Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 02:18 PM JST

PDB ID	:	7CF9
EMDB ID	:	EMD-30343
Title	:	Structure of RyR1 (Ca2+/CHL)
Authors	:	Ma, R.; Haji-Ghassemi, O.; Ma, D.; Lin, L.; Samurkas, A.; Van Petegem, F.; Yuchi, Z.
Deposited on	:	2020-06-24
Resolution	:	4.70 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

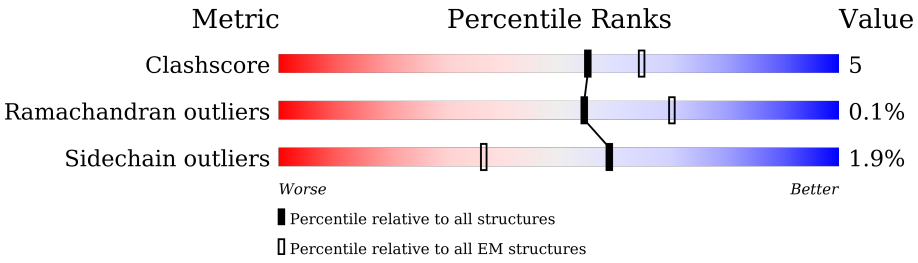
EMDB validation analysis	:	0.0.1.dev70
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 4.70 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	5037	18% 67% 11% 22%
1	C	5037	18% 67% 11% 22%
1	E	5037	18% 67% 11% 22%
1	G	5037	18% 67% 11% 22%
2	B	107	10% 77% 21%
2	D	107	11% 74% 24%
2	F	107	10% 72% 26%
2	H	107	9% 77% 21%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 116104 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Ryanodine receptor 1,RyR1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	3949	Total 28192	C 17975	N 5027	O 5013	S 177	0	0
1	C	3949	Total 28192	C 17975	N 5027	O 5013	S 177	0	0
1	E	3949	Total 28192	C 17975	N 5027	O 5013	S 177	0	0
1	G	3949	Total 28192	C 17975	N 5027	O 5013	S 177	0	0

- Molecule 2 is a protein called Peptidyl-prolyl cis-trans isomerase FKBP1B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	107	Total 804	C 510	N 144	O 146	S 4	0	0
2	D	107	Total 804	C 510	N 144	O 146	S 4	0	0
2	F	107	Total 804	C 510	N 144	O 146	S 4	0	0
2	H	107	Total 804	C 510	N 144	O 146	S 4	0	0

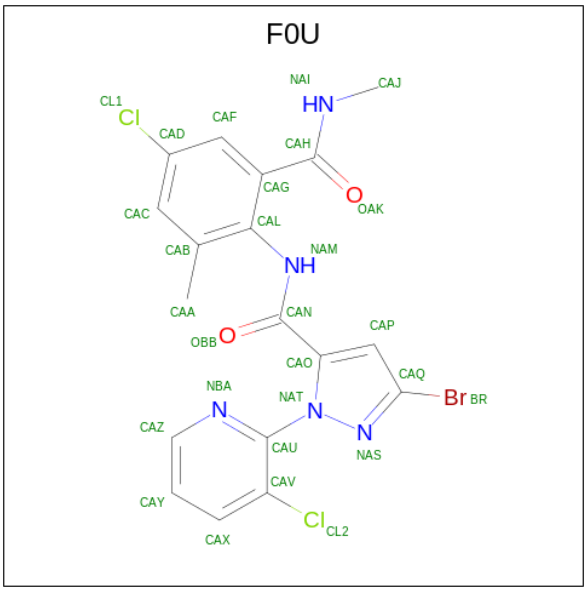
- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

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

- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 5 is 5-bromanyl-N-[4-chloranyl-2-methyl-6-(methylcarbamoyl)phenyl]-2-(3-chloranylpyridin-2-yl)pyrazole-3-carboxamide (three-letter code: F0U) (formula: $C_{18}H_{14}BrCl_2N_5O_2$) (labeled as "Ligand of Interest" by depositor).



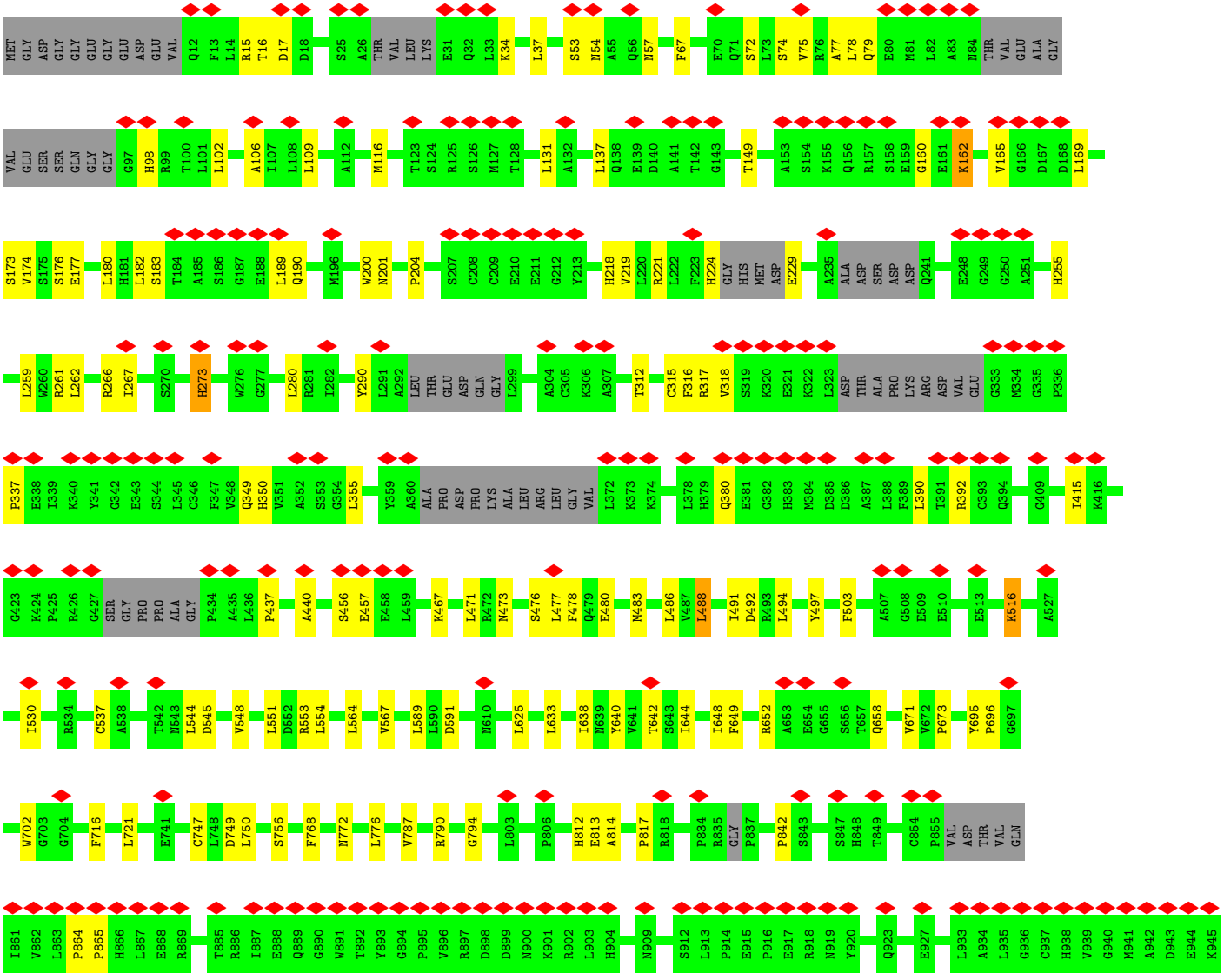
Mol	Chain	Residues	Atoms	AltConf
5	A	1	Total Br C Cl N O 28 1 18 2 5 2	0
5	C	1	Total Br C Cl N O 28 1 18 2 5 2	0
5	E	1	Total Br C Cl N O 28 1 18 2 5 2	0
5	G	1	Total Br C Cl N O 28 1 18 2 5 2	0

