:ALA:HB1	2:B:2337:PHE:HD2	1.79	0.48
2:I:4957:LYS:HG2	2:I:4964:GLY:HA2	1.95	0.48
2:E:989:ALA:O	2:E:1035:ASN:ND2	2.47	0.48
2:G:4919:THR:HA	2:G:4922:PHE:HD2	1.79	0.48
2:B:942:ALA:HB2	2:B:1052:ASN:HB2	1.95	0.48
2:I:1284:UNK:HA	2:I:1463:UNK:HA	1.96	0.48
2:I:2257:LEU:HD11	2:I:2276:ALA:HB2	1.96	0.48
2:B:2257:LEU:HD11	2:B:2276:ALA:HB2	1.96	0.47
2:E:1076:ARG:HD3	2:E:1237:TRP:HB2	1.96	0.47
2:E:1721:GLU:OE2	2:E:1725:ARG:NH2	2.46	0.47
2:G:19:GLU:HB2	2:G:206:CYS:HB3	1.96	0.47
2:G:614:VAL:HG22	2:G:616:SER:H	1.78	0.47
2:G:2277:ALA:HB1	2:G:2337:PHE:HD2	1.79	0.47
2:G:4957:LYS:HG2	2:G:4964:GLY:HA2	1.95	0.47
2:B:211:GLU:OE2	2:B:3907:THR:OG1	2.31	0.47
2:B:575:LEU:HD22	2:B:609:CYS:HB3	1.96	0.47
2:B:1727:ARG:NH2	2:B:1773:PRO:O	2.41	0.47
2:B:4743:MET:HB3	2:B:4746:ALA:HB3	1.96	0.47
2:I:1105:ALA:N	2:I:1189:LEU:O	2.48	0.47
2:I:1808:ARG:NH1	2:I:1853:ILE:O	2.42	0.47
2:E:1284:UNK:HA	2:E:1463:UNK:HA	1.96	0.47
2:E:4965:SER:O	2:E:4969:ASP:N	2.45	0.47
2:G:1960:ALA:O	2:G:1964:ARG:NE	2.47	0.47
2:G:3940:LYS:O	2:G:4002:LYS:NZ	2.41	0.47
2:G:4743:MET:HB3	2:G:4746:ALA:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:4919:THR:HA	2:B:4922:PHE:HD2	1.79	0.47
2:B:4960:ILE:HD13	2:B:4960:ILE:H	1.79	0.47
2:I:575:LEU:HD22	2:I:609:CYS:HB3	1.96	0.47
2:I:4919:THR:HA	2:I:4922:PHE:HD2	1.79	0.47
2:E:4800:LEU:HA	2:E:4803:HIS:HD2	1.79	0.47
1:H:92:PRO:HD3	2:G:627:PRO:HB2	1.96	0.47
2:B:485:SER:HA	2:B:488:LEU:HB2	1.95	0.47
2:I:1865:MET:HB3	2:I:1926:LEU:HB2	1.96	0.47
2:I:3842:LEU:O	2:I:3929:SER:OG	2.33	0.47
2:E:19:GLU:HB2	2:E:206:CYS:HB3	1.96	0.47
2:G:143:GLY:HA3	2:G:147:TRP:HE1	1.80	0.47
2:G:1865:MET:SD	2:G:1865:MET:N	2.87	0.47
2:B:1076:ARG:HD3	2:B:1237:TRP:HB2	1.96	0.47
2:B:4961:CYS:HB3	2:B:4983:HIS:CE1	2.49	0.47
2:I:596:ASN:HB3	2:I:599:VAL:HG22	1.97	0.47
2:I:1960:ALA:O	2:I:1964:ARG:NE	2.47	0.47
2:I:3827:GLY:HA2	2:I:3830:GLN:HE21	1.79	0.47
2:B:1991:THR:O	2:B:1995:THR:OG1	2.32	0.47
2:I:1991:THR:O	2:I:1995:THR:OG1	2.32	0.47
2:I:3766:GLN:O	2:I:3770:LEU:N	2.45	0.47
2:E:2277:ALA:HB1	2:E:2337:PHE:HD2	1.79	0.47
1:F:87:HIS:HD2	1:F:90:VAL:HB	1.78	0.47
2:B:488:LEU:O	2:B:492:ASP:N	2.45	0.47
2:B:1105:ALA:N	2:B:1189:LEU:O	2.48	0.47
2:B:4800:LEU:HA	2:B:4803:HIS:HD2	1.79	0.47
2:I:942:ALA:HB2	2:I:1052:ASN:HB2	1.95	0.47
2:I:2758:PHE:O	2:I:2762:THR:N	2.44	0.47
2:E:1865:MET:HB3	2:E:1926:LEU:HB2	1.96	0.47
2:E:4961:CYS:HB3	2:E:4983:HIS:CE1	2.49	0.47
2:G:596:ASN:HB3	2:G:599:VAL:HG22	1.97	0.47
2:G:1284:UNK:HA	2:G:1463:UNK:HA	1.96	0.47
2:G:3827:GLY:HA2	2:G:3830:GLN:HE21	1.79	0.47
2:G:3850:GLN:HA	2:G:3853:ALA:HB3	1.96	0.47
2:G:4961:CYS:HB3	2:G:4983:HIS:CE1	2.49	0.47
1:J:92:PRO:HD3	2:I:627:PRO:HB2	1.97	0.47
2:B:143:GLY:HA3	2:B:147:TRP:HE1	1.80	0.47
2:B:596:ASN:HB3	2:B:599:VAL:HG22	1.97	0.47
2:B:1960:ALA:O	2:B:1964:ARG:NE	2.47	0.47
2:B:3842:LEU:O	2:B:3929:SER:OG	2.33	0.47
2:I:4800:LEU:HA	2:I:4803:HIS:HD2	1.79	0.47
2:I:4961:CYS:HB3	2:I:4983:HIS:CE1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:2862:LEU:HB3	2:E:2928:LYS:HB3	1.96	0.47
2:G:2862:LEU:HB3	2:G:2928:LYS:HB3	1.96	0.47
2:B:2737:PRO:O	2:B:2888:ARG:NH2	2.48	0.47
2:I:3850:GLN:HA	2:I:3853:ALA:HB3	1.96	0.47
2:E:551:LEU:HD11	2:E:589:LEU:HD13	1.97	0.47
2:E:2737:PRO:O	2:E:2888:ARG:NH2	2.48	0.47
2:G:45:ARG:HG2	2:G:443:LEU:HD21	1.97	0.47
2:G:151:HIS:HB2	2:G:170:ILE:HB	1.97	0.47
2:G:1076:ARG:HD3	2:G:1237:TRP:HB2	1.96	0.47
2:G:1727:ARG:NH2	2:G:1773:PRO:O	2.41	0.47
2:G:1865:MET:HB3	2:G:1926:LEU:HB2	1.96	0.47
2:G:2257:LEU:HD11	2:G:2276:ALA:HB2	1.96	0.47
2:B:3840:SER:O	2:B:3922:TYR:OH	2.33	0.47
2:I:19:GLU:HB2	2:I:206:CYS:HB3	1.96	0.47
2:I:143:GLY:HA3	2:I:147:TRP:HE1	1.80	0.47
2:I:211:GLU:OE2	2:I:3907:THR:OG1	2.31	0.47
2:I:472:ARG:NH2	2:I:3712:GLU:OE2	2.46	0.47
2:I:1076:ARG:HD3	2:I:1237:TRP:HB2	1.96	0.47
2:E:151:HIS:HB2	2:E:170:ILE:HB	1.97	0.47
2:E:2003:GLN:O	2:E:2007:ASN:ND2	2.49	0.47
2:E:2271:THR:HG22	2:E:2273:LEU:H	1.80	0.47
2:B:1865:MET:HB3	2:B:1926:LEU:HB2	1.96	0.46
2:B:2003:GLN:O	2:B:2007:ASN:ND2	2.49	0.46
2:I:2466:LEU:HA	2:I:2469:ILE:HD12	1.97	0.46
2:E:1032:LYS:O	2:E:1036:ARG:N	2.47	0.46
2:G:551:LEU:HD11	2:G:589:LEU:HD13	1.97	0.46
2:G:2737:PRO:O	2:G:2888:ARG:NH2	2.48	0.46
2:G:4960:ILE:HD13	2:G:4960:ILE:H	1.79	0.46
2:B:345:LEU:HD23	2:B:389:PHE:HB3	1.97	0.46
2:B:2271:THR:HG22	2:B:2273:LEU:H	1.80	0.46
2:I:989:ALA:O	2:I:1035:ASN:ND2	2.47	0.46
2:I:4743:MET:HB3	2:I:4746:ALA:HB3	1.96	0.46
2:E:2257:LEU:HD11	2:E:2276:ALA:HB2	1.96	0.46
2:E:4749:GLU:HA	2:E:4752:ALA:HB3	1.97	0.46
2:B:19:GLU:HB2	2:B:206:CYS:HB3	1.96	0.46
2:B:1808:ARG:NH1	2:B:1853:ILE:O	2.42	0.46
2:B:2337:PHE:HA	2:B:2340:PHE:HB2	1.98	0.46
2:I:151:HIS:HB2	2:I:170:ILE:HB	1.97	0.46
2:I:2737:PRO:O	2:I:2888:ARG:NH2	2.48	0.46
2:I:4960:ILE:CD1	2:I:4985:LEU:HD23	2.46	0.46
2:E:143:GLY:HA3	2:E:147:TRP:HE1	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:241:GLN:O	2:E:289:ARG:NH1	2.38	0.46
2:E:488:LEU:O	2:E:492:ASP:N	2.45	0.46
2:E:2196:ASN:OD1	2:E:2199:ARG:NH1	2.41	0.46
2:G:345:LEU:HD23	2:G:389:PHE:HB3	1.98	0.46
2:G:3842:LEU:O	2:G:3929:SER:OG	2.33	0.46
2:I:551:LEU:HD11	2:I:589:LEU:HD13	1.97	0.46
2:I:2271:THR:HG22	2:I:2273:LEU:H	1.80	0.46
2:I:2337:PHE:HA	2:I:2340:PHE:HB2	1.98	0.46
2:I:2862:LEU:HB3	2:I:2928:LYS:HB3	1.96	0.46
2:I:3767:GLN:HA	2:I:3770:LEU:HB2	1.97	0.46
2:I:4749:GLU:HA	2:I:4752:ALA:HB3	1.97	0.46
2:E:345:LEU:HD23	2:E:389:PHE:HB3	1.98	0.46
2:E:1105:ALA:N	2:E:1189:LEU:O	2.48	0.46
2:G:989:ALA:O	2:G:1035:ASN:ND2	2.47	0.46
2:B:2466:LEU:HA	2:B:2469:ILE:HD12	1.97	0.46
2:I:45:ARG:HG2	2:I:443:LEU:HD21	1.97	0.46
2:E:3842:LEU:O	2:E:3929:SER:OG	2.33	0.46
2:E:4743:MET:HB3	2:E:4746:ALA:HB3	1.96	0.46
2:G:2003:GLN:O	2:G:2007:ASN:ND2	2.48	0.46
2:G:2337:PHE:HA	2:G:2340:PHE:HB2	1.98	0.46
2:I:345:LEU:HD23	2:I:389:PHE:HB3	1.98	0.46
2:E:1960:ALA:O	2:E:1964:ARG:NE	2.47	0.46
2:E:2347:GLU:O	2:E:2351:ASN:N	2.34	0.46
2:E:3840:SER:O	2:E:3922:TYR:OH	2.33	0.46
2:G:2466:LEU:HA	2:G:2469:ILE:HD12	1.97	0.46
2:B:45:ARG:HG2	2:B:443:LEU:HD21	1.97	0.46
2:B:151:HIS:HB2	2:B:170:ILE:HB	1.97	0.46
2:I:342:GLY:N	2:I:390:LEU:O	2.49	0.46
2:E:342:GLY:N	2:E:390:LEU:O	2.49	0.46
2:E:596:ASN:HB3	2:E:599:VAL:HG22	1.97	0.46
2:G:4960:ILE:CD1	2:G:4985:LEU:HD23	2.46	0.46
2:E:2337:PHE:HA	2:E:2340:PHE:HB2	1.98	0.46
2:E:4960:ILE:CD1	2:E:4985:LEU:HD23	2.46	0.46
2:G:3766:GLN:O	2:G:3770:LEU:N	2.45	0.46
2:G:3840:SER:O	2:G:3922:TYR:OH	2.33	0.46
2:E:3827:GLY:HA2	2:E:3830:GLN:HE21	1.79	0.46
2:E:2466:LEU:HA	2:E:2469:ILE:HD12	1.97	0.46
2:G:488:LEU:O	2:G:492:ASP:N	2.45	0.46
1:F:76:CYS:HB2	1:F:97:LEU:HB2	1.97	0.45
1:A:30:LEU:HD23	1:A:33:GLY:HA3	1.98	0.45
2:B:1727:ARG:HH21	2:B:1775:HIS:CE1	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:3827:GLY:HA2	2:B:3830:GLN:HE21	1.79	0.45
2:B:4172:GLU:HA	2:B:4175:ARG:HE	1.81	0.45
2:I:4799:SER:HA	2:I:4812:HIS:HE1	1.82	0.45
2:E:2868:SER:O	2:E:2872:GLN:N	2.43	0.45
2:E:3767:GLN:HA	2:E:3770:LEU:HB2	1.98	0.45
2:E:4172:GLU:HA	2:E:4175:ARG:HE	1.81	0.45
2:G:2271:THR:HG22	2:G:2273:LEU:H	1.80	0.45
2:G:3767:GLN:HA	2:G:3770:LEU:HB2	1.97	0.45
2:G:4749:GLU:HA	2:G:4752:ALA:HB3	1.97	0.45
1:A:76:CYS:HB2	1:A:97:LEU:HB2	1.97	0.45
1:J:30:LEU:HD23	1:J:33:GLY:HA3	1.98	0.45
2:B:864:PRO:HD2	2:B:867:LEU:HD12	1.98	0.45
2:B:4960:ILE:CD1	2:B:4985:LEU:HD23	2.46	0.45
2:I:446:GLN:HA	2:I:449:ILE:HD12	1.99	0.45
2:I:790:ARG:HG2	2:I:1627:ALA:HA	1.98	0.45
2:I:864:PRO:HD2	2:I:867:LEU:HD12	1.98	0.45
2:G:3817:LEU:HD13	2:G:3899:PHE:HD1	1.81	0.45
2:B:551:LEU:HD11	2:B:589:LEU:HD13	1.97	0.45
2:B:940:GLY:O	2:B:1052:ASN:N	2.50	0.45
2:B:4984:ASN:C	2:B:4986:ALA:H	2.20	0.45
2:I:1725:ARG:HA	2:I:1728:ARG:HG2	1.99	0.45
2:I:2003:GLN:O	2:I:2007:ASN:ND2	2.48	0.45
1:J:76:CYS:HB2	1:J:97:LEU:HB2	1.97	0.45
2:B:4749:GLU:HA	2:B:4752:ALA:HB3	1.97	0.45
2:B:4799:SER:HA	2:B:4812:HIS:HE1	1.82	0.45
2:E:3817:LEU:HD13	2:E:3899:PHE:HD1	1.81	0.45
2:G:1707:LEU:HG	2:G:1708:ARG:HG3	1.98	0.45
2:G:1725:ARG:HA	2:G:1728:ARG:HG2	1.99	0.45
2:G:4888:TYR:O	2:G:4892:ARG:NE	2.39	0.45
2:B:1721:GLU:OE2	2:B:1725:ARG:NH2	2.46	0.45
2:B:2155:LEU:HD13	2:B:2188:ASN:HD21	1.82	0.45
2:I:359:TYR:HA	2:I:376:ALA:HA	1.98	0.45
2:I:1727:ARG:HH21	2:I:1775:HIS:CE1	2.35	0.45
2:E:1727:ARG:HH21	2:E:1775:HIS:CE1	2.34	0.45
2:G:4581:LYS:HD2	2:G:4632:LEU:HD22	1.99	0.45
2:G:4799:SER:HA	2:G:4812:HIS:HE1	1.82	0.45
2:B:1707:LEU:HG	2:B:1708:ARG:HG3	1.98	0.45
2:B:4581:LYS:HD2	2:B:4632:LEU:HD22	1.99	0.45
2:E:45:ARG:HG2	2:E:443:LEU:HD21	1.97	0.45
2:E:446:GLN:HA	2:E:449:ILE:HD12	1.99	0.45
1:F:30:LEU:HD23	1:F:33:GLY:HA3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1090:PHE:HD2	2:B:1202:LEU:HD11	1.82	0.45
2:I:940:GLY:O	2:I:1052:ASN:N	2.50	0.45
2:I:1707:LEU:HG	2:I:1708:ARG:HG3	1.98	0.45
2:E:864:PRO:HD2	2:E:867:LEU:HD12	1.98	0.45
2:E:940:GLY:O	2:E:1052:ASN:N	2.50	0.45
2:E:2132:GLY:O	2:E:2136:ARG:N	2.50	0.45
2:G:342:GLY:N	2:G:390:LEU:O	2.49	0.45
2:G:446:GLN:HA	2:G:449:ILE:HD12	1.99	0.45
2:B:3767:GLN:HA	2:B:3770:LEU:HB2	1.98	0.45
2:G:864:PRO:HD2	2:G:867:LEU:HD12	1.98	0.45
2:G:2155:LEU:HD13	2:G:2188:ASN:HD21	1.81	0.45
1:H:76:CYS:HB2	1:H:97:LEU:HB2	1.97	0.45
2:I:2155:LEU:HD13	2:I:2188:ASN:HD21	1.82	0.45
2:E:1090:PHE:HD2	2:E:1202:LEU:HD11	1.82	0.45
2:E:1725:ARG:HA	2:E:1728:ARG:HG2	1.99	0.45
1:H:30:LEU:HD23	1:H:33:GLY:HA3	1.98	0.45
2:B:446:GLN:HA	2:B:449:ILE:HD12	1.99	0.45
2:B:790:ARG:HG2	2:B:1627:ALA:HA	1.98	0.45
2:B:1032:LYS:O	2:B:1036:ARG:N	2.47	0.45
2:B:2347:GLU:O	2:B:2351:ASN:N	2.34	0.45
2:I:1727:ARG:NH2	2:I:1773:PRO:O	2.41	0.45
2:I:4581:LYS:HD2	2:I:4632:LEU:HD22	1.99	0.45
2:E:606:LEU:O	2:E:617:ASN:ND2	2.50	0.45
2:E:790:ARG:HG2	2:E:1627:ALA:HA	1.98	0.45
2:G:790:ARG:HG2	2:G:1627:ALA:HA	1.98	0.45
2:G:1247:PRO:HA	2:G:1598:GLN:HA	1.98	0.45
2:G:1727:ARG:HH21	2:G:1775:HIS:CE1	2.34	0.45
2:G:4172:GLU:HA	2:G:4175:ARG:HE	1.81	0.45
2:G:4702:ASP:HA	2:G:4778:TRP:HE1	1.82	0.45
2:G:4763:GLY:O	2:G:4766:THR:OG1	2.29	0.45
2:B:342:GLY:N	2:B:390:LEU:O	2.49	0.44
2:B:1650:ILE:HG13	2:B:1707:LEU:HD21	1.99	0.44
2:B:1725:ARG:HA	2:B:1728:ARG:HG2	1.99	0.44
2:B:4888:TYR:O	2:B:4892:ARG:NE	2.39	0.44
2:I:4172:GLU:HA	2:I:4175:ARG:HE	1.81	0.44
2:I:4702:ASP:HA	2:I:4778:TRP:HE1	1.82	0.44
2:E:359:TYR:HA	2:E:376:ALA:HA	1.98	0.44
2:E:4581:LYS:HD2	2:E:4632:LEU:HD22	1.99	0.44
2:G:235:ALA:HA	2:G:257:ARG:HD3	1.99	0.44
2:G:1105:ALA:N	2:G:1189:LEU:O	2.47	0.44
2:G:1973:GLN:O	2:G:1977:TYR:N	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:1247:PRO:HA	2:I:1598:GLN:HA	1.98	0.44
2:I:1718:ILE:HG13	2:I:1719:HIS:CD2	2.53	0.44
2:I:3817:LEU:HD13	2:I:3899:PHE:HD1	1.81	0.44
2:I:4174:PHE:HA	2:I:4177:TYR:HD2	1.83	0.44