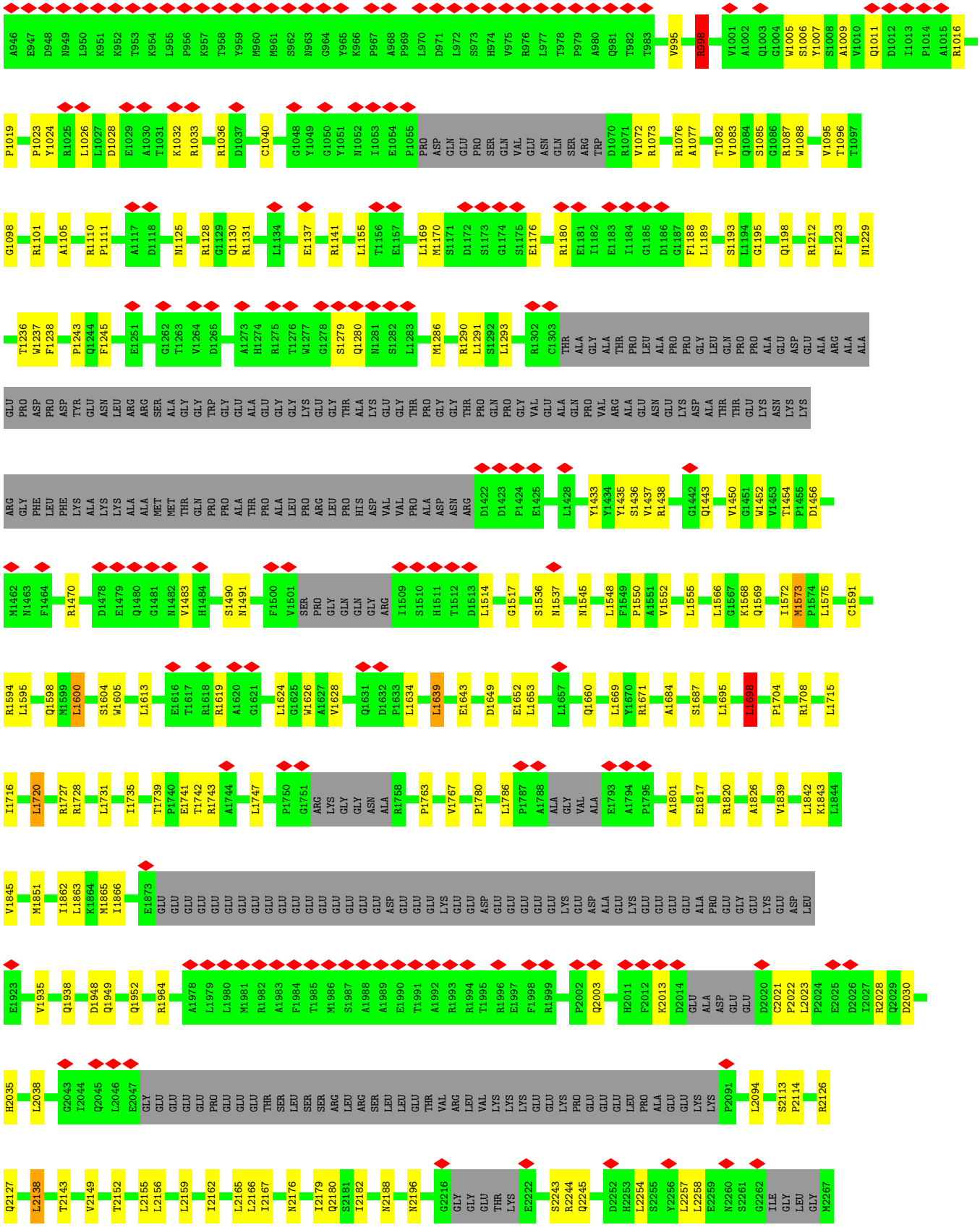
3 Residue-property plots (i)

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: Ryanodine receptor 1,RyR1

Chain A:

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P1019 P1023 Y1024 R1025 L1026 L1027 D1028 E1029 A1030 T1031 K1032 R1033 R1036 D1037 C1040 G1048 Y1049 G1050 Y1051 N1052 I1053 E1054 P1055 PRO ASP GLN GLU PRO SER GLN VAL GLU ASN GLN SER ARG TRP D1070 R1071 V1072 R1073 R1076 A1077 T1082 V1083 Q1084 S1085 G1086 R1087 W1088 V1095 T1096 T1097
G1098 R1101 A1105 R1110 P1111 A1117 D1118 N1125 R1128 G1129 Q1130 R1131 L1134 E1137 R1141 L1155 T1156 E1157 L1169 M1170 S1171 D1172 S1173 G1174 S1175 E1176 R1180 E1181 T1182 E1183 I1184 G1185 D1186 G1187 F1188 L1189 S1193 L1194 G1195 Q1198 R1212 F1223 N1229
T1236 W1237 F1238 P1243 Q1244 F1245 E1251 G1262 T1263 V1264 D1265 A1273 H1274 R1275 T1276 W1277 G1278 S1279 Q1280 N1281 S1282 L1283 M1286 R1290 L1291 S1292 L1293 R1302 C1303 THR ALA GLY ALA THR PRO LEU ALA PRO PRO GLY LEU GLN PRO PRO ALA GLU ASP GLU ALA ARG ALA ALA
GLU PRO ASP PRO ASP TYR GLU ASN LEU ARG ARG SER ALA GLY GLY TRP GLY GLU ALA GLU GLY GLY LYS GLU GLY THR ALA LYS GLU GLY THR PRO GLN PRO GLY GLY THR PRO GLY VAL GLU ALA GLN PRO VAL ARG ALA GLU ASN GLU LYS ASP ALA THR THR GLU LYS ASN LYS LYS
ARG GLY PHE LEU PHE LYS ALA LYS LYS ALA ALA MET MET THR GLN PRO PRO ALA THR PRO ALA LEU PRO PRO ARG LEU PRO HIS ASP VAL VAL PRO ALA ASP ASN ARG D1422 D1423 P1424 E1425 L1428 Y1433 Y1434 Y1435 S1436 V1437 R1438 G1442 Q1443 V1450 G1451 W1452 V1453 T1454 P1455 D1456
M1462 N1463 F1464 R1470 D1478 E1479 Q1480 G1481 N1482 V1483 H1484 S1490 N1491 F1500 V1501 SER PRO GLY GLN GLN GLY ARG I1509 S1510 H1511 T1512 D1513 L1514 G1517 S1536 N1537 N1545 L1548 F1549 P1550 A1551 V1552 L1555 L1566 G1567 K1568 Q1569 I1572 M1573 P1574 L1575 C1591
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I1716 L1720 R1727 R1728 L1731 I1735 T1739 P1740 E1741 T1742 R1743 A1744 L1747 P1750 G1751 ARG LYS GLY GLY ASN ALA R1758 P1763 V1767 P1780 L1786 P1787 A1788 ALA GLY VAL ALA E1793 A1794 P1795 A1801 E1817 R1820 A1826 V1839 L1842 K1843 L1844
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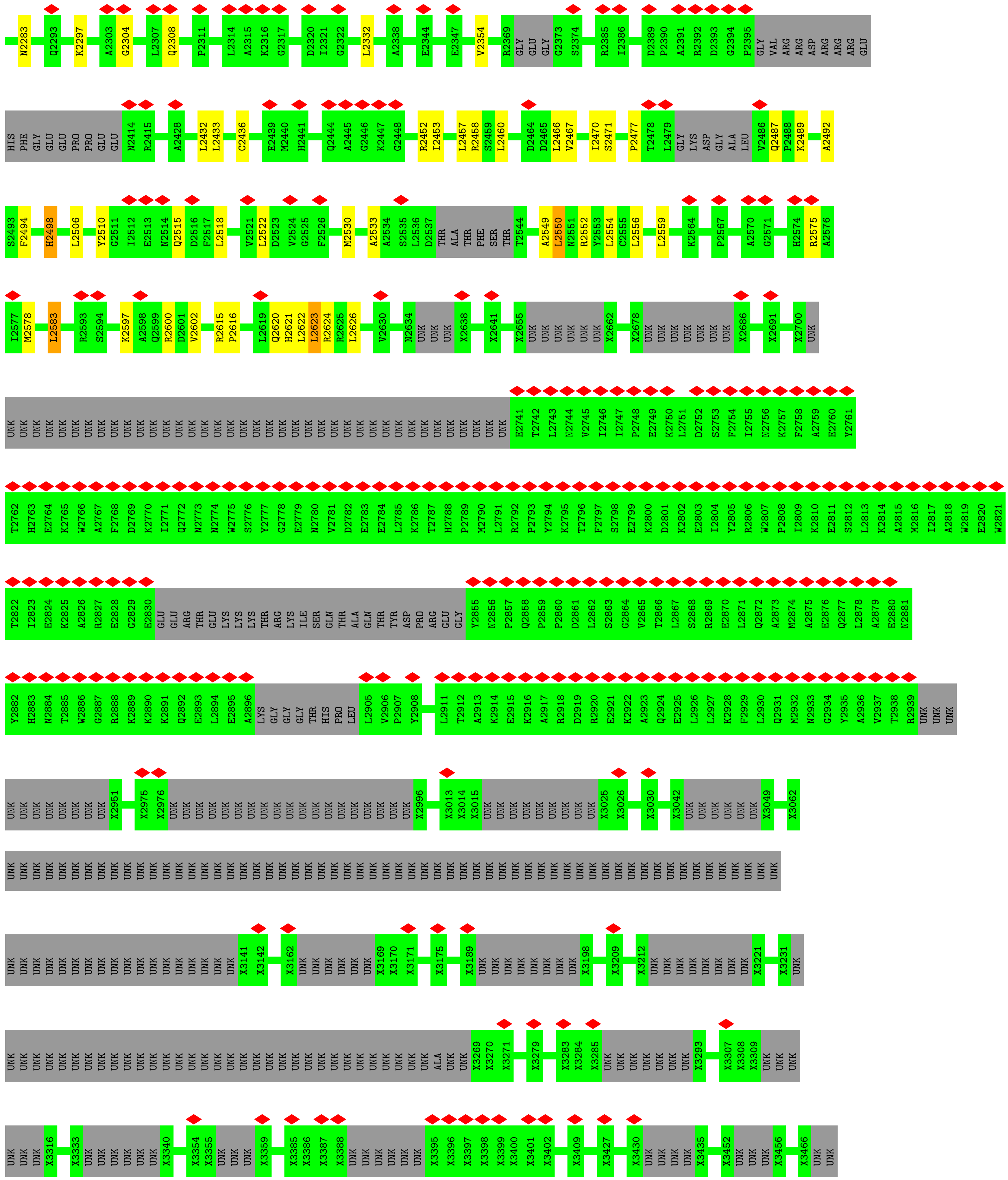
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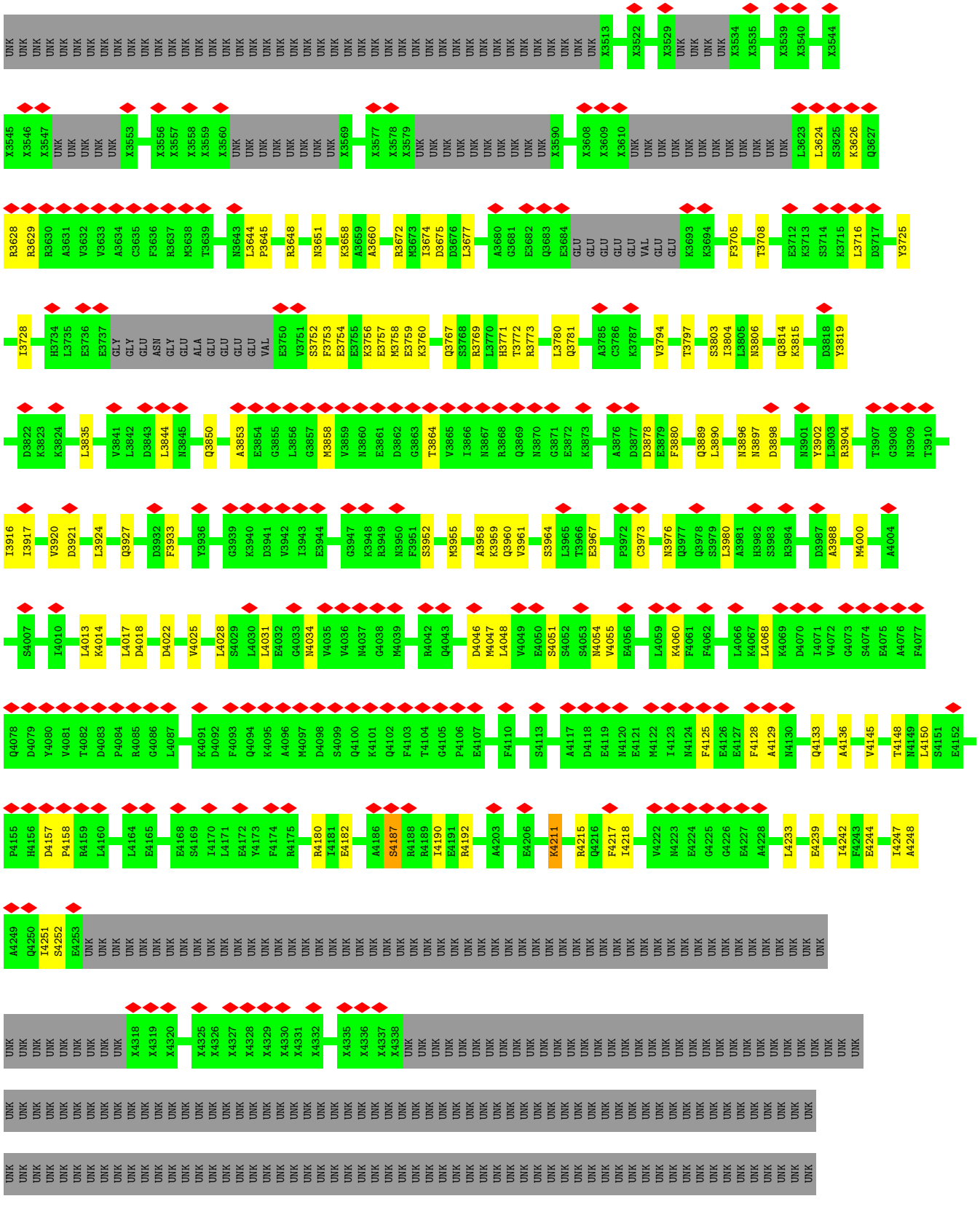
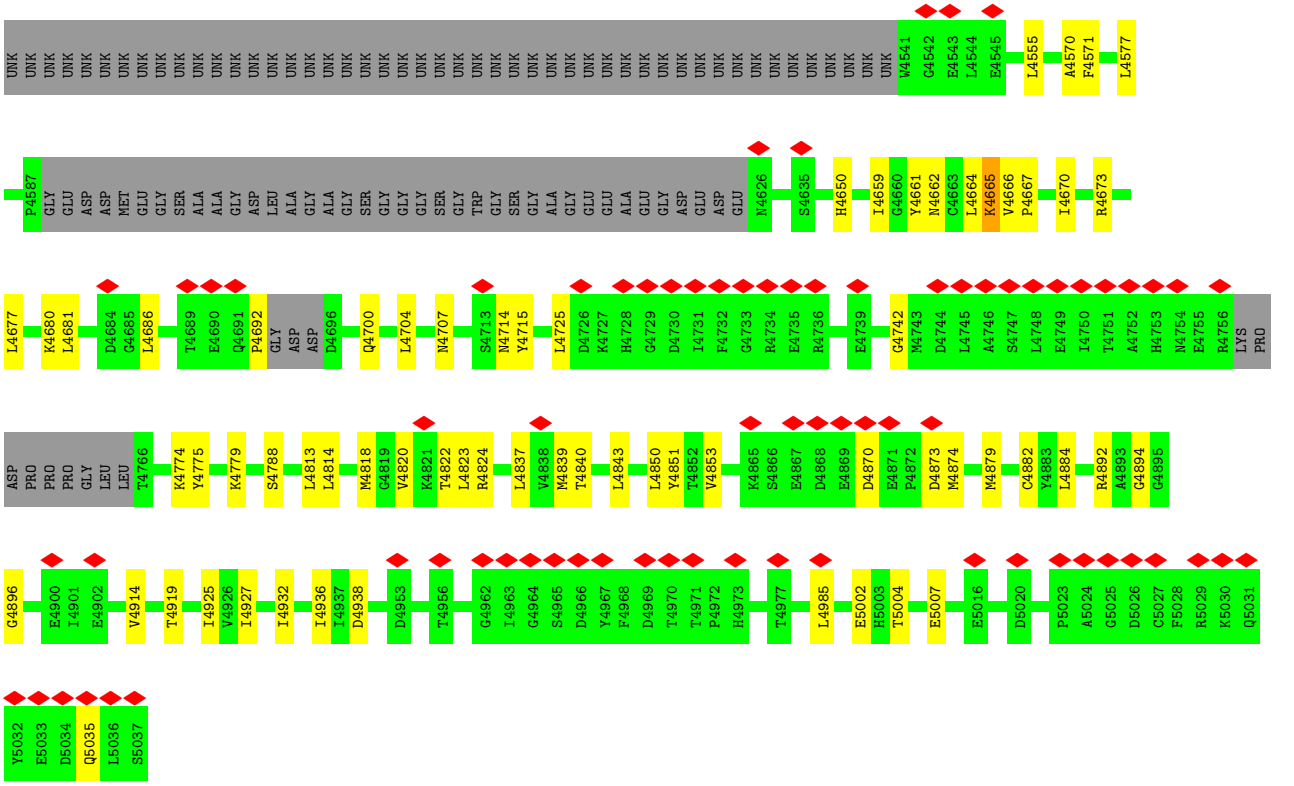
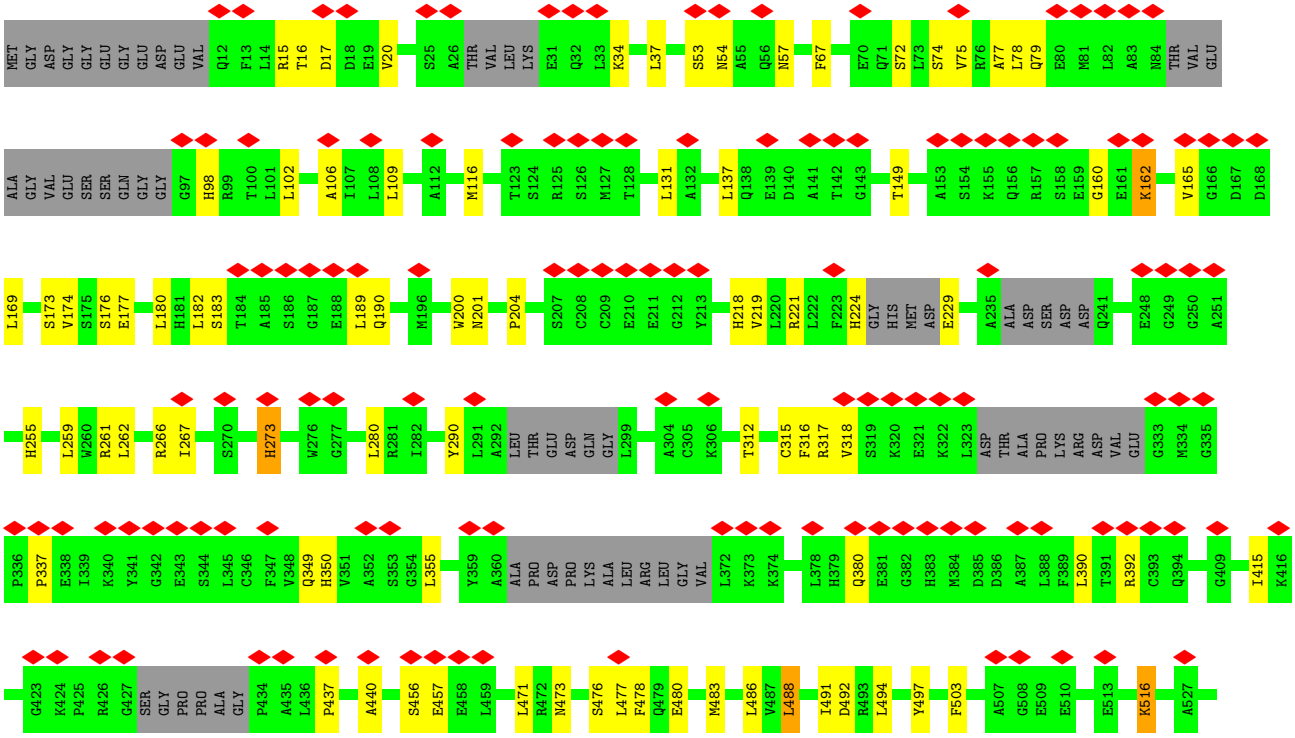