2:E:1247:PRO:HA	2:E:1598:GLN:HA	1.98	0.44
2:E:4799:SER:HA	2:E:4812:HIS:HE1	1.82	0.44
2:G:940:GLY:O	2:G:1052:ASN:N	2.50	0.44
2:B:359:TYR:HA	2:B:376:ALA:HA	1.98	0.44
2:B:3889:GLN:HE22	2:B:3963:ASN:HB3	1.83	0.44
2:B:4968:PHE:CE2	2:B:4978:HIS:ND1	2.86	0.44
2:I:1090:PHE:HD2	2:I:1202:LEU:HD11	1.82	0.44
2:I:4984:ASN:C	2:I:4986:ALA:H	2.20	0.44
2:E:206:CYS:SG	2:E:207:SER:N	2.91	0.44
2:E:3695:PRO:HB2	2:E:3700:GLN:HG3	2.00	0.44
2:E:4174:PHE:HA	2:E:4177:TYR:HD2	1.83	0.44
2:G:1718:ILE:HG13	2:G:1719:HIS:CD2	2.53	0.44
2:G:4174:PHE:HA	2:G:4177:TYR:HD2	1.83	0.44
2:B:206:CYS:SG	2:B:207:SER:N	2.91	0.44
2:B:243:ARG:NH1	2:B:301:VAL:O	2.42	0.44
2:B:468:LEU:HB3	2:B:472:ARG:HH12	1.83	0.44
2:B:3695:PRO:HB2	2:B:3700:GLN:HG3	2.00	0.44
2:B:3817:LEU:HD13	2:B:3899:PHE:HD1	1.81	0.44
2:B:4702:ASP:HA	2:B:4778:TRP:HE1	1.82	0.44
2:E:1707:LEU:HG	2:E:1708:ARG:HG3	1.98	0.44
2:E:2155:LEU:HD13	2:E:2188:ASN:HD21	1.82	0.44
2:E:4968:PHE:CE2	2:E:4978:HIS:ND1	2.86	0.44
2:G:4984:ASN:C	2:G:4986:ALA:H	2.20	0.44
2:B:1247:PRO:HA	2:B:1598:GLN:HA	1.98	0.44
2:I:1095:VAL:HB	2:I:1199:VAL:HG23	1.99	0.44
2:I:3695:PRO:HB2	2:I:3700:GLN:HG3	2.00	0.44
2:I:3772:THR:OG1	2:I:3815:LYS:NZ	2.47	0.44
2:I:3889:GLN:HE22	2:I:3963:ASN:HB3	1.83	0.44
2:E:1973:GLN:O	2:E:1977:TYR:N	2.48	0.44
2:G:472:ARG:NH2	2:G:3712:GLU:OE2	2.46	0.44
2:G:606:LEU:O	2:G:617:ASN:ND2	2.50	0.44
2:G:1650:ILE:HG13	2:G:1707:LEU:HD21	2.00	0.44
2:B:485:SER:O	2:B:489:ASN:N	2.40	0.44
2:I:606:LEU:O	2:I:617:ASN:ND2	2.50	0.44
2:I:1078:GLU:HB3	2:I:1081:TYR:HD2	1.83	0.44
2:I:1650:ILE:HG13	2:I:1707:LEU:HD21	1.99	0.44
2:I:2034:PHE:O	2:I:2038:LEU:N	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:468:LEU:HB3	2:E:472:ARG:HH12	1.83	0.44
2:E:709:ASP:HA	2:E:725:HIS:H	1.82	0.44
2:E:2034:PHE:O	2:E:2038:LEU:N	2.51	0.44
2:E:4702:ASP:HA	2:E:4778:TRP:HE1	1.82	0.44
2:G:359:TYR:HA	2:G:376:ALA:HA	1.98	0.44
2:G:2868:SER:O	2:G:2872:GLN:N	2.43	0.44
2:G:3695:PRO:HB2	2:G:3700:GLN:HG3	2.00	0.44
2:G:4201:ASN:ND2	2:G:4204:GLN:OE1	2.48	0.44
2:B:404:ILE:HG21	2:B:481:GLU:HG3	2.00	0.44
2:B:1718:ILE:HG13	2:B:1719:HIS:CD2	2.52	0.44
2:I:404:ILE:HG21	2:I:481:GLU:HG3	2.00	0.44
2:I:4201:ASN:ND2	2:I:4204:GLN:OE1	2.48	0.44
2:E:2286:LEU:HA	2:E:2289:ALA:HB3	2.00	0.44
2:E:4984:ASN:C	2:E:4986:ALA:H	2.20	0.44
2:G:4968:PHE:CE2	2:G:4978:HIS:ND1	2.86	0.44
2:B:606:LEU:O	2:B:617:ASN:ND2	2.50	0.44
2:B:1802:ILE:HG21	2:B:1807:LEU:HD22	1.99	0.44
2:B:3766:GLN:HA	2:B:3769:ARG:HG2	2.00	0.44
2:I:1802:ILE:HG21	2:I:1807:LEU:HD22	1.99	0.44
2:I:1948:ASP:OD1	2:I:2126:ARG:NH2	2.50	0.44
2:E:707:VAL:HG23	2:E:713:SER:HB2	2.00	0.44
2:E:1025:ARG:O	2:E:1032:LYS:NZ	2.37	0.44
2:E:1659:LEU:O	2:E:1663:HIS:N	2.47	0.44
2:G:681:HIS:HB3	2:G:784:SER:HB3	2.00	0.44
2:G:1260:MET:HB2	2:G:1269:CYS:H	1.83	0.44
2:G:1859:VAL:HA	2:G:1862:ILE:HG12	2.00	0.44
2:G:2347:GLU:O	2:G:2351:ASN:N	2.34	0.44
2:B:215:THR:HG22	2:B:273:HIS:HA	2.00	0.44
2:B:472:ARG:NH2	2:B:3712:GLU:OE2	2.46	0.44
2:B:645:ARG:N	2:B:824:GLU:O	2.41	0.44
2:B:709:ASP:HA	2:B:725:HIS:H	1.82	0.44
2:B:4961:CYS:HB3	2:B:4983:HIS:HE1	1.82	0.44
2:I:1663:HIS:O	2:I:1667:LEU:N	2.50	0.44
2:E:1802:ILE:HG21	2:E:1807:LEU:HD22	1.99	0.44
2:E:3889:GLN:HE22	2:E:3963:ASN:HB3	1.83	0.44
2:G:404:ILE:HG21	2:G:481:GLU:HG3	2.00	0.44
2:G:1090:PHE:HD2	2:G:1202:LEU:HD11	1.82	0.44
2:G:1948:ASP:OD1	2:G:2126:ARG:NH2	2.50	0.44
2:G:3889:GLN:HE22	2:G:3963:ASN:HB3	1.83	0.44
2:B:3829:PHE:HA	2:B:3832:ILE:HD12	2.00	0.43
2:B:4993:MET:HA	2:B:4996:ILE:HB	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:3840:SER:O	2:I:3922:TYR:OH	2.33	0.43
2:I:4960:ILE:HD13	2:I:4960:ILE:H	1.79	0.43
2:E:1078:GLU:HB3	2:E:1081:TYR:HD2	1.83	0.43
2:E:1718:ILE:HG13	2:E:1719:HIS:CD2	2.52	0.43
2:G:1802:ILE:HG21	2:G:1807:LEU:HD22	1.99	0.43
2:B:1859:VAL:HA	2:B:1862:ILE:HG12	2.00	0.43
2:B:2286:LEU:HA	2:B:2289:ALA:HB3	2.00	0.43
2:B:4063:ASP:OD1	2:B:4169:SER:OG	2.36	0.43
2:I:206:CYS:SG	2:I:207:SER:N	2.91	0.43
2:I:235:ALA:HA	2:I:257:ARG:HD3	1.99	0.43
2:I:2257:LEU:O	2:I:2261:SER:N	2.51	0.43
2:I:3817:LEU:HD22	2:I:3899:PHE:HB2	2.00	0.43
2:I:4977:THR:HG22	2:I:4981:GLU:HB2	2.01	0.43
2:E:404:ILE:HG21	2:E:481:GLU:HG3	2.00	0.43
2:E:1859:VAL:HA	2:E:1862:ILE:HG12	2.00	0.43
2:G:1032:LYS:O	2:G:1036:ARG:N	2.47	0.43
2:G:4063:ASP:OD1	2:G:4169:SER:OG	2.36	0.43
2:B:681:HIS:HB3	2:B:784:SER:HB3	2.00	0.43
2:B:1095:VAL:HB	2:B:1199:VAL:HG23	1.99	0.43
2:I:2517:UNK:O	2:I:2521:UNK:N	2.52	0.43
2:E:1650:ILE:HG13	2:E:1707:LEU:HD21	1.99	0.43
2:E:4063:ASP:OD1	2:E:4169:SER:OG	2.36	0.43
2:G:206:CYS:SG	2:G:207:SER:N	2.91	0.43
2:G:468:LEU:HB3	2:G:472:ARG:HH12	1.83	0.43
2:B:41:GLY:O	2:B:45:ARG:NH1	2.52	0.43
2:B:4174:PHE:HA	2:B:4177:TYR:HD2	1.83	0.43
2:I:709:ASP:HA	2:I:725:HIS:H	1.82	0.43
2:I:2039:LEU:HA	2:I:2042:CYS:HB3	2.01	0.43
2:I:3766:GLN:HA	2:I:3769:ARG:HG2	2.00	0.43
2:I:4063:ASP:OD1	2:I:4169:SER:OG	2.36	0.43
2:E:681:HIS:HB3	2:E:784:SER:HB3	2.00	0.43
2:E:1260:MET:HB2	2:E:1269:CYS:H	1.83	0.43
2:E:4961:CYS:HB3	2:E:4983:HIS:HE1	1.82	0.43
2:B:707:VAL:HG23	2:B:713:SER:HB2	2.00	0.43
2:B:1078:GLU:HB3	2:B:1081:TYR:HD2	1.83	0.43
2:B:1817:GLU:O	2:B:1821:ASP:N	2.51	0.43
2:B:2004:GLU:HA	2:B:2007:ASN:HD22	1.84	0.43
2:I:164:ARG:N	2:I:167:ASP:OD2	2.52	0.43
2:I:1154:ASP:HB3	2:I:1157:GLU:HB3	2.01	0.43
2:I:4904:PRO:HB3	2:I:4913:ARG:HD2	2.00	0.43
2:E:235:ALA:HA	2:E:257:ARG:HD3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1171:SER:OG	2:E:1175:SER:N	2.45	0.43
2:E:1269:CYS:HA	2:E:1473:UNK:HA	2.01	0.43
2:E:1808:ARG:NH1	2:E:1853:ILE:O	2.42	0.43
2:E:4977:THR:HG22	2:E:4981:GLU:HB2	2.01	0.43
2:G:2004:GLU:HA	2:G:2007:ASN:HD22	1.84	0.43
2:G:2196:ASN:OD1	2:G:2199:ARG:NH1	2.41	0.43
2:G:3766:GLN:HA	2:G:3769:ARG:HG2	2.00	0.43
2:G:3905:THR:HA	2:G:3912:THR:HG23	2.00	0.43
2:G:4977:THR:HG22	2:G:4981:GLU:HB2	2.01	0.43
1:F:92:PRO:HD3	2:E:627:PRO:HB2	2.01	0.43
1:J:87:HIS:HA	1:J:88:PRO:HD3	1.89	0.43
2:B:1260:MET:HB2	2:B:1269:CYS:H	1.83	0.43
2:B:3817:LEU:HD22	2:B:3899:PHE:HB2	2.00	0.43
2:I:468:LEU:HB3	2:I:472:ARG:HH12	1.83	0.43
2:I:841:GLY:HA2	2:I:1073:ARG:HD2	2.00	0.43
2:I:1032:LYS:O	2:I:1036:ARG:N	2.47	0.43
2:E:41:GLY:O	2:E:45:ARG:NH1	2.52	0.43
2:E:1095:VAL:HB	2:E:1199:VAL:HG23	1.99	0.43
2:E:2517:UNK:O	2:E:2521:UNK:N	2.52	0.43
2:G:1154:ASP:HB3	2:G:1157:GLU:HB3	2.01	0.43
2:G:2132:GLY:O	2:G:2136:ARG:N	2.50	0.43
2:G:4180:ARG:HH11	2:G:4192:ARG:HH12	1.67	0.43
2:G:4904:PRO:HB3	2:G:4913:ARG:HD2	2.00	0.43
2:B:218:HIS:HB3	2:B:392:ARG:HD3	2.01	0.43
2:B:1154:ASP:HB3	2:B:1157:GLU:HB3	2.01	0.43
2:B:2257:LEU:O	2:B:2261:SER:N	2.51	0.43
2:I:1817:GLU:O	2:I:1821:ASP:N	2.51	0.43
2:I:4968:PHE:CE2	2:I:4978:HIS:ND1	2.86	0.43
2:E:215:THR:HG22	2:E:273:HIS:HA	2.00	0.43
2:E:4993:MET:HA	2:E:4996:ILE:HB	2.00	0.43
2:G:3829:PHE:HA	2:G:3832:ILE:HD12	2.00	0.43
1:H:7:ILE:N	1:H:71:ARG:O	2.49	0.43
2:B:2517:UNK:O	2:B:2521:UNK:N	2.52	0.43
2:B:2927:LEU:HD23	2:B:2930:LEU:HD12	2.01	0.43
2:B:4180:ARG:HH11	2:B:4192:ARG:HH12	1.67	0.43
2:I:41:GLY:O	2:I:45:ARG:NH1	2.52	0.43
2:I:215:THR:HG22	2:I:273:HIS:HA	2.00	0.43
2:I:681:HIS:HB3	2:I:784:SER:HB3	2.00	0.43
2:I:707:VAL:HG23	2:I:713:SER:HB2	2.00	0.43
2:I:4961:CYS:HB3	2:I:4983:HIS:HE1	1.83	0.43
2:E:278:GLN:N	2:E:315:CYS:SG	2.92	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1663:HIS:O	2:E:1667:LEU:N	2.50	0.43
2:E:4036:VAL:HG11	2:E:5035:GLN:HB3	2.01	0.43
2:G:2286:LEU:HA	2:G:2289:ALA:HB3	2.00	0.43
2:G:2517:UNK:O	2:G:2521:UNK:N	2.52	0.43
1:F:7:ILE:N	1:F:71:ARG:O	2.49	0.43
2:B:164:ARG:N	2:B:167:ASP:OD2	2.52	0.43
2:B:4958:CYS:HB2	3:B:5101:ATP:N6	2.34	0.43
2:B:4977:THR:HG22	2:B:4981:GLU:HB2	2.01	0.43
2:I:2286:LEU:HA	2:I:2289:ALA:HB3	2.00	0.43
2:I:3905:THR:HA	2:I:3912:THR:HG23	2.00	0.43
2:I:4958:CYS:HB2	3:I:5101:ATP:N6	2.34	0.43
2:E:164:ARG:N	2:E:167:ASP:OD2	2.52	0.43
2:E:218:HIS:HB3	2:E:392:ARG:HD3	2.01	0.43
2:E:2004:GLU:HA	2:E:2007:ASN:HD22	1.84	0.43
2:E:2927:LEU:HD23	2:E:2930:LEU:HD12	2.01	0.43
2:E:4904:PRO:HB3	2:E:4913:ARG:HD2	2.00	0.43
2:G:218:HIS:HB3	2:G:392:ARG:HD3	2.01	0.43
2:G:379:HIS:CD2	2:G:381:GLU:H	2.37	0.43
2:G:841:GLY:HA2	2:G:1073:ARG:HD2	2.00	0.43
2:G:4958:CYS:HB2	3:G:5101:ATP:N6	2.34	0.43
2:G:4967:TYR:HE2	2:G:5029:ARG:HG3	1.84	0.43
1:F:42:ARG:HG2	2:E:1691:GLN:HG2	2.01	0.43
2:B:2132:GLY:O	2:B:2136:ARG:N	2.50	0.43
2:I:57:ASN:HD22	2:I:308:HIS:HB2	1.84	0.43
2:I:379:HIS:CD2	2:I:381:GLU:H	2.37	0.43
2:I:1260:MET:HB2	2:I:1269:CYS:H	1.83	0.43
2:I:1269:CYS:HA	2:I:1473:UNK:HA	2.01	0.43
2:I:4967:TYR:HE2	2:I:5029:ARG:HG3	1.84	0.43
2:E:1154:ASP:HB3	2:E:1157:GLU:HB3	2.01	0.43
2:E:2257:LEU:O	2:E:2261:SER:N	2.51	0.43
2:E:4180:ARG:HH11	2:E:4192:ARG:HH12	1.67	0.43
2:G:41:GLY:O	2:G:45:ARG:NH1	2.52	0.43
2:G:1269:CYS:HA	2:G:1473:UNK:HA	2.01	0.43
2:G:1659:LEU:O	2:G:1663:HIS:N	2.47	0.43
2:G:2257:LEU:O	2:G:2261:SER:N	2.51	0.43
2:G:2927:LEU:HD23	2:G:2930:LEU:HD12	2.01	0.43
2:B:841:GLY:HA2	2:B:1073:ARG:HD2	2.00	0.42
2:B:3905:THR:HA	2:B:3912:THR:HG23	2.00	0.42
2:B:4957:LYS:HB2	2:B:4957:LYS:HZ3	1.84	0.42
2:I:488:LEU:O	2:I:492:ASP:N	2.45	0.42
2:I:3940:LYS:O	2:I:4002:LYS:NZ	2.41	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:4180:ARG:HH11	2:I:4192:ARG:HH12	1.67	0.42
2:I:4236:SER:HG	2:I:4675:LYS:HZ1	1.60	0.42
2:E:379:HIS:CD2	2:E:381:GLU:H	2.37	0.42
2:E:2039:LEU:HA	2:E:2042:CYS:HB3	2.01	0.42
2:E:3766:GLN:HA	2:E:3769:ARG:HG2	2.00	0.42
2:E:4958:CYS:HB2	3:E:5101:ATP:N6	2.34	0.42
2:G:164:ARG:N	2:G:167:ASP:OD2	2.52	0.42
2:G:215:THR:HG22	2:G:273:HIS:HA	2.00	0.42
2:G:1095:VAL:HB	2:G:1199:VAL:HG23	1.99	0.42
2:G:2039:LEU:HA	2:G:2042:CYS:HB3	2.01	0.42
2:B:57:ASN:HD22	2:B:308:HIS:HB2	1.84	0.42
2:I:1859:VAL:HA	2:I:1862:ILE:HG12	2.00	0.42
2:I:2132:GLY:O	2:I:2136:ARG:N	2.50	0.42
2:I:2327:GLY:HA2	2:I:2330:ARG:HD3	2.00	0.42
2:I:4959:PHE:HD2	2:I:4960:ILE:HD13	1.84	0.42
2:G:1078:GLU:HB3	2:G:1081:TYR:HD2	1.83	0.42
2:G:3817:LEU:HD22	2:G:3899:PHE:HB2	2.00	0.42
2:G:4183:ILE:O	2:G:4191:GLU:N	2.43	0.42
2:B:278:GLN:N	2:B:315:CYS:SG	2.92	0.42
2:B:379:HIS:CD2	2:B:381:GLU:H	2.37	0.42
2:B:4904:PRO:HB3	2:B:4913:ARG:HD2	2.00	0.42
2:I:2004:GLU:HA	2:I:2007:ASN:HD22	1.84	0.42
2:I:2927:LEU:HD23	2:I:2930:LEU:HD12	2.01	0.42
2:I:4960:ILE:HD12	2:I:4985:LEU:HD23	2.02	0.42
2:I:4993:MET:HA	2:I:4996:ILE:HB	2.00	0.42
2:E:2327:GLY:HA2	2:E:2330:ARG:HD3	2.00	0.42
2:E:3658:LYS:HA	2:E:3661:TRP:CD2	2.54	0.42
2:E:3829:PHE:HA	2:E:3832:ILE:HD12	2.00	0.42
2:E:4960:ILE:HD13	2:E:4960:ILE:H	1.79	0.42
2:G:57:ASN:HD22	2:G:308:HIS:HB2	1.84	0.42
2:G:278:GLN:N	2:G:315:CYS:SG	2.92	0.42
2:G:1111:PRO:HD3	2:G:1605:TRP:HE1	1.85	0.42
2:B:235:ALA:HA	2:B:257:ARG:HD3	1.99	0.42
2:B:2034:PHE:O	2:B:2038:LEU:N	2.51	0.42
2:B:4036:VAL:HG11	2:B:5035:GLN:HB3	2.01	0.42
2:B:4951:LYS:HE2	2:B:4951:LYS:HB3	1.91	0.42
2:B:4959:PHE:HD2	2:B:4960:ILE:HD13	1.84	0.42
2:I:3829:PHE:HA	2:I:3832:ILE:HD12	2.00	0.42
2:E:4138:ASP:OD1	2:E:4138:ASP:N	2.52	0.42
2:G:709:ASP:HA	2:G:725:HIS:H	1.83	0.42
2:G:2327:GLY:HA2	2:G:2330:ARG:HD3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1269:CYS:HA	2:B:1473:UNK:HA	2.01	0.42
2:B:2039:LEU:HA	2:B:2042:CYS:HB3	2.01	0.42
2:B:2231:SER:HA	2:B:2234:ARG:HG2	2.01	0.42
2:B:2868:SER:O	2:B:2872:GLN:N	2.43	0.42
2:I:218:HIS:HB3	2:I:392:ARG:HD3	2.01	0.42
2:I:3658:LYS:HA	2:I:3661:TRP:CD2	2.54	0.42
2:E:1131:ARG:N	2:E:1137:GLU:O	2.53	0.42
1:F:11:ASP:OD1	1:F:67:SER:OG	2.28	0.42
1:F:34:LYS:HD3	2:E:629:ARG:HD2	2.00	0.42
1:F:57:LYS:HB2	1:F:80:VAL:HB	2.02	0.42
2:B:1973:GLN:HA	2:B:1976:ARG:HB3	2.02	0.42
2:I:1111:PRO:HD3	2:I:1605:TRP:HE1	1.85	0.42
2:E:1077:ALA:HB1	2:E:1234:VAL:HG11	2.02	0.42
2:G:395:GLN:HG3	2:G:397:GLU:H	1.85	0.42
2:G:4959:PHE:HD2	2:G:4960:ILE:HD13	1.84	0.42
2:G:4993:MET:HA	2:G:4996:ILE:HB	2.00	0.42
1:A:42:ARG:HG2	2:B:1691:GLN:HG2	2.02	0.42
2:B:256:ALA:HB1	2:B:286:THR:HG21	2.02	0.42
2:E:57:ASN:HD22	2:E:308:HIS:HB2	1.84	0.42
2:E:718:GLY:HA3	2:E:737:LEU:HA	2.02	0.42
2:E:3817:LEU:HD22	2:E:3899:PHE:HB2	2.00	0.42
2:G:2034:PHE:O	2:G:2038:LEU:N	2.51	0.42
2:G:4826:ILE:O	2:G:4829:SER:OG	2.33	0.42
1:F:40:ARG:NH2	2:E:675:LEU:O	2.52	0.42
1:A:57:LYS:HB2	1:A:80:VAL:HB	2.02	0.42
2:B:2327:GLY:HA2	2:B:2330:ARG:HD3	2.00	0.42
2:E:256:ALA:HB1	2:E:286:THR:HG21	2.02	0.42
2:E:675:LEU:HD11	2:E:1633:PRO:HB3	2.02	0.42
2:E:841:GLY:HA2	2:E:1073:ARG:HD2	2.00	0.42
2:E:3905:THR:HA	2:E:3912:THR:HG23	2.00	0.42
2:E:4201:ASN:ND2	2:E:4204:GLN:OE1	2.48	0.42
2:G:718:GLY:HA3	2:G:737:LEU:HA	2.02	0.42
2:G:1171:SER:OG	2:G:1175:SER:N	2.46	0.42
2:G:1817:GLU:O	2:G:1821:ASP:N	2.51	0.42
2:G:2231:SER:HA	2:G:2234:ARG:HG2	2.01	0.42
2:B:675:LEU:HD11	2:B:1633:PRO:HB3	2.02	0.42
2:B:2196:ASN:OD1	2:B:2199:ARG:NH1	2.41	0.42
2:B:2810:LYS:O	2:B:2814:LYS:N	2.48	0.42
2:B:3658:LYS:HA	2:B:3661:TRP:CD2	2.54	0.42
2:I:2021:CYS:HA	2:I:2022:PRO:HD3	1.93	0.42
2:I:2231:SER:HA	2:I:2234:ARG:HG2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:4681:LEU:HD21	2:G:4687:TYR:HD2	1.85	0.42
2:G:4961:CYS:HB3	2:G:4983:HIS:HE1	1.82	0.42
1:A:40:ARG:NH2	2:B:675:LEU:O	2.52	0.42
2:B:1111:PRO:HD3	2:B:1605:TRP:HE1	1.85	0.42
2:B:4697:VAL:O	2:B:4701:TRP:N	2.53	0.42
2:I:1812:LEU:HD21	2:I:1861:GLN:HG2	2.02	0.42
2:E:4681:LEU:HD21	2:E:4687:TYR:HD2	1.85	0.42
2:G:707:VAL:HG23	2:G:713:SER:HB2	2.00	0.42
2:G:4960:ILE:HD12	2:G:4985:LEU:HD23	2.02	0.42
2:B:395:GLN:HG3	2:B:397:GLU:H	1.85	0.41
2:I:1659:LEU:O	2:I:1663:HIS:N	2.47	0.41
2:I:1973:GLN:HA	2:I:1976:ARG:HB3	2.02	0.41
2:I:2145:SER:HB2	2:I:3647:HIS:CE1	2.55	0.41
2:I:2248:ARG:NH2	2:I:2285:GLU:OE1	2.53	0.41
2:G:2145:SER:HB2	2:G:3647:HIS:CE1	2.55	0.41
2:G:4036:VAL:HG11	2:G:5035:GLN:HB3	2.01	0.41
2:B:414:PHE:HE1	2:B:436:LEU:HB3	1.85	0.41
2:B:1665:HIS:HA	2:B:1668:ARG:HG2	2.02	0.41
2:B:2145:SER:HB2	2:B:3647:HIS:CE1	2.55	0.41
2:B:2248:ARG:NH2	2:B:2285:GLU:OE1	2.53	0.41
2:I:626:LEU:HG	2:I:628:GLY:H	1.84	0.41
2:E:414:PHE:HE1	2:E:436:LEU:HB3	1.85	0.41
2:E:626:LEU:HG	2:E:628:GLY:H	1.84	0.41
2:E:4959:PHE:HD2	2:E:4960:ILE:HD13	1.84	0.41
2:G:1973:GLN:HA	2:G:1976:ARG:HB3	2.02	0.41
2:G:4138:ASP:OD1	2:G:4138:ASP:N	2.52	0.41
2:B:626:LEU:HG	2:B:628:GLY:H	1.84	0.41
2:B:1077:ALA:HB1	2:B:1234:VAL:HG11	2.02	0.41
2:I:395:GLN:HG3	2:I:397:GLU:H	1.85	0.41
2:I:709:ASP:HB3	2:I:725:HIS:CE1	2.56	0.41
2:I:4036:VAL:HG11	2:I:5035:GLN:HB3	2.01	0.41
2:E:1665:HIS:HA	2:E:1668:ARG:HG2	2.02	0.41
2:E:2248:ARG:NH2	2:E:2285:GLU:OE1	2.54	0.41
2:G:256:ALA:HB1	2:G:286:THR:HG21	2.02	0.41
2:G:3658:LYS:HA	2:G:3661:TRP:CD2	2.54	0.41
1:H:57:LYS:HB2	1:H:80:VAL:HB	2.02	0.41
2:B:2305:CYS:O	2:B:2324:ASN:ND2	2.54	0.41
2:B:4960:ILE:HD12	2:B:4985:LEU:HD23	2.02	0.41
2:B:4967:TYR:HE2	2:B:5029:ARG:HG3	1.84	0.41
2:I:1665:HIS:HA	2:I:1668:ARG:HG2	2.02	0.41
2:E:2145:SER:HB2	2:E:3647:HIS:CE1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:2231:SER:HA	2:E:2234:ARG:HG2	2.01	0.41
2:E:4697:VAL:O	2:E:4701:TRP:N	2.53	0.41
2:G:4705:VAL:HB	2:G:4778:TRP:CG	2.56	0.41
1:J:57:LYS:HB2	1:J:80:VAL:HB	2.01	0.41
2:B:709:ASP:HB3	2:B:725:HIS:CE1	2.56	0.41
2:B:1101:ARG:HH21	2:B:1115:LEU:HB3	1.85	0.41
2:B:4681:LEU:HD21	2:B:4687:TYR:HD2	1.85	0.41
2:I:675:LEU:HD11	2:I:1633:PRO:HB3	2.02	0.41
2:I:1973:GLN:O	2:I:1977:TYR:N	2.48	0.41
2:I:2103:VAL:O	2:I:2107:GLN:N	2.48	0.41
2:E:134:ASP:N	2:E:134:ASP:OD1	2.54	0.41
2:E:1111:PRO:HD3	2:E:1605:TRP:HE1	1.85	0.41
2:E:2810:LYS:O	2:E:2814:LYS:N	2.48	0.41
2:E:4967:TYR:HE2	2:E:5029:ARG:HG3	1.84	0.41
2:G:1101:ARG:HH21	2:G:1115:LEU:HB3	1.85	0.41
2:G:1665:HIS:HA	2:G:1668:ARG:HG2	2.03	0.41
2:G:3959:LYS:O	2:G:3963:ASN:ND2	2.54	0.41
1:F:87:HIS:HA	1:F:88:PRO:HD3	1.89	0.41
2:B:1973:GLN:O	2:B:1977:TYR:N	2.48	0.41
2:B:3674:ILE:HG13	2:B:3732:SER:HB3	2.03	0.41
2:I:256:ALA:HB1	2:I:286:THR:HG21	2.02	0.41
2:I:414:PHE:HE1	2:I:436:LEU:HB3	1.85	0.41
2:I:580:GLU:HG3	2:I:620:LEU:HD22	2.03	0.41
2:I:4681:LEU:HD21	2:I:4687:TYR:HD2	1.85	0.41
2:E:580:GLU:HG3	2:E:620:LEU:HD22	2.03	0.41
2:E:637:LEU:HD23	2:E:1637:MET:HB3	2.02	0.41
2:G:414:PHE:HE1	2:G:436:LEU:HB3	1.85	0.41
2:G:1812:LEU:HD21	2:G:1861:GLN:HG2	2.02	0.41
2:B:3880:PHE:O	2:B:3884:LEU:N	2.54	0.41
2:I:1077:ALA:HB1	2:I:1234:VAL:HG11	2.02	0.41
2:I:1101:ARG:HH21	2:I:1115:LEU:HB3	1.85	0.41
2:I:1131:ARG:N	2:I:1137:GLU:O	2.53	0.41
2:I:3948:LYS:NZ	2:I:4008:SER:O	2.54	0.41
2:E:4763:GLY:O	2:E:4766:THR:OG1	2.29	0.41
2:G:20:VAL:HG12	2:G:204:PRO:HA	2.03	0.41
2:G:675:LEU:HD11	2:G:1633:PRO:HB3	2.02	0.41
2:G:939:VAL:HG22	2:G:1053:ILE:HG23	2.03	0.41
1:A:7:ILE:N	1:A:71:ARG:O	2.49	0.41
1:J:82:TYR:O	1:J:86:GLY:N	2.54	0.41
2:B:718:GLY:HA3	2:B:737:LEU:HA	2.02	0.41
2:B:3959:LYS:O	2:B:3963:ASN:ND2	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:4960:ILE:N	2:B:4960:ILE:CD1	2.73	0.41
2:I:2196:ASN:OD1	2:I:2199:ARG:NH1	2.41	0.41
2:E:1101:ARG:HH21	2:E:1115:LEU:HB3	1.85	0.41
2:E:3959:LYS:O	2:E:3963:ASN:ND2	2.54	0.41
2:E:4235:VAL:O	2:E:4239:GLU:N	2.44	0.41
2:E:4960:ILE:HD12	2:E:4985:LEU:HD23	2.02	0.41
2:G:37:LEU:HD11	2:G:47:CYS:HB3	2.03	0.41
2:G:792:LEU:HD22	2:G:799:GLU:H	1.86	0.41
2:G:1077:ALA:HB1	2:G:1234:VAL:HG11	2.02	0.41
2:G:2466:LEU:HD23	2:G:2469:ILE:HD12	2.03	0.41
1:A:82:TYR:O	1:A:86:GLY:N	2.54	0.41
1:J:40:ARG:NH2	2:I:675:LEU:O	2.54	0.41
2:B:583:ILE:H	2:B:583:ILE:HG13	1.71	0.41
2:B:3765:TYR:HD2	2:B:3769:ARG:HH21	1.69	0.41
2:I:37:LEU:HD11	2:I:47:CYS:HB3	2.03	0.41
2:I:1141:ARG:HD2	2:I:1141:ARG:H	1.86	0.41
2:I:2466:LEU:HD23	2:I:2469:ILE:HD12	2.03	0.41
2:I:4138:ASP:OD1	2:I:4138:ASP:N	2.52	0.41
2:I:4705:VAL:HB	2:I:4778:TRP:CG	2.56	0.41
2:E:20:VAL:HG12	2:E:204:PRO:HA	2.03	0.41
2:E:37:LEU:HD11	2:E:47:CYS:HB3	2.03	0.41
2:E:709:ASP:HB3	2:E:725:HIS:CE1	2.56	0.41
2:E:1141:ARG:H	2:E:1141:ARG:HD2	1.86	0.41
2:E:1812:LEU:HD21	2:E:1861:GLN:HG2	2.02	0.41
2:G:580:GLU:HG3	2:G:620:LEU:HD22	2.03	0.41
2:G:709:ASP:HB3	2:G:725:HIS:CE1	2.56	0.41
2:G:1105:ALA:O	2:G:1189:LEU:N	2.54	0.41
2:G:1238:PHE:O	2:G:1606:SER:N	2.45	0.41
2:G:3880:PHE:O	2:G:3884:LEU:N	2.54	0.41
2:B:37:LEU:HD11	2:B:47:CYS:HB3	2.03	0.41
2:I:939:VAL:HG22	2:I:1053:ILE:HG23	2.03	0.41
2:E:395:GLN:HG3	2:E:397:GLU:H	1.85	0.41
2:E:1973:GLN:HA	2:E:1976:ARG:HB3	2.02	0.41
2:G:2248:ARG:NH2	2:G:2285:GLU:OE1	2.53	0.41
2:G:3674:ILE:HG13	2:G:3732:SER:HB3	2.03	0.41
1:F:82:TYR:O	1:F:86:GLY:N	2.54	0.40
2:B:786:GLY:HA2	2:B:1631:GLN:HA	2.03	0.40
2:B:793:LEU:HD22	2:B:821:LEU:HD13	2.04	0.40
2:B:2466:LEU:HD23	2:B:2469:ILE:HD12	2.03	0.40
2:B:3780:LEU:HD11	2:B:3816:MET:HG3	2.02	0.40
2:I:637:LEU:HD23	2:I:1637:MET:HB3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:786:GLY:HA2	2:I:1631:GLN:HA	2.03	0.40
2:I:2742:THR:OG1	2:I:2811:GLU:OE1	2.35	0.40
2:I:4763:GLY:O	2:I:4766:THR:OG1	2.29	0.40
2:E:2305:CYS:O	2:E:2324:ASN:ND2	2.54	0.40
2:G:309:THR:O	2:G:313:SER:OG	2.39	0.40
2:G:2121:PHE:O	2:G:3725:TYR:OH	2.39	0.40
1:H:82:TYR:O	1:H:86:GLY:N	2.54	0.40
1:J:11:ASP:OD1	1:J:67:SER:OG	2.28	0.40
2:B:20:VAL:HG12	2:B:204:PRO:HA	2.03	0.40
2:B:637:LEU:HD23	2:B:1637:MET:HB3	2.03	0.40
2:B:1663:HIS:NE2	2:B:1711:TYR:OH	2.39	0.40
2:B:1812:LEU:HD21	2:B:1861:GLN:HG2	2.02	0.40
2:B:4821:LYS:HE2	2:B:4821:LYS:HB3	1.96	0.40
2:I:20:VAL:HG12	2:I:204:PRO:HA	2.03	0.40
2:I:793:LEU:HD22	2:I:821:LEU:HD13	2.04	0.40
2:I:1171:SER:OG	2:I:1175:SER:N	2.45	0.40
2:I:3880:PHE:O	2:I:3884:LEU:N	2.54	0.40
2:E:1948:ASP:OD1	2:E:2126:ARG:NH2	2.50	0.40
2:E:4928:LEU:HA	2:E:4931:ILE:HD12	2.03	0.40
2:G:1154:ASP:O	2:G:1158:ASN:N	2.54	0.40
2:G:2021:CYS:HA	2:G:2022:PRO:HD3	1.93	0.40
2:G:2305:CYS:O	2:G:2324:ASN:ND2	2.54	0.40
2:B:4558:ASN:OD1	2:B:4558:ASN:N	2.54	0.40
2:I:278:GLN:N	2:I:315:CYS:SG	2.92	0.40
2:I:379:HIS:CD2	2:I:382:GLY:H	2.30	0.40
2:I:718:GLY:HA3	2:I:737:LEU:HA	2.02	0.40
2:I:792:LEU:HD22	2:I:799:GLU:H	1.86	0.40
2:I:870:ILE:HD12	2:I:870:ILE:HA	1.96	0.40
2:I:2305:CYS:O	2:I:2324:ASN:ND2	2.54	0.40
2:E:309:THR:O	2:E:313:SER:OG	2.39	0.40
2:E:3765:TYR:HD2	2:E:3769:ARG:HH21	1.69	0.40
2:E:3901:ASN:OD1	2:E:3904:ARG:NH1	2.50	0.40
2:G:4928:LEU:HA	2:G:4931:ILE:HD12	2.03	0.40
1:A:87:HIS:HA	1:A:88:PRO:HD3	1.89	0.40
2:B:864:PRO:HA	2:B:865:PRO:HD3	1.96	0.40
2:B:4705:VAL:HB	2:B:4778:TRP:CG	2.56	0.40
2:I:3674:ILE:HG13	2:I:3732:SER:HB3	2.03	0.40
2:I:3959:LYS:O	2:I:3963:ASN:ND2	2.54	0.40
2:E:1154:ASP:O	2:E:1158:ASN:N	2.54	0.40
2:E:3780:LEU:HD11	2:E:3816:MET:HG3	2.02	0.40
2:E:4705:VAL:HB	2:E:4778:TRP:CG	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:626:LEU:HG	2:G:628:GLY:H	1.85	0.40
2:G:4973:HIS:HB3	2:G:4976:GLU:HB3	2.04	0.40
2:B:580:GLU:HG3	2:B:620:LEU:HD22	2.03	0.40
2:B:583:ILE:HA	2:B:586:ILE:HD12	2.04	0.40
2:B:615:ARG:NH2	2:B:1677:GLY:O	2.55	0.40
2:B:1141:ARG:HD2	2:B:1141:ARG:H	1.86	0.40
2:B:1154:ASP:O	2:B:1158:ASN:N	2.54	0.40
2:B:1948:ASP:OD1	2:B:2126:ARG:NH2	2.50	0.40
2:I:1105:ALA:O	2:I:1189:LEU:N	2.54	0.40
2:I:3662:ILE:H	2:I:3662:ILE:HG13	1.77	0.40
2:E:742:ASP:HA	2:E:760:ASN:HD21	1.87	0.40
2:E:2199:ARG:NH2	2:E:2246:ASN:OD1	2.55	0.40
2:E:3977:GLN:NE2	2:E:4032:GLU:OE1	2.55	0.40
2:E:4973:HIS:HB3	2:E:4976:GLU:HB3	2.04	0.40
2:G:134:ASP:N	2:G:134:ASP:OD1	2.54	0.40
2:G:793:LEU:HD22	2:G:821:LEU:HD13	2.04	0.40
2:G:3765:TYR:HD2	2:G:3769:ARG:HH21	1.69	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%)	2926 (90%)	304 (9%)	5 (0%)	47	81
2	E	3235/4416 (73%)	2924 (90%)	306 (10%)	5 (0%)	47	81
2	G	3235/4416 (73%)	2925 (90%)	305 (9%)	5 (0%)	47	81