HIS PHE GLY GLU GLU PRO PRO GLU GLU N2414 R2415 A2428 L2432 L2433 C2436 E2439 M2440 H2441 Q2444 A2445 G2446 K2447 G2448 R2452 I2453 L2457 R2458 S2459 L2460 D2464 D2465 L2466 V2467 I2470 S2471 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 P2488 K2489 A2492
S2493 F2494 H2498 L2506 Y2510 G2511 I2512 E2513 N2514 Q2515 D2516 F2517 L2518 V2521 L2522 D2523 V2524 G2525 F2526 M2530 A2533 A2534 S2535 L2536 D2537 THR ALA THR PHE SER THR T2544 A2549 L2550 N2551 R2552 Y2553 L2554 C2555 L2556 L2559 K2564 P2567 A2570 G2571 H2574 R2575 A2576
I2577 M2578 L2583 R2593 S2594 K2597 A2598 Q2599 R2600 D2601 V2602 R2615 P2616 L2619 Q2620 H2621 L2622 L2623 R2624 R2625 L2626 V2630 N2634 UNK UNK UNK X2638 X2641 X2655 UNK UNK UNK UNK UNK UNK X2662 X2678 UNK UNK UNK UNK UNK UNK UNK X2686 X2691 X2700 UNK
UNK ×39 E2741 T2742 L2743 N2744 V2745 I2746 I2747 P2748 E2749 K2750 L2751 D2752 S2753 F2754 I2755 N2756 K2757 F2758 A2759 E2760 Y2761
T2762 H2763 E2764 K2765 W2766 A2767 F2768 D2769 K2770 I2771 Q2772 N2773 N2774 W2775 S2776 Y2777 G2778 E2779 N2780 V2781 D2782 E2783 E2784 L2785 K2786 T2787 H2788 P2789 M2790 L2791 R2792 P2793 Y2794 K2795 T2796 F2797 S2798 E2799 K2800 D2801 K2802 E2803 I2804 Y2805 R2806 W2807 P2808 I2809 K2810 E2811 S2812 L2813 K2814 A2815 M2816 I2817 A2818 W2819 E2820 W2821
T2822 I2823 E2824 K2825 A2826 R2827 E2828 G2829 E2830 GLU GLU ARG THR GLU LYS LYS LYS THR ARG LYS ILE SER GLN THR ALA GLN 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 A2875 E2876 Q2877 L2878 A2879 E2880 N2881
Y2882 H2883 N2884 T2885 W2886 G2887 R2888 K2889 K2890 K2891 Q2892 E2893 L2894 E2895 A2896 LYS GLY GLY GLY THR HIS PRO LEU L2905 V2906 P2907 Y2908 L2911 T2912 A2913 K2914 E2915 K2916 A2917 R2918 D2919 R2920 E2921 K2922 A2923 Q2924 E2925 L2926 L2927 K2928 F2929 L2930 Q2931 M2932 N2933 G2934 Y2935 A2936 V2937 T2938 R2939 UNK UNK UNK
UNK ×8 X2951 X2975 X2976 UNK ×19 X2996 X3013 X3014 X3015 UNK ×9 X3025 X3026 X3030 X3042 UNK ×6 X3049 X3062
UNK ×60
UNK ×18 X3141 X3142 X3162 UNK ×6 X3169 X3170 X3171 X3175 X3189 UNK ×8 X3198 X3209 X3212 UNK ×8 X3221 X3231 UNK
UNK ×34 ALA UNK X3269 X3270 X3271 X3279 X3283 X3284 X3285 UNK ×7 X3293 X3307 X3308 X3309 UNK UNK UNK
UNK UNK UNK X3316 X3333 UNK UNK UNK UNK UNK UNK X3340 X3354 X3355 UNK UNK X3359 X3385 X3386 X3387 X3388 UNK UNK UNK UNK UNK UNK X3395 X3396 X3397 X3398 X3399 X3400 X3401 X3402 X3409 X3427 X3430 UNK UNK UNK UNK X3435 X3452 UNK UNK UNK X3456 X3466 UNK UNK