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	I	3235/4416 (73%)	2922 (90%)	308 (10%)	5 (0%)	47	81
All	All	13360/18096 (74%)	12077 (90%)	1263 (10%)	20 (0%)	54	85

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	4985	LEU
2	I	4985	LEU
2	E	4985	LEU
2	G	4985	LEU
2	B	1708	ARG
2	B	1932	PRO
2	I	1708	ARG
2	I	1932	PRO
2	E	1708	ARG
2	E	1932	PRO
2	G	1708	ARG
2	G	1932	PRO
2	B	1840	PRO
2	G	1840	PRO
2	I	1840	PRO
2	E	1840	PRO
2	B	4641	PRO
2	I	4641	PRO
2	E	4641	PRO
2	G	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

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	J	88/89 (99%)	88 (100%)	0	100	100
2	B	2492/3022 (82%)	2473 (99%)	19 (1%)	81	89
2	E	2492/3022 (82%)	2473 (99%)	19 (1%)	81	89
2	G	2492/3022 (82%)	2473 (99%)	19 (1%)	81	89
2	I	2492/3022 (82%)	2473 (99%)	19 (1%)	81	89
All	All	10320/12444 (83%)	10244 (99%)	76 (1%)	84	91

All (76) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	131	LEU
2	B	534	ARG
2	B	553	ARG
2	B	1076	ARG
2	B	1141	ARG
2	B	1600	LEU
2	B	1676	LEU
2	B	1964	ARG
2	B	3663	LEU
2	B	3762	ARG
2	B	3787	LYS
2	B	3896	ASN
2	B	4034	ASN
2	B	4085	ARG
2	B	4120	ASN
2	B	4839	MET
2	B	4913	ARG
2	B	4959	PHE
2	B	4960	ILE
2	I	131	LEU
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	3663	LEU
2	I	3762	ARG
2	I	3787	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	I	3896	ASN
2	I	4034	ASN
2	I	4085	ARG
2	I	4120	ASN
2	I	4839	MET
2	I	4913	ARG
2	I	4959	PHE
2	I	4960	ILE
2	E	131	LEU
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	3663	LEU
2	E	3762	ARG
2	E	3787	LYS
2	E	3896	ASN
2	E	4034	ASN
2	E	4085	ARG
2	E	4120	ASN
2	E	4839	MET
2	E	4913	ARG
2	E	4959	PHE
2	E	4960	ILE
2	G	131	LEU
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	3663	LEU
2	G	3762	ARG
2	G	3787	LYS
2	G	3896	ASN
2	G	4034	ASN
2	G	4085	ARG
2	G	4120	ASN

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Mol	Chain	Res	Type
2	G	4839	MET
2	G	4913	ARG
2	G	4959	PHE
2	G	4960	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (154) such sidechains are listed below:

Mol	Chain	Res	Type
1	F	43	ASN
1	F	87	HIS
1	A	43	ASN
1	A	87	HIS
1	H	43	ASN
1	H	87	HIS
1	J	43	ASN
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	383	HIS
2	B	395	GLN
2	B	413	GLN
2	B	479	GLN
2	B	582	HIS
2	B	838	HIS
2	B	1598	GLN
2	B	1640	HIS
2	B	1679	ASN
2	B	1688	HIS
2	B	1691	GLN
2	B	1719	HIS
2	B	1775	HIS
2	B	2127	GLN
2	B	3809	ASN
2	B	3830	GLN
2	B	3889	GLN
2	B	3896	ASN
2	B	3946	GLN
2	B	3950	ASN
2	B	3960	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	B	3963	ASN
2	B	3976	ASN
2	B	3994	HIS
2	B	4034	ASN
2	B	4054	ASN
2	B	4120	ASN
2	B	4142	ASN
2	B	4946	GLN
2	B	4949	GLN
2	B	5003	HIS
2	I	57	ASN
2	I	111	HIS
2	I	113	HIS
2	I	156	GLN
2	I	273	HIS
2	I	379	HIS
2	I	383	HIS
2	I	395	GLN
2	I	413	GLN
2	I	479	GLN
2	I	582	HIS
2	I	838	HIS
2	I	1598	GLN
2	I	1640	HIS
2	I	1679	ASN
2	I	1688	HIS
2	I	1691	GLN
2	I	1719	HIS
2	I	1775	HIS
2	I	1941	ASN
2	I	2127	GLN
2	I	3809	ASN
2	I	3830	GLN
2	I	3889	GLN
2	I	3896	ASN
2	I	3946	GLN
2	I	3950	ASN
2	I	3960	GLN
2	I	3963	ASN
2	I	3976	ASN
2	I	3994	HIS
2	I	4034	ASN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	I	4054	ASN
2	I	4120	ASN
2	I	4142	ASN
2	I	4946	GLN
2	I	4949	GLN
2	I	5003	HIS
2	E	57	ASN
2	E	111	HIS
2	E	113	HIS
2	E	156	GLN
2	E	273	HIS
2	E	379	HIS
2	E	383	HIS
2	E	395	GLN
2	E	413	GLN
2	E	479	GLN
2	E	582	HIS
2	E	838	HIS
2	E	1598	GLN
2	E	1640	HIS
2	E	1679	ASN
2	E	1688	HIS
2	E	1691	GLN
2	E	1719	HIS
2	E	1775	HIS
2	E	1941	ASN
2	E	2127	GLN
2	E	3809	ASN
2	E	3830	GLN
2	E	3889	GLN
2	E	3896	ASN
2	E	3946	GLN
2	E	3950	ASN
2	E	3960	GLN
2	E	3963	ASN
2	E	3976	ASN
2	E	3994	HIS
2	E	4034	ASN
2	E	4054	ASN
2	E	4120	ASN
2	E	4946	GLN
2	E	4949	GLN

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Mol	Chain	Res	Type
2	E	5003	HIS
2	G	57	ASN
2	G	111	HIS
2	G	113	HIS
2	G	273	HIS
2	G	379	HIS
2	G	383	HIS
2	G	395	GLN
2	G	413	GLN
2	G	479	GLN
2	G	582	HIS
2	G	838	HIS
2	G	1598	GLN
2	G	1640	HIS
2	G	1679	ASN
2	G	1688	HIS
2	G	1719	HIS
2	G	1775	HIS
2	G	1941	ASN
2	G	2127	GLN
2	G	3809	ASN
2	G	3830	GLN
2	G	3889	GLN
2	G	3896	ASN
2	G	3946	GLN
2	G	3950	ASN
2	G	3960	GLN
2	G	3963	ASN
2	G	3976	ASN
2	G	3994	HIS
2	G	4034	ASN
2	G	4054	ASN
2	G	4120	ASN
2	G	4946	GLN
2	G	4949	GLN
2	G	5003	HIS

### 5.3.3 RNA

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 12 ligands modelled in this entry, 4 are monoatomic - leaving 8 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	ATP	I	5101	-	26,33,33	0.92	1 (3%)	31,52,52	1.47	5 (16%)
4	CFF	B	5102	-	8,15,15	2.46	3 (37%)	8,23,23	1.34	1 (12%)
4	CFF	E	5102	-	8,15,15	2.46	3 (37%)	8,23,23	1.34	1 (12%)
4	CFF	G	5102	-	8,15,15	2.46	3 (37%)	8,23,23	1.34	1 (12%)
3	ATP	B	5101	-	26,33,33	0.91	1 (3%)	31,52,52	1.47	5 (16%)
3	ATP	E	5101	-	26,33,33	0.91	1 (3%)	31,52,52	1.47	5 (16%)
4	CFF	I	5102	-	8,15,15	2.46	3 (37%)	8,23,23	1.36	1 (12%)
3	ATP	G	5101	-	26,33,33	0.91	1 (3%)	31,52,52	1.47	5 (16%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	ATP	I	5101	-	-	5/18/38/38	0/3/3/3
4	CFF	B	5102	-	-	-	0/2/2/2
4	CFF	E	5102	-	-	-	0/2/2/2
4	CFF	G	5102	-	-	-	0/2/2/2
3	ATP	B	5101	-	-	5/18/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	ATP	E	5101	-	-	5/18/38/38	0/3/3/3
4	CFF	I	5102	-	-	-	0/2/2/2
3	ATP	G	5101	-	-	5/18/38/38	0/3/3/3

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	G	5102	CFF	C5-C4	-4.61	1.33	1.39
4	B	5102	CFF	C5-C4	-4.61	1.33	1.39
4	E	5102	CFF	C5-C4	-4.61	1.33	1.39
4	I	5102	CFF	C5-C4	-4.61	1.33	1.39
4	I	5102	CFF	C6-N1	-3.93	1.32	1.38
4	E	5102	CFF	C6-N1	-3.91	1.32	1.38
4	G	5102	CFF	C6-N1	-3.90	1.32	1.38
4	B	5102	CFF	C6-N1	-3.89	1.32	1.38
4	B	5102	CFF	O13-C6	-2.36	1.18	1.24
4	I	5102	CFF	O13-C6	-2.36	1.18	1.24
4	E	5102	CFF	O13-C6	-2.36	1.18	1.24
4	G	5102	CFF	O13-C6	-2.36	1.18	1.24
3	B	5101	ATP	C5-C4	2.30	1.47	1.40
3	I	5101	ATP	C5-C4	2.30	1.47	1.40
3	E	5101	ATP	C5-C4	2.28	1.47	1.40
3	G	5101	ATP	C5-C4	2.28	1.47	1.40

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	5101	ATP	PB-O3B-PG	-3.33	121.40	132.83
3	B	5101	ATP	PB-O3B-PG	-3.32	121.45	132.83
3	G	5101	ATP	PB-O3B-PG	-3.32	121.45	132.83
3	I	5101	ATP	PB-O3B-PG	-3.31	121.47	132.83
3	G	5101	ATP	N3-C2-N1	-3.10	123.83	128.68
3	E	5101	ATP	N3-C2-N1	-3.08	123.87	128.68
3	I	5101	ATP	N3-C2-N1	-3.07	123.88	128.68
3	B	5101	ATP	N3-C2-N1	-3.07	123.88	128.68
3	E	5101	ATP	C4-C5-N7	-2.89	106.39	109.40
3	B	5101	ATP	C4-C5-N7	-2.87	106.41	109.40
3	G	5101	ATP	C4-C5-N7	-2.86	106.42	109.40
3	I	5101	ATP	C4-C5-N7	-2.81	106.47	109.40
4	G	5102	CFF	C14-N7-C8	-2.78	112.07	125.43
4	B	5102	CFF	C14-N7-C8	-2.77	112.11	125.43
4	I	5102	CFF	C14-N7-C8	-2.77	112.11	125.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	5102	CFP	C14-N7-C8	-2.76	112.14	125.43
3	I	5101	ATP	PA-O3A-PB	-2.75	123.39	132.83
3	B	5101	ATP	PA-O3A-PB	-2.75	123.41	132.83
3	E	5101	ATP	PA-O3A-PB	-2.74	123.42	132.83
3	G	5101	ATP	PA-O3A-PB	-2.74	123.43	132.83
3	E	5101	ATP	C3'-C2'-C1'	2.54	104.80	100.98
3	B	5101	ATP	C3'-C2'-C1'	2.54	104.80	100.98
3	I	5101	ATP	C3'-C2'-C1'	2.53	104.79	100.98
3	G	5101	ATP	C3'-C2'-C1'	2.53	104.79	100.98

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	5101	ATP	C5'-O5'-PA-O1A
3	B	5101	ATP	C5'-O5'-PA-O2A
3	I	5101	ATP	C5'-O5'-PA-O1A
3	I	5101	ATP	C5'-O5'-PA-O2A
3	E	5101	ATP	C5'-O5'-PA-O1A
3	E	5101	ATP	C5'-O5'-PA-O2A
3	G	5101	ATP	C5'-O5'-PA-O1A
3	G	5101	ATP	C5'-O5'-PA-O2A
3	B	5101	ATP	O4'-C4'-C5'-O5'
3	I	5101	ATP	O4'-C4'-C5'-O5'
3	E	5101	ATP	O4'-C4'-C5'-O5'
3	G	5101	ATP	O4'-C4'-C5'-O5'
3	B	5101	ATP	C4'-C5'-O5'-PA
3	I	5101	ATP	C4'-C5'-O5'-PA
3	E	5101	ATP	C4'-C5'-O5'-PA
3	G	5101	ATP	C4'-C5'-O5'-PA
3	B	5101	ATP	C5'-O5'-PA-O3A
3	I	5101	ATP	C5'-O5'-PA-O3A
3	E	5101	ATP	C5'-O5'-PA-O3A
3	G	5101	ATP	C5'-O5'-PA-O3A

There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	I	5101	ATP	1	0
3	B	5101	ATP	1	0

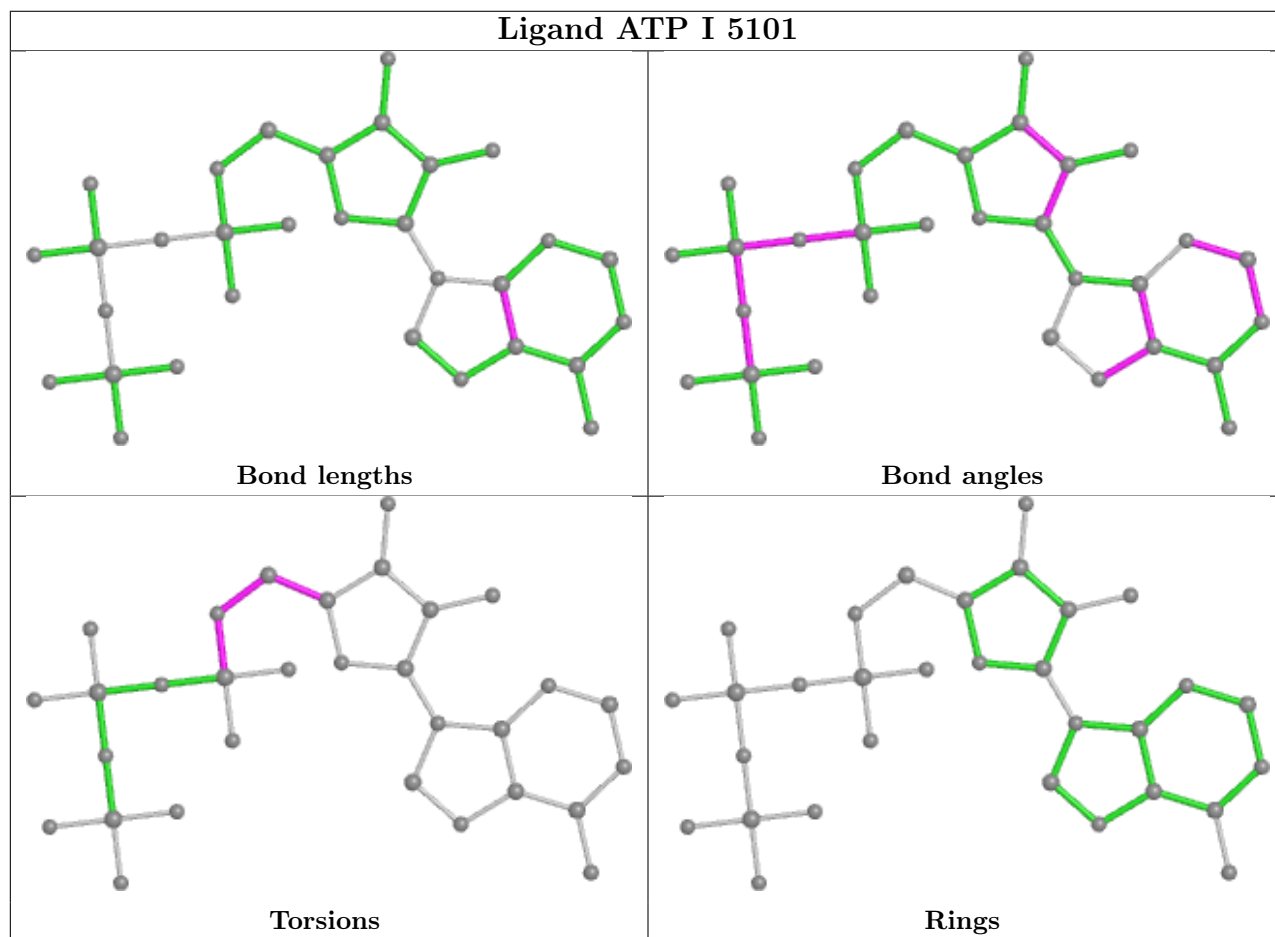
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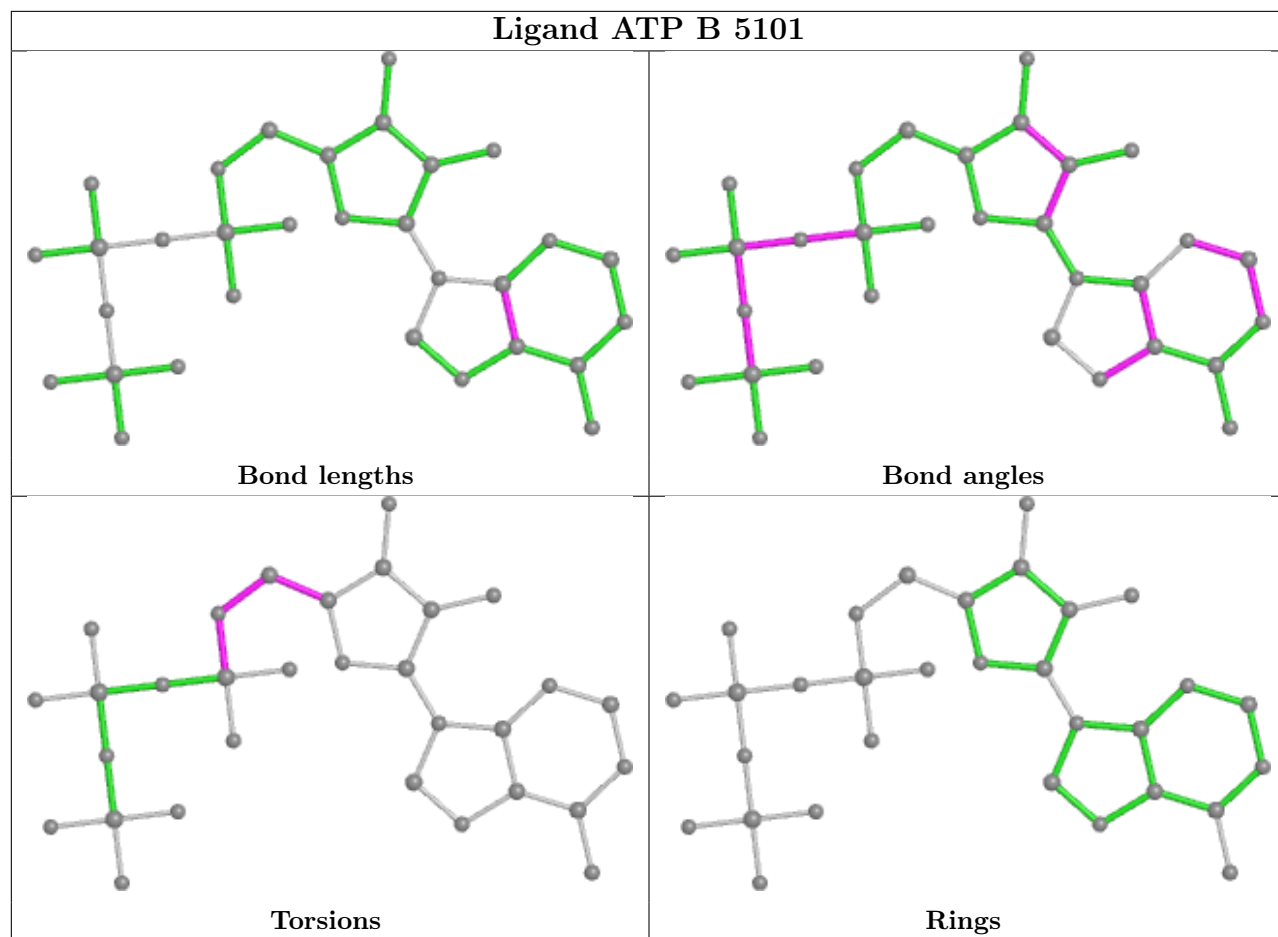