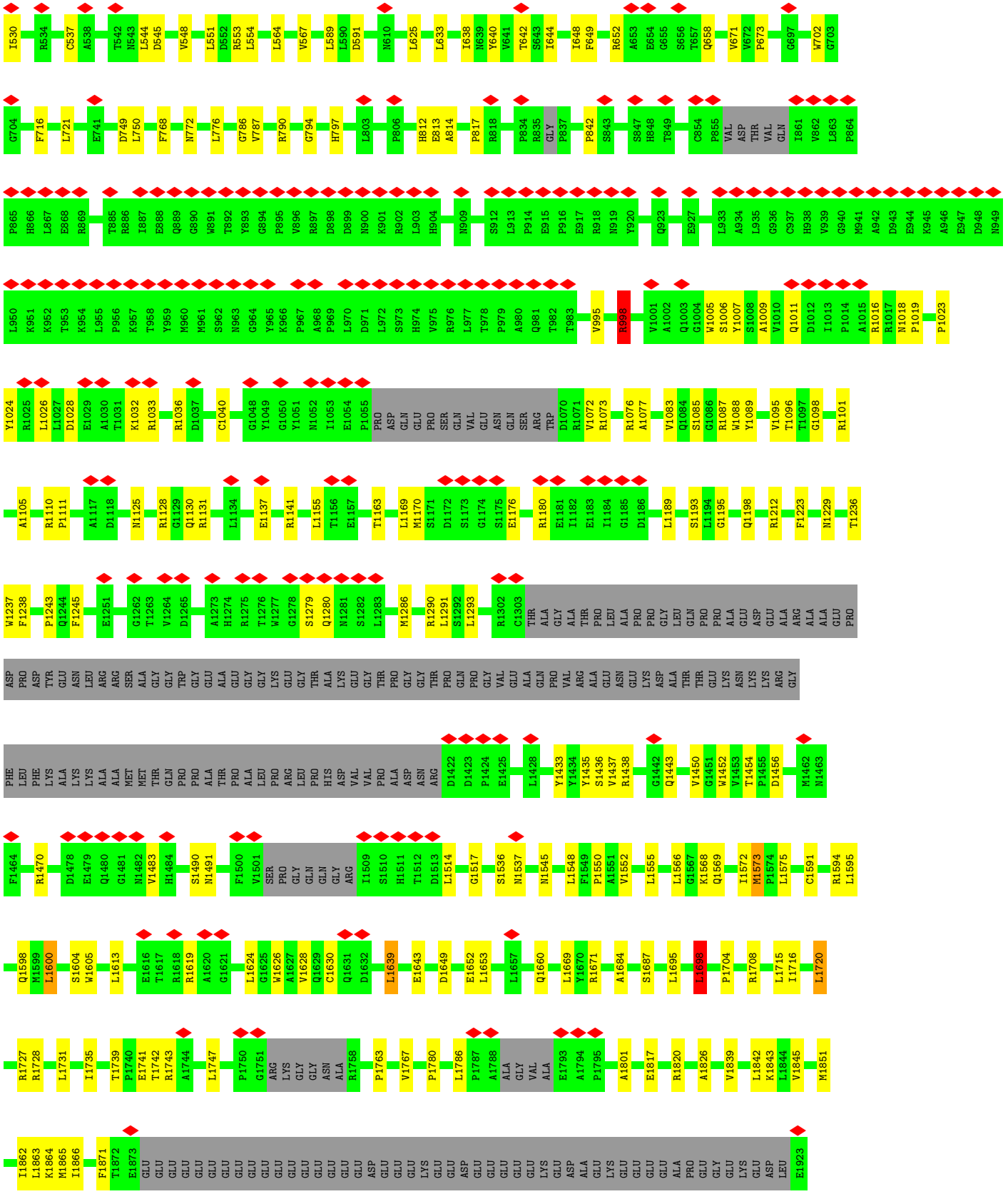




• Molecule 1: Ryanodine receptor 1,RyR1

Chain C:

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G704 F716 L721 E741 D749 L750 F768 N772 L776 G786 V787 R790 G794 H797 L803 P806 H812 E813 A814 P817 R818 P834 R835 GLY P837 P842 S843 S847 H848 T849 C854 P855 VAL ASP THR VAL GLN I861 V862 L863 P864
P865 H866 L867 E868 R869 T885 R886 I887 E888 Q889 G890 W891 T892 Y893 G894 P895 V896 R897 D898 D899 N900 K901 R902 L903 H904 N909 S912 L913 P914 E915 P916 E917 R918 N919 Y920 Q923 E927 L933 A934 L935 G936 C937 H938 V939 G940 M941 A942 D943 E944 K945 A946 E947 D948 N949
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W1237 F1238 P1243 Q1244 F1245 E1251 G1262 T1263 V1264 D1265 A1273 H1274 R1275 T1276 W1277 G1278 S1279 Q1280 N1281 S1282 L1283 M1286 R1290 L1291 S1292 L1293 R1302 C1303 THR ALA GLY ALA THR PRO LEU ALA PRO PRO GLY LEU GLN PRO PRO ALA GLU ASP GLU ALA ARG ALA ALA GLU PRO
ASP PRO ASP TYR GLU ASN LEU ARG ARG SER ALA GLY GLY TRP GLY GLU ALA GLU GLY GLY LYS GLU GLY THR ALA LYS GLU GLY THR PRO GLY GLY THR PRO GLN PRO GLY VAL GLU ALA GLN PRO VAL ARG ALA GLU ASN GLU LYS ASP ALA THR THR GLU LYS ASN LYS LYS ARG GLY