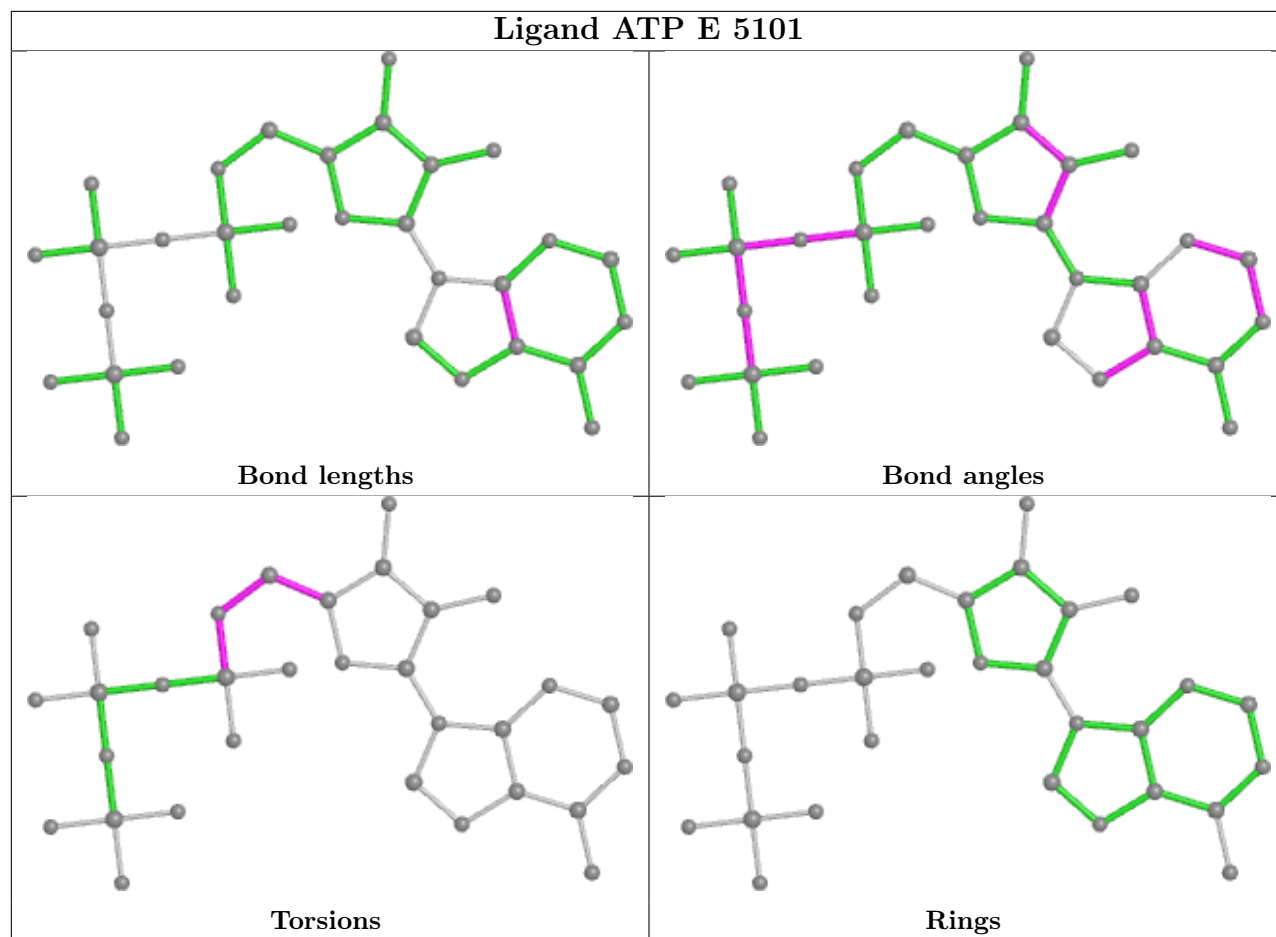
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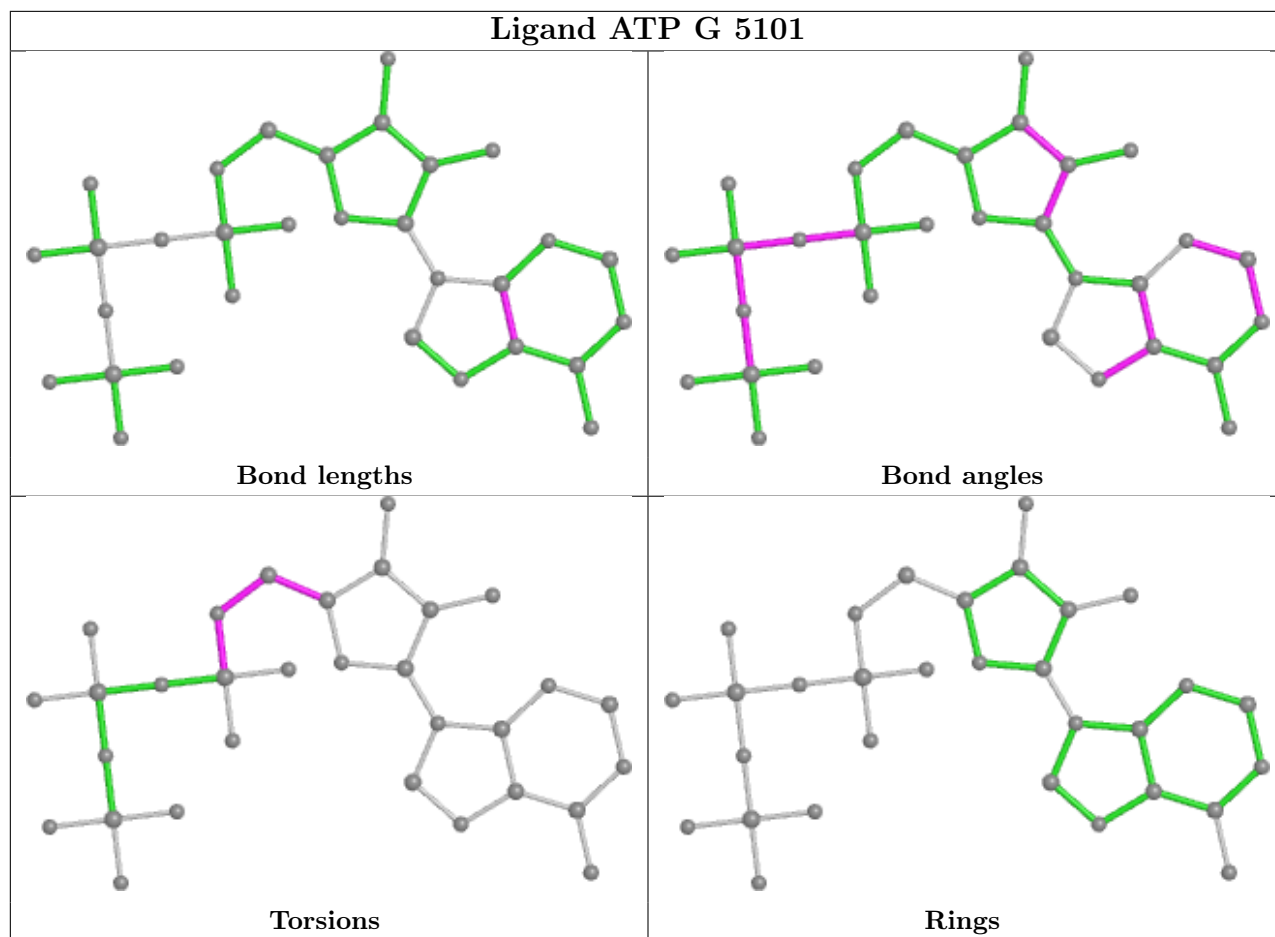
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	E	5101	ATP	1	0
3	G	5101	ATP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









## 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	I	14
2	E	14
2	G	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	72.97
1	I	4345:UNK	C	4540:PHE	N	72.97

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	4345:UNK	C	4540:PHE	N	72.97
1	G	4345:UNK	C	4540:PHE	N	72.97
1	B	3613:UNK	C	3639:THR	N	44.25
1	I	3613:UNK	C	3639:THR	N	44.25
1	E	3613:UNK	C	3639:THR	N	44.25
1	G	3613:UNK	C	3639:THR	N	44.25
1	B	4253:GLU	C	4320:UNK	N	27.48
1	I	4253:GLU	C	4320:UNK	N	27.48
1	E	4253:GLU	C	4320:UNK	N	27.48
1	G	4253:GLU	C	4320:UNK	N	27.48
1	B	3163:UNK	C	3170:UNK	N	16.07
1	I	3163:UNK	C	3170:UNK	N	16.07
1	E	3163:UNK	C	3170:UNK	N	16.07
1	G	3163:UNK	C	3170:UNK	N	16.07
1	B	3063:UNK	C	3134:UNK	N	15.01
1	I	3063:UNK	C	3134:UNK	N	15.01
1	E	3063:UNK	C	3134:UNK	N	15.01
1	G	3063:UNK	C	3134:UNK	N	15.01
1	B	3468:UNK	C	3511:UNK	N	14.60
1	I	3468:UNK	C	3511:UNK	N	14.60
1	E	3468:UNK	C	3511:UNK	N	14.60
1	G	3468:UNK	C	3511:UNK	N	14.60
1	B	2703:UNK	C	2734:ASN	N	14.12
1	I	2703:UNK	C	2734:ASN	N	14.12
1	E	2703:UNK	C	2734:ASN	N	14.12
1	G	2703:UNK	C	2734:ASN	N	14.12
1	B	3236:UNK	C	3241:UNK	N	13.51
1	I	3236:UNK	C	3241:UNK	N	13.51
1	E	3236:UNK	C	3241:UNK	N	13.51
1	G	3236:UNK	C	3241:UNK	N	13.51
1	B	1564:UNK	C	1573:MET	N	12.36
1	I	1564:UNK	C	1573:MET	N	12.36
1	E	1564:UNK	C	1573:MET	N	12.36
1	G	1564:UNK	C	1573:MET	N	12.36
1	B	2976:UNK	C	2995:UNK	N	12.31
1	I	2976:UNK	C	2995:UNK	N	12.31
1	E	2976:UNK	C	2995:UNK	N	12.31
1	G	2976:UNK	C	2995:UNK	N	12.31
1	I	3254:UNK	C	3261:UNK	N	8.30
1	B	3254:UNK	C	3261:UNK	N	8.29
1	E	3254:UNK	C	3261:UNK	N	8.29
1	G	3254:UNK	C	3261:UNK	N	8.29

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	1297:UNK	C	1430:UNK	N	5.73
1	I	1297:UNK	C	1430:UNK	N	5.73
1	E	1297:UNK	C	1430:UNK	N	5.73
1	G	1297:UNK	C	1430:UNK	N	5.73
1	B	2939:ARG	C	2942:UNK	N	3.51
1	I	2939:ARG	C	2942:UNK	N	3.51
1	E	2939:ARG	C	2942:UNK	N	3.51
1	G	2939:ARG	C	2942:UNK	N	3.51
1	B	2479:LEU	C	2487:UNK	N	3.41
1	I	2479:LEU	C	2487:UNK	N	3.41
1	E	2479:LEU	C	2487:UNK	N	3.41
1	G	2479:LEU	C	2487:UNK	N	3.41

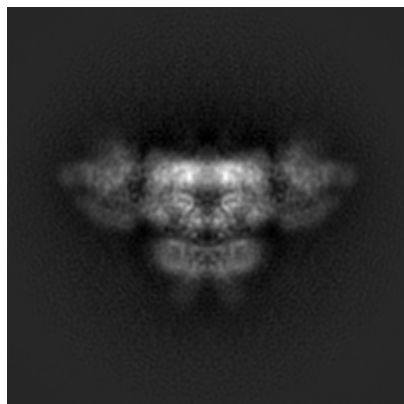
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8385. These allow visual inspection of the internal detail of the map and identification of artifacts.

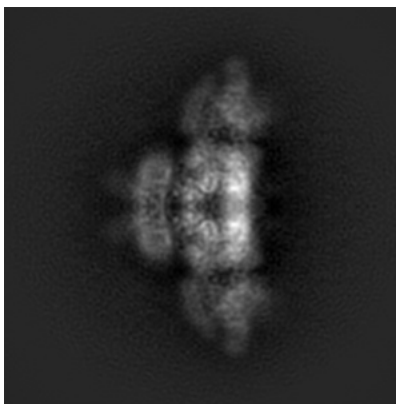
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

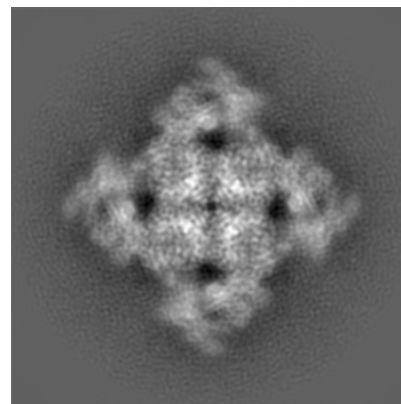
#### 6.1.1 Primary map



X

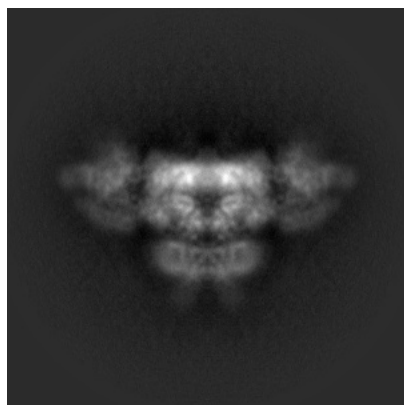


Y

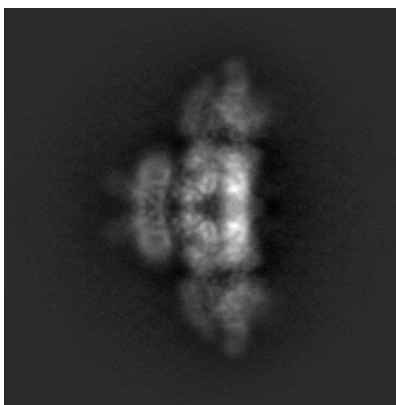


Z

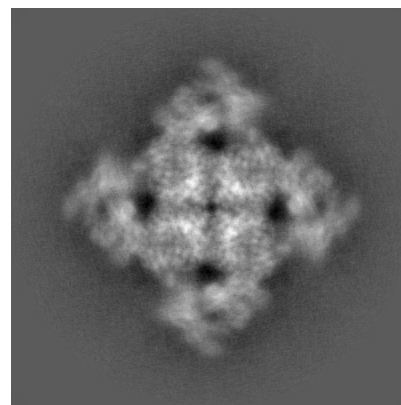
#### 6.1.2 Raw map



X



Y

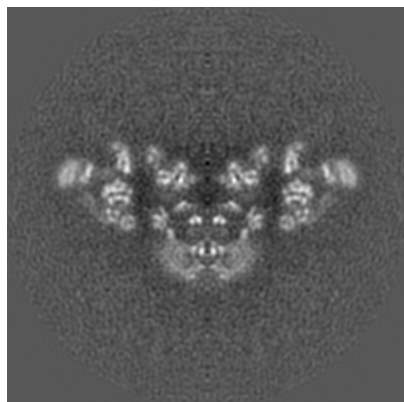


Z

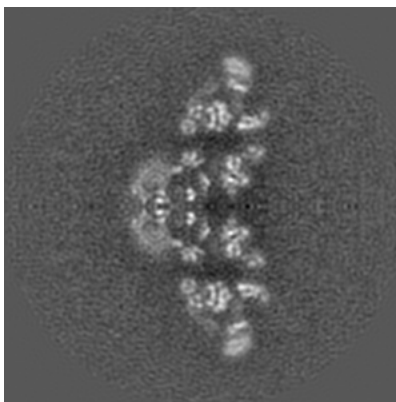
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