PHE LEU PHE LYS ALA LYS LYS ALA ALA MET MET THR GLN PRO PRO ALA THR PRO ALA LEU LEU PRO ARG LEU PRO HIS ASP VAL VAL PRO ALA ASP ASN ARG D1422 D1423 P1424 E1425 L1428 Y1433 Y1434 Y1435 S1436 V1437 R1438 G1442 Q1443 V1450 G1451 W1452 V1453 T1454 P1455 D1456 M1462 N1463
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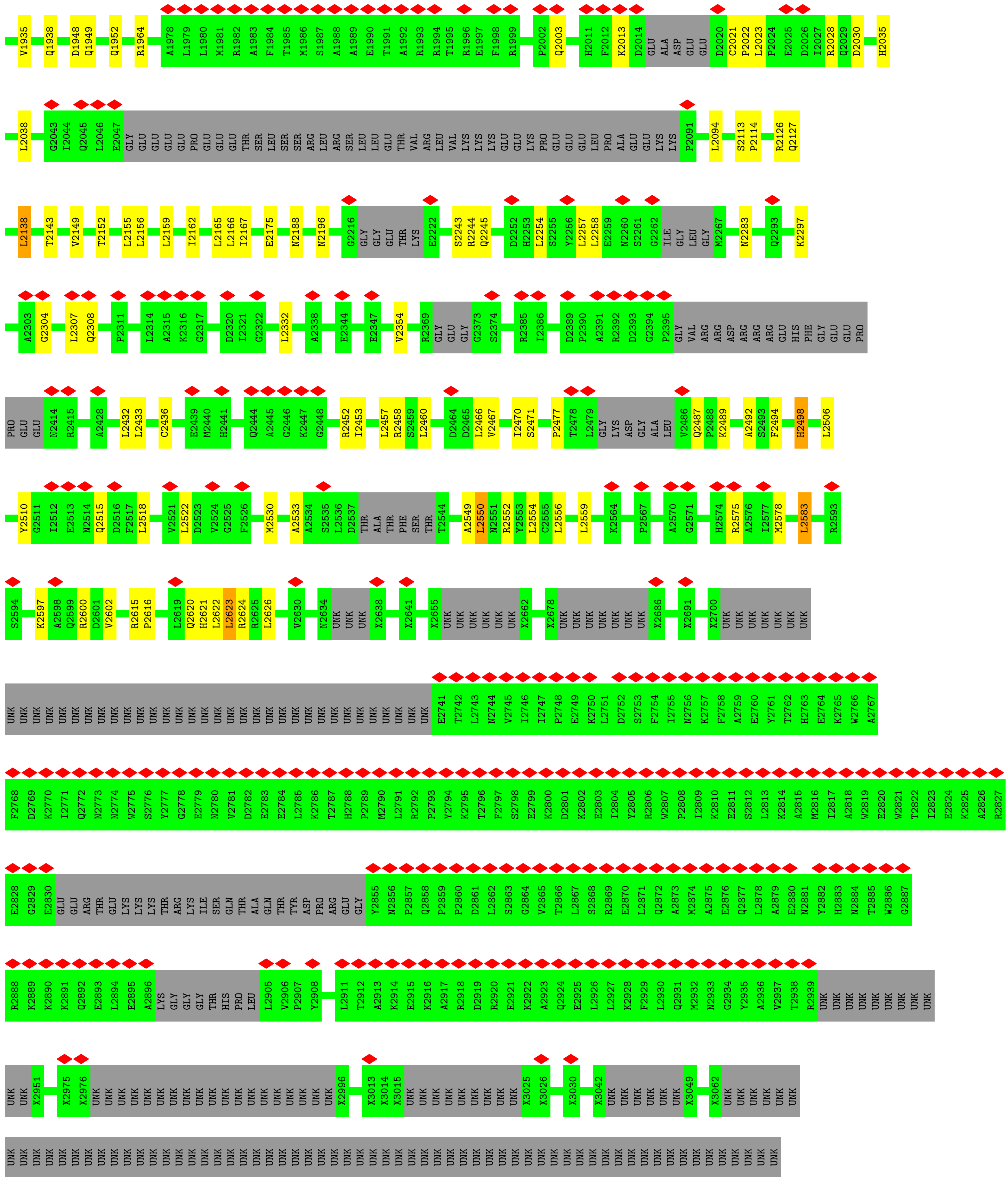
I1862 L1863 K1864 M1865 I1866 F1871 T1872 E1873 GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU ASP GLU GLU LYS GLU GLU ASP GLU GLU GLU GLU LYS GLU ASP ALA GLU LYS GLU GLU GLU GLU ALA PRO GLU GLY GLU LYS GLU ASP LEU E1923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L2038 G2043 I2044 Q2045 L2046 E2047 GLY GLU GLU GLU GLU PRO GLU GLU GLU THR SER LEU SER SER ARG LEU ARG SER LEU LEU GLU THR VAL ARG LEU VAL LYS LYS LYS GLU GLU LYS PRO GLU GLU GLU LEU PRO ALA GLU GLU LYS LYS P2091 L2094 S2113 P2114 R2126 Q2127