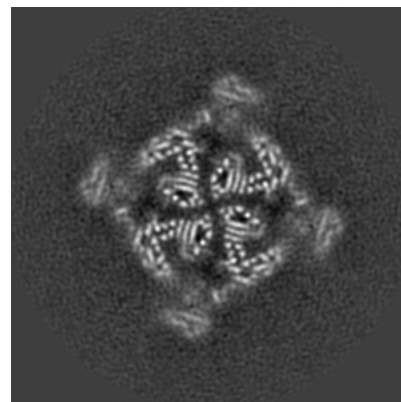
### 6.2.1 Primary map



X Index: 200

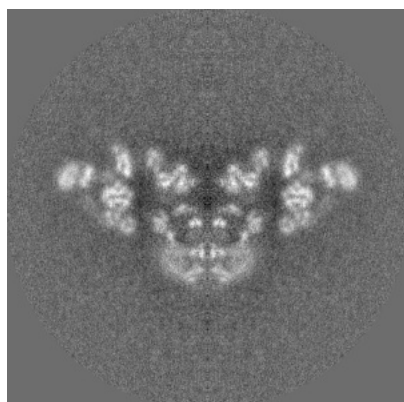


Y Index: 200

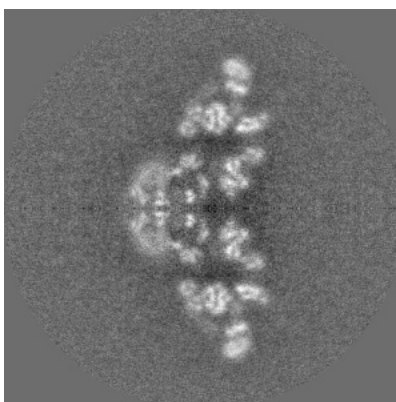


Z Index: 200

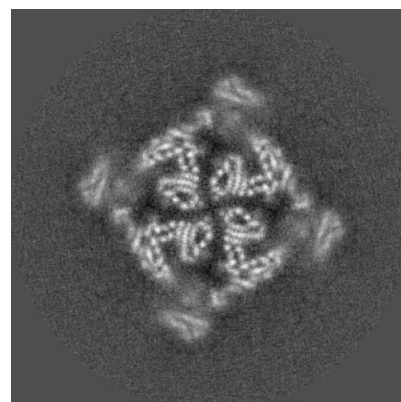
### 6.2.2 Raw map



X Index: 200



Y Index: 200



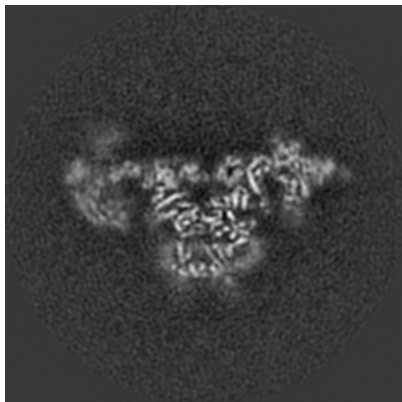
Z Index: 200

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

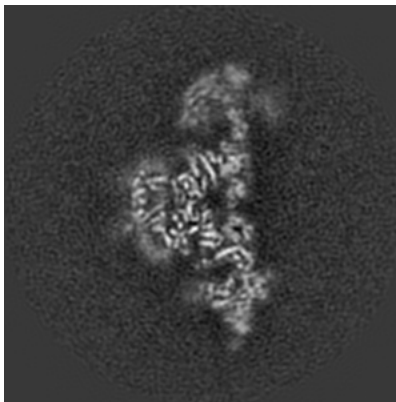


## 6.3 Largest variance slices [i](#)

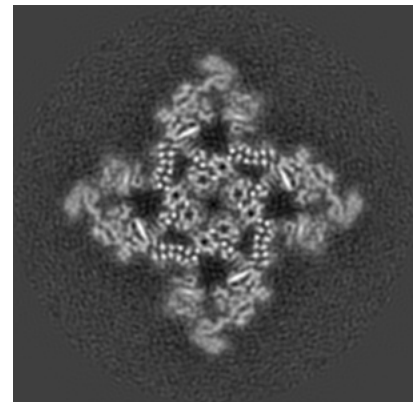
### 6.3.1 Primary map



X Index: 184

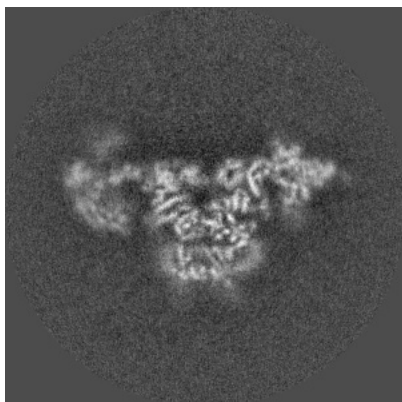


Y Index: 184

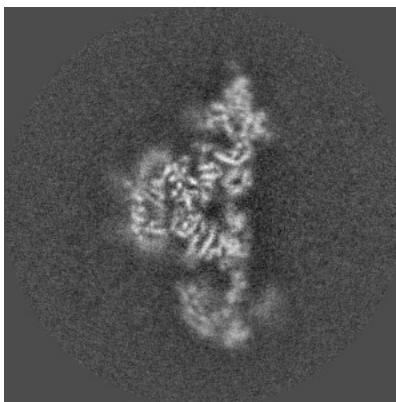


Z Index: 227

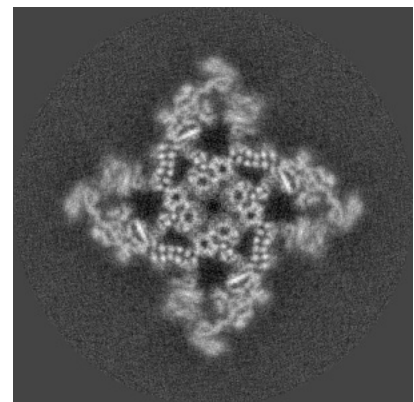
### 6.3.2 Raw map



X Index: 184



Y Index: 216

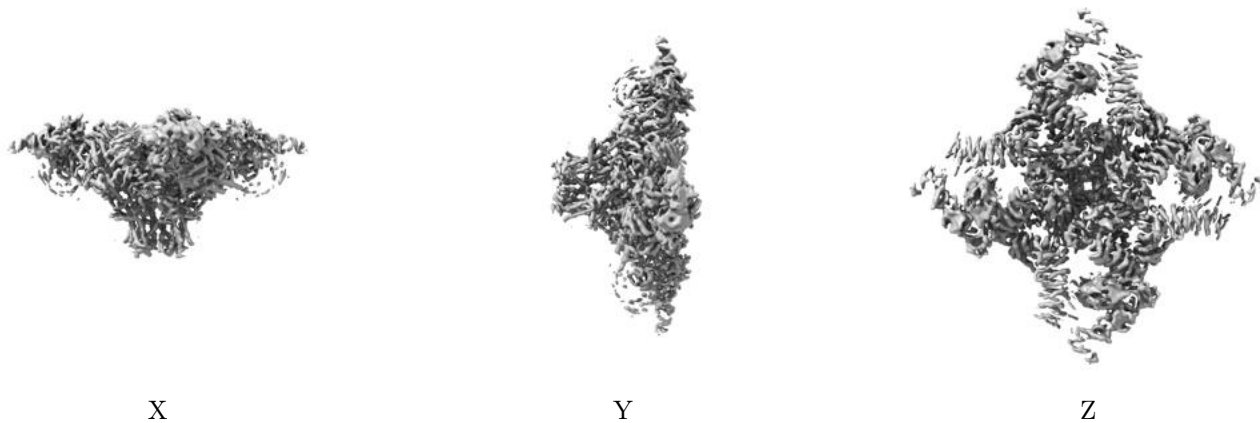


Z Index: 226

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

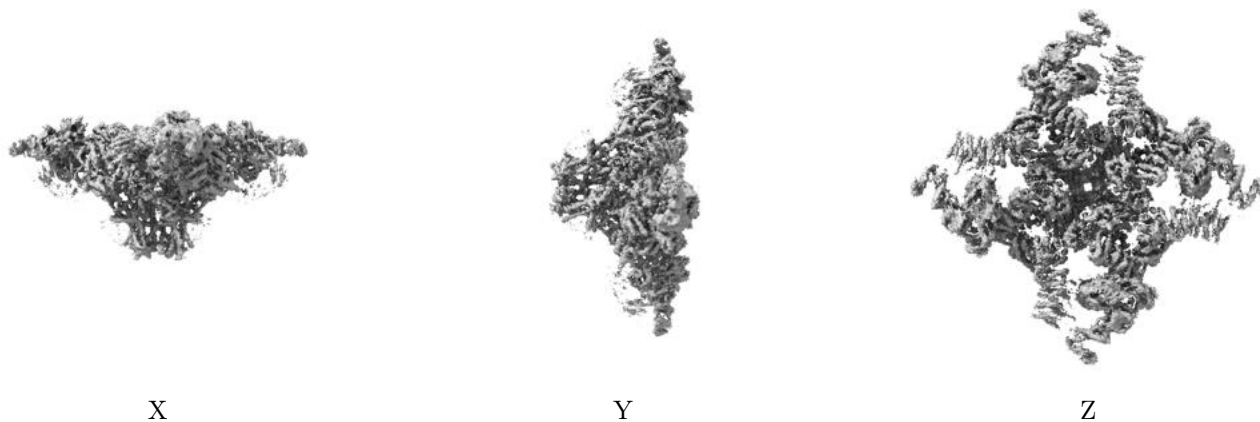
## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.032. 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.

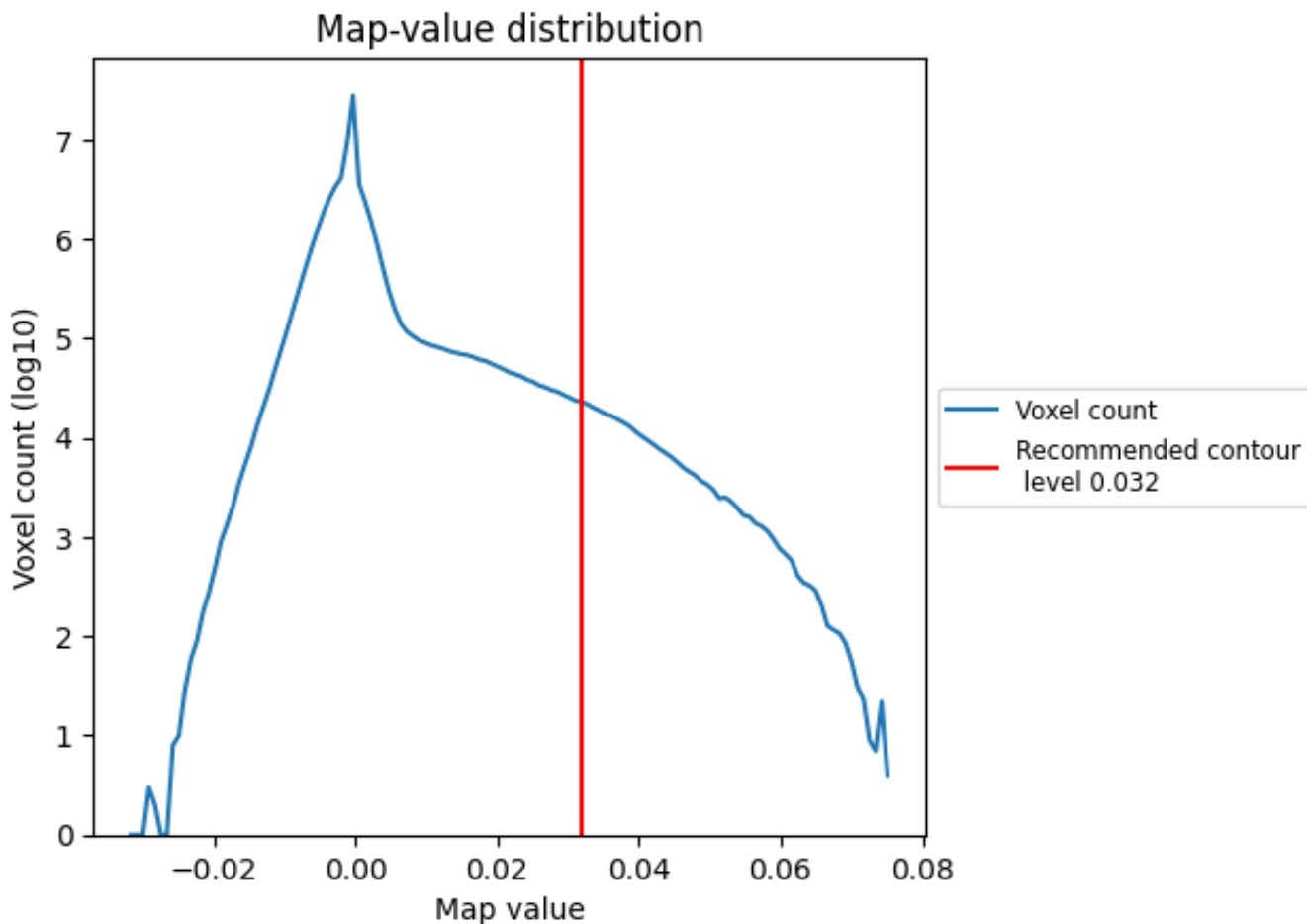
## 6.5 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

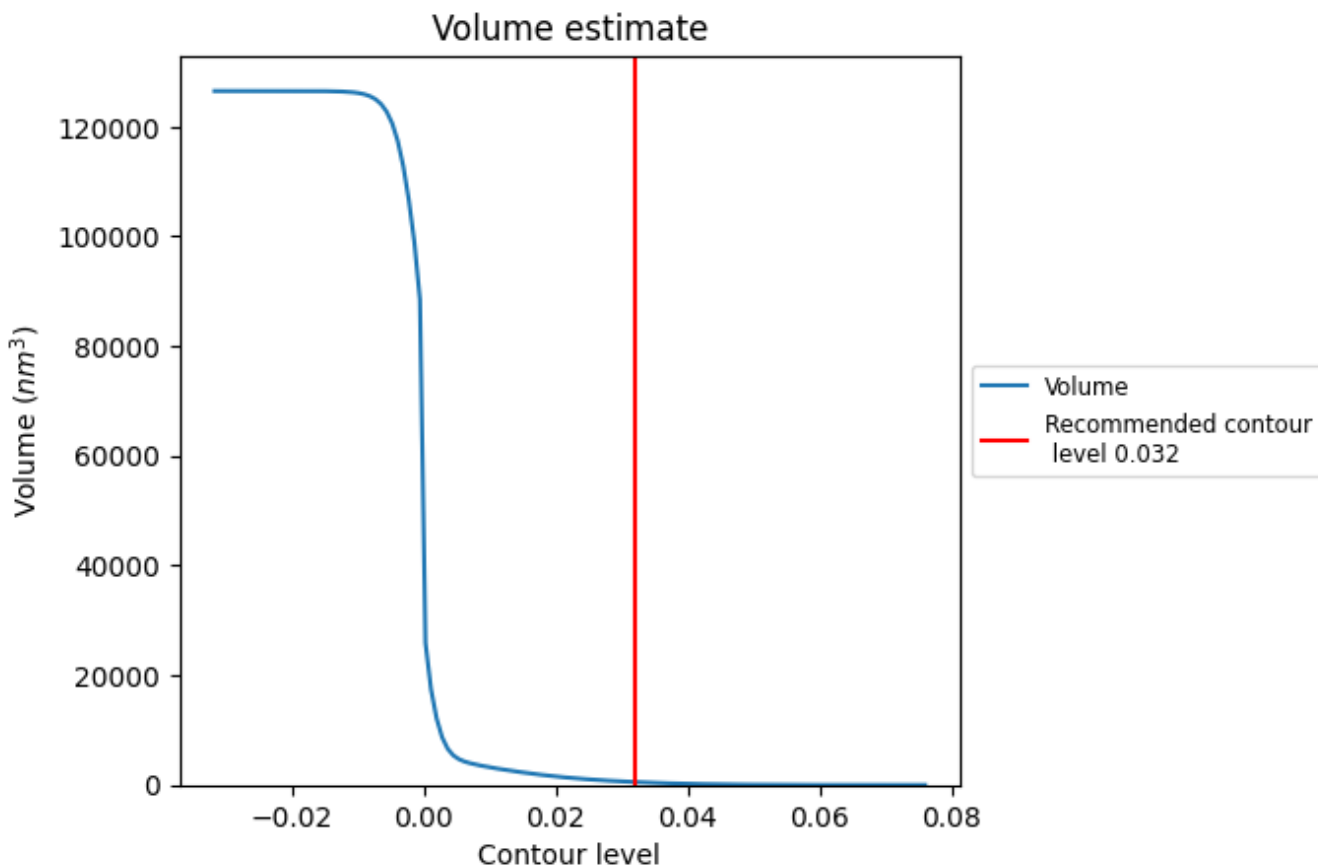
This section contains the results of statistical analysis of the map.

### 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.

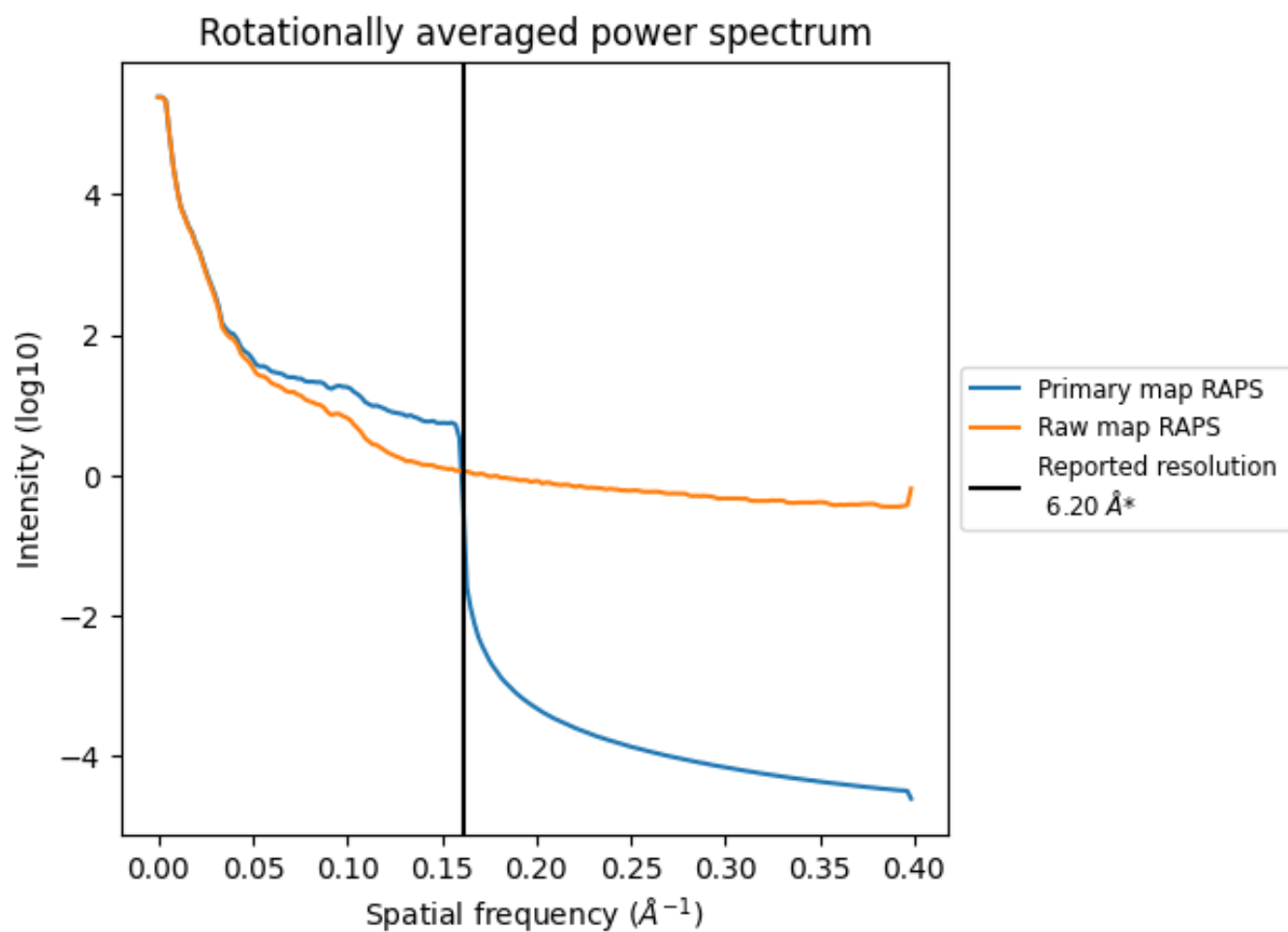
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 533  $\text{nm}^3$ ; this corresponds to an approximate mass of 482 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

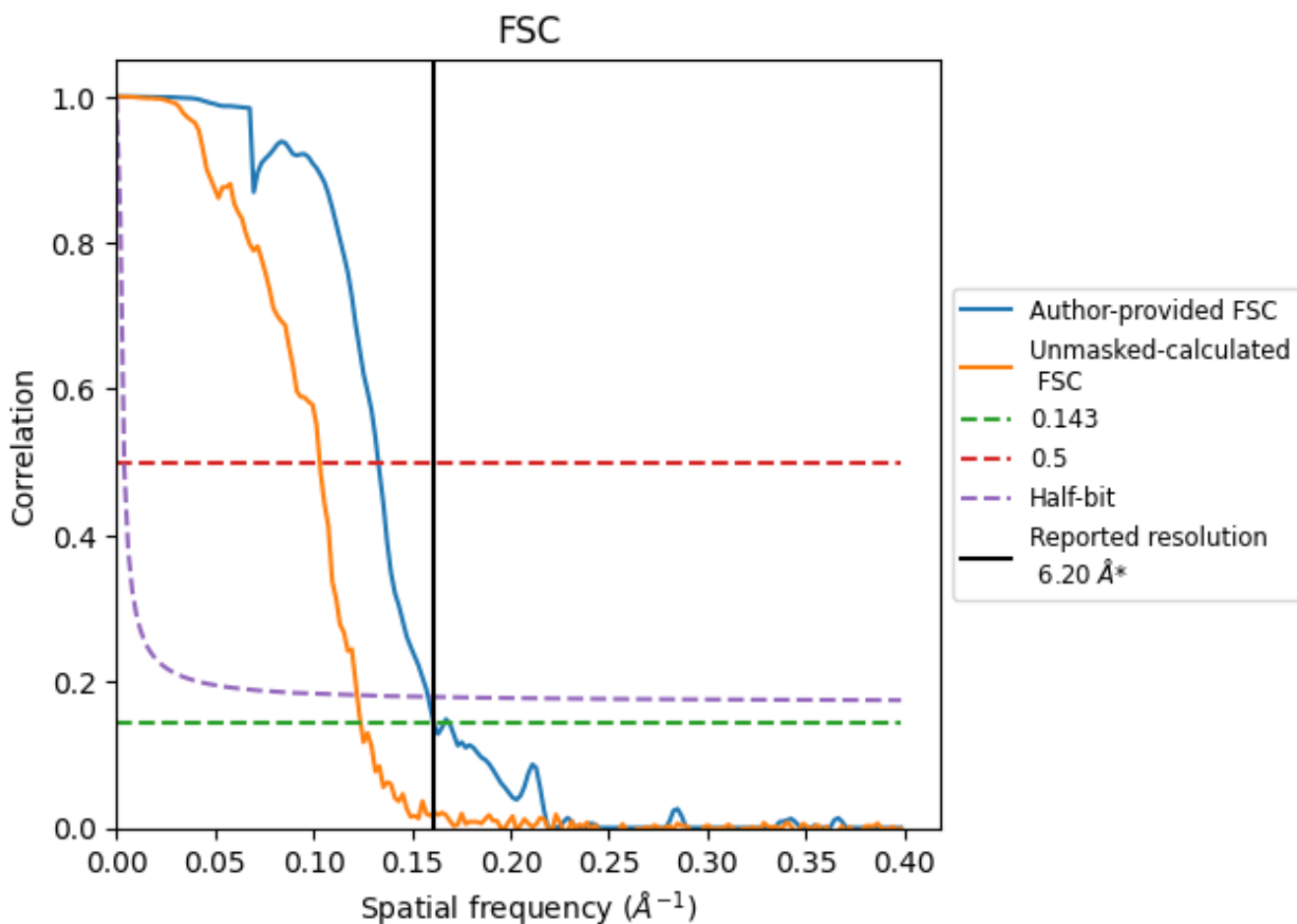


\*Reported resolution corresponds to spatial frequency of 0.161 Å<sup>-1</sup>

## 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 0.161 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

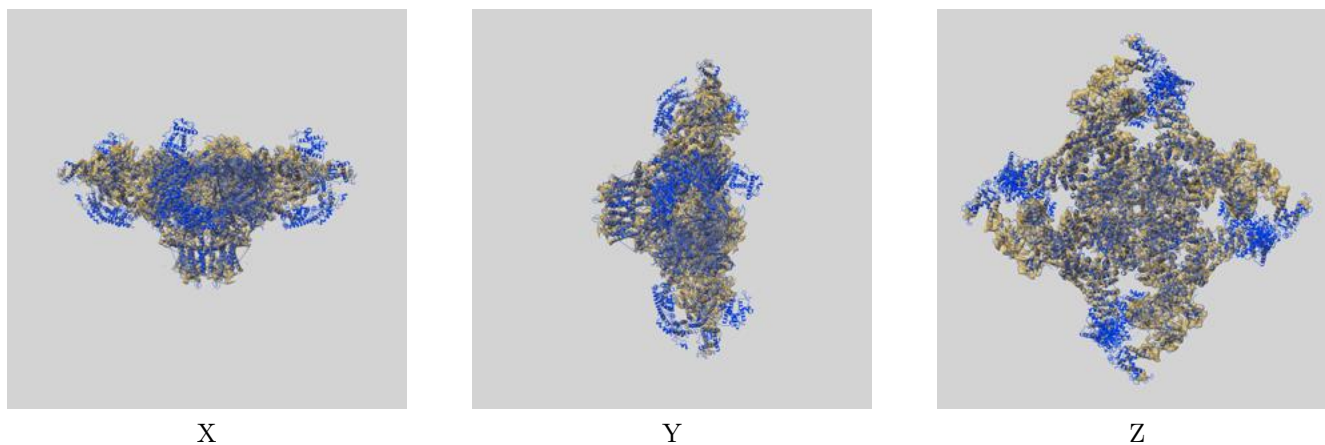
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.20	-	-
Author-provided FSC curve	6.21	7.52	6.32
Unmasked-calculated*	8.06	9.69	8.18

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 8.06 differs from the reported value 6.2 by more than 10 %

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

This section contains information regarding the fit between EMDB map EMD-8385 and PDB model 5TAU. Per-residue inclusion information can be found in section 3 on page 6.

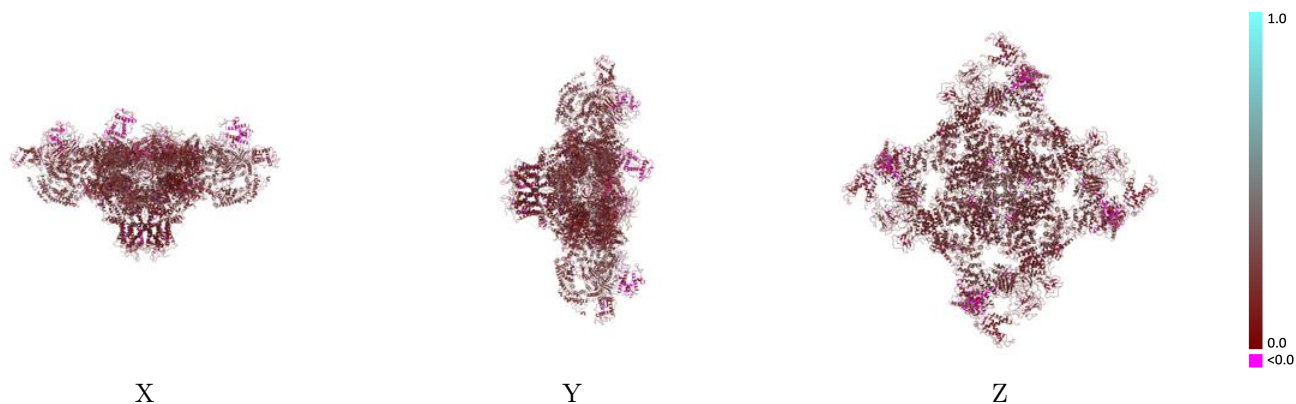
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.032 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.

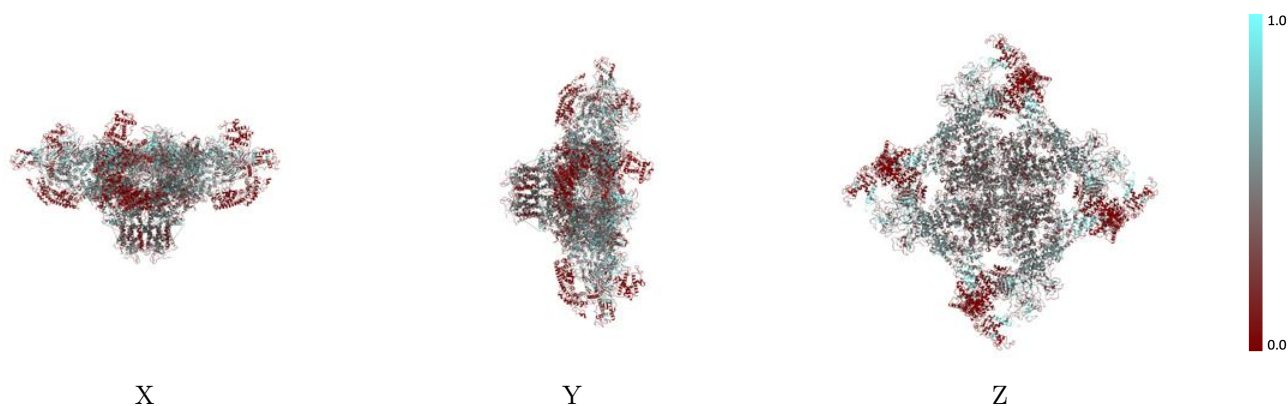


## 9.2 Q-score mapped to coordinate model [\(i\)](#)



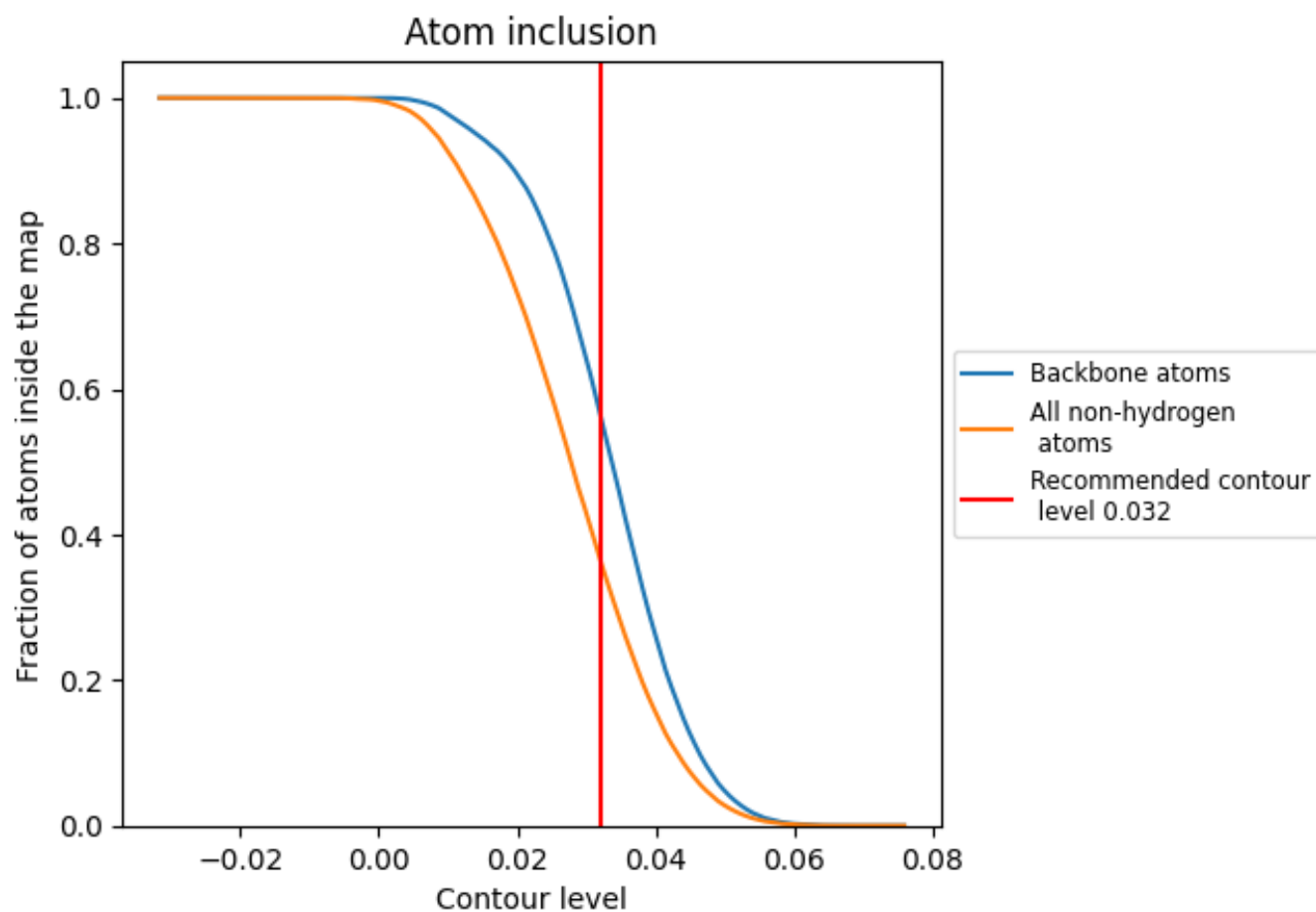
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.032).



















## 9.4 Atom inclusion [i](#)



At the recommended contour level, 56% 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 (0.032) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3655	 0.1880
A	 0.3958	 0.1860
B	 0.3645	 0.1880
E	 0.3644	 0.1880
F	 0.3983	 0.1900
G	 0.3650	 0.1880
H	 0.3933	 0.1890
I	 0.3650	 0.1880
J	 0.3871	 0.1880