L2138 T2143 V2149 T2152 L2155 L2156 L2159 I2162 L2165 L2166 I2167 E2175 N2188 N2196 G2216 GLY GLY GLU THR LYS E2222 S2243 R2244 Q2245 D2252 H2253 L2254 S2255 Y2256 L2257 L2258 E2259 N2260 S2261 G2262 ILE GLY LEU GLY M2267 N2283 Q2293 K2297
A2303 G2304 L2307 Q2308 P2311 L2314 A2315 K2316 G2317 D2320 I2321 G2322 L2332 A2338 E2344 E2347 V2354 R2369 GLY GLU GLY G2373 S2374 R2385 I2386 D2389 P2390 A2391 R2392 D2393 G2394 P2395 GLY VAL ARG ARG ASP ARG ARG ARG GLU HIS PHE GLY GLU GLU PRO
PRO GLU GLU N2414 R2415 A2428 L2432 L2433 C2436 E2439 M2440 H2441 Q2444 A2445 G2446 K2447 G2448 R2452 I2453 L2457 R2458 S2459 L2460 D2464 D2465 L2466 V2467 I2470 S2471 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 P2488 K2489 A2492 S2493 F2494 H2498 L2506
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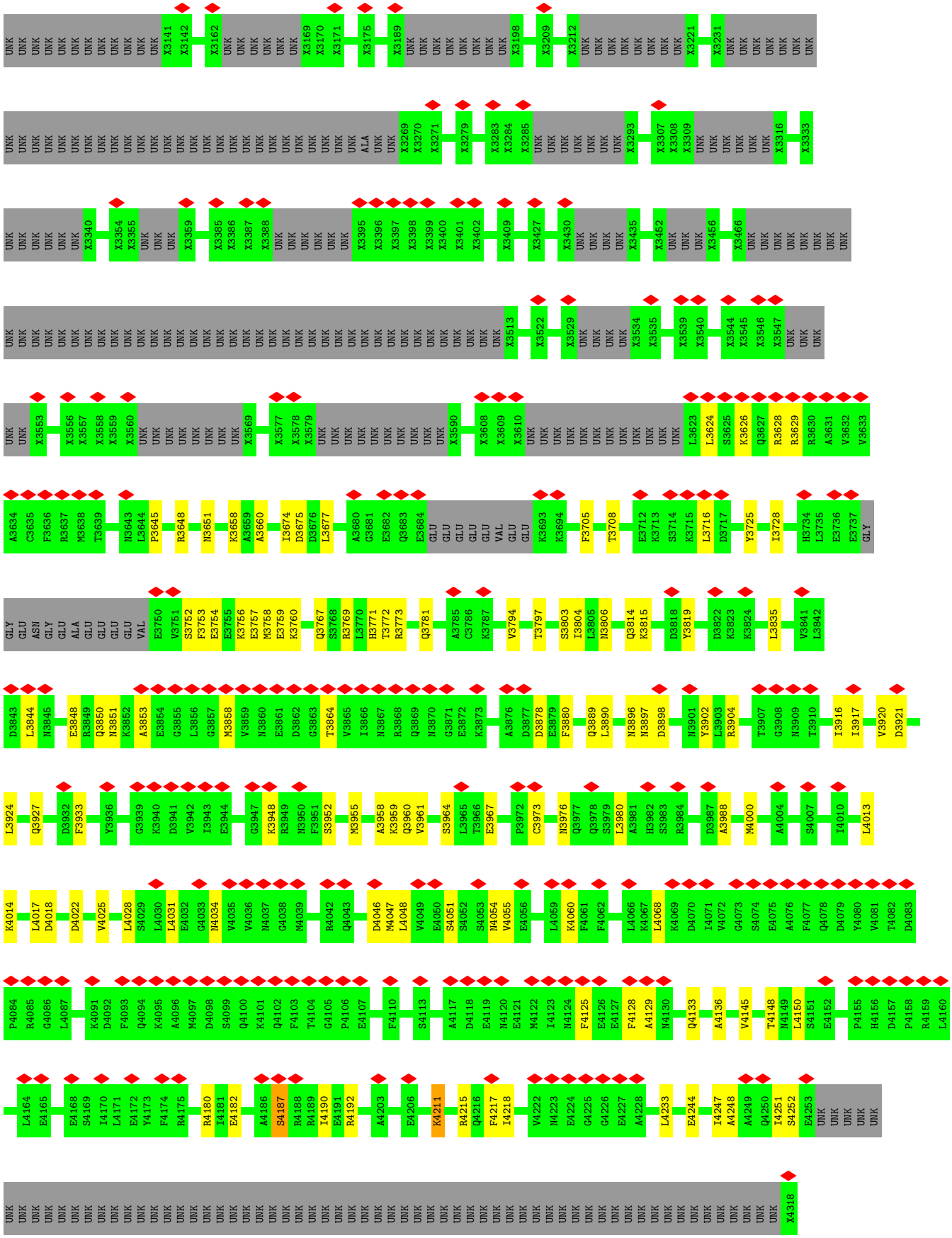
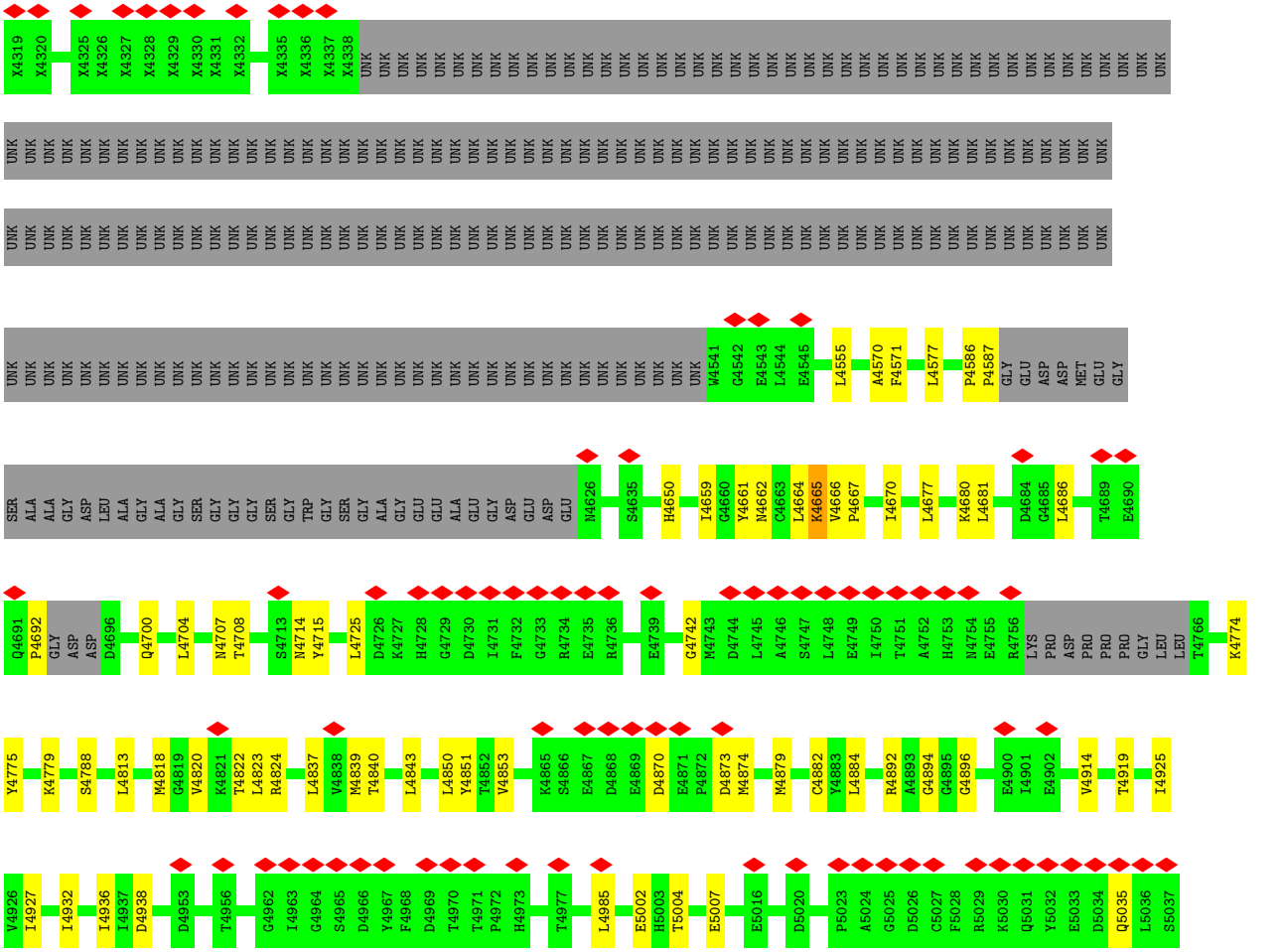
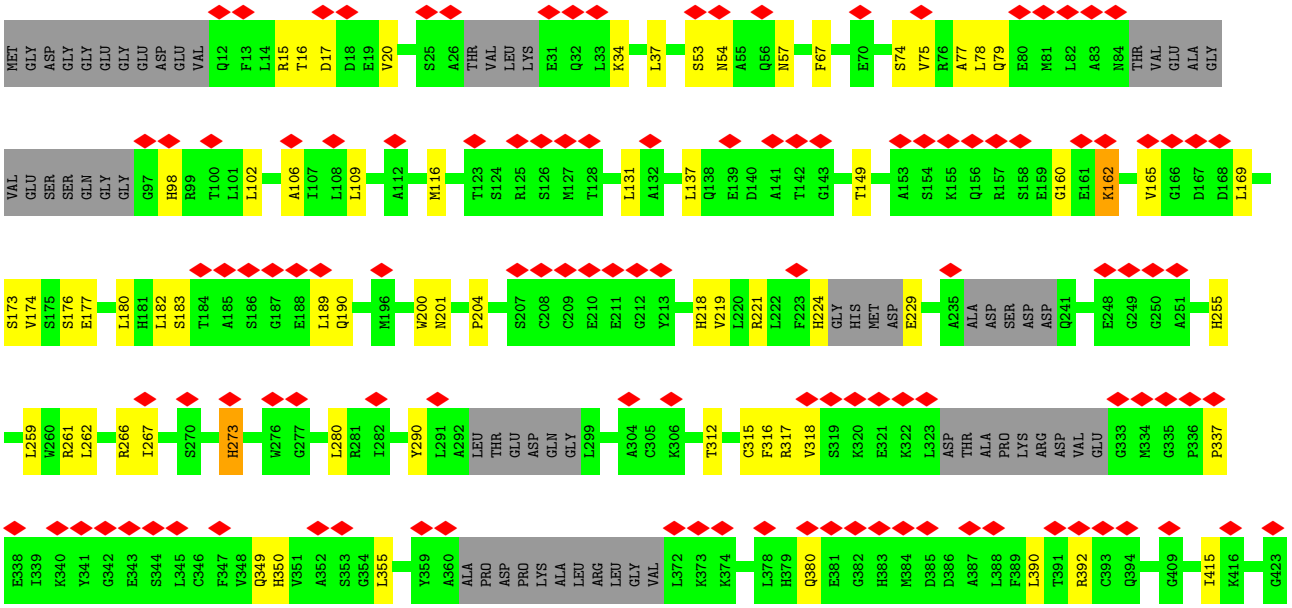
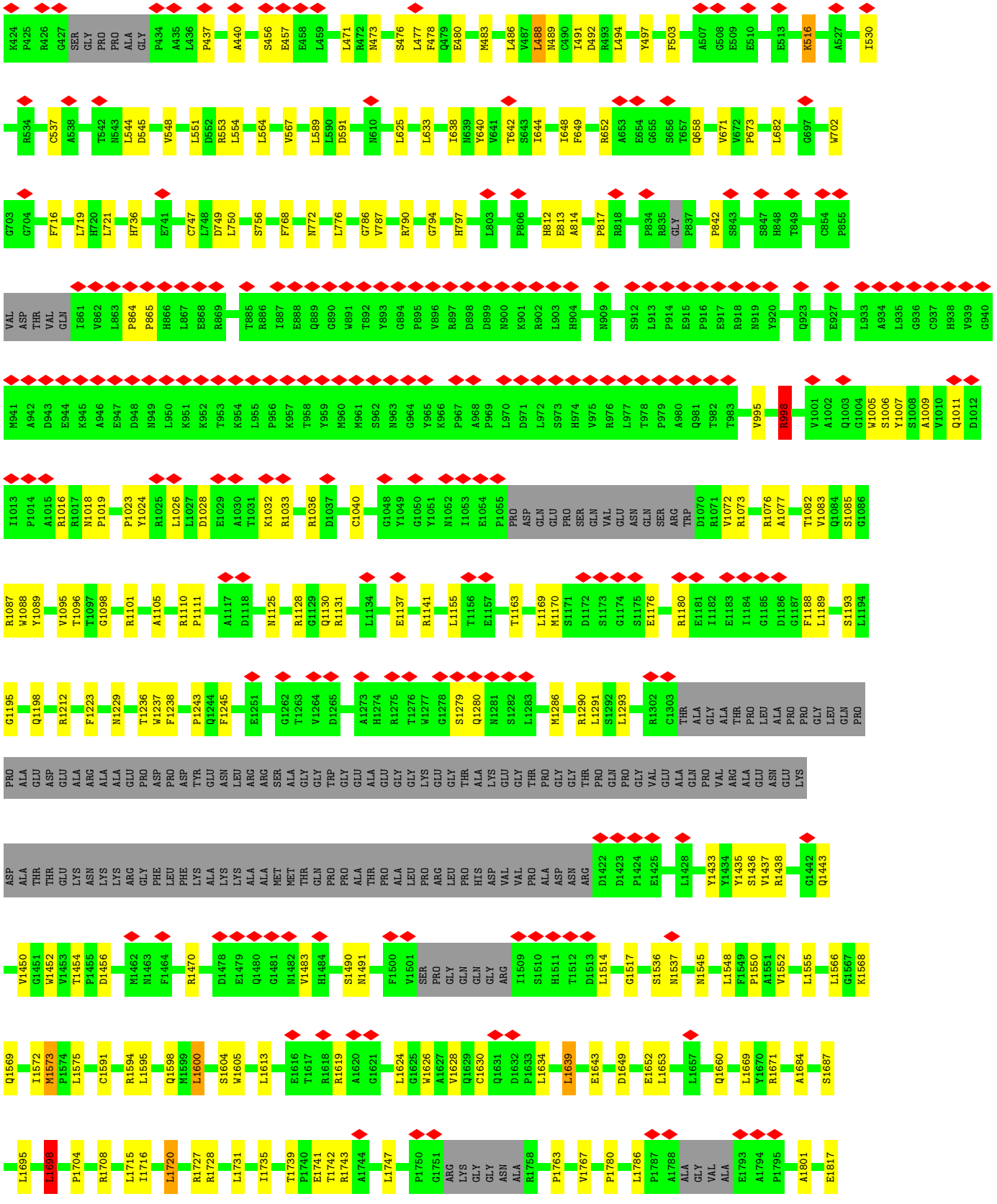




• Molecule 1: Ryanodine receptor 1,RyR1

Chain E:

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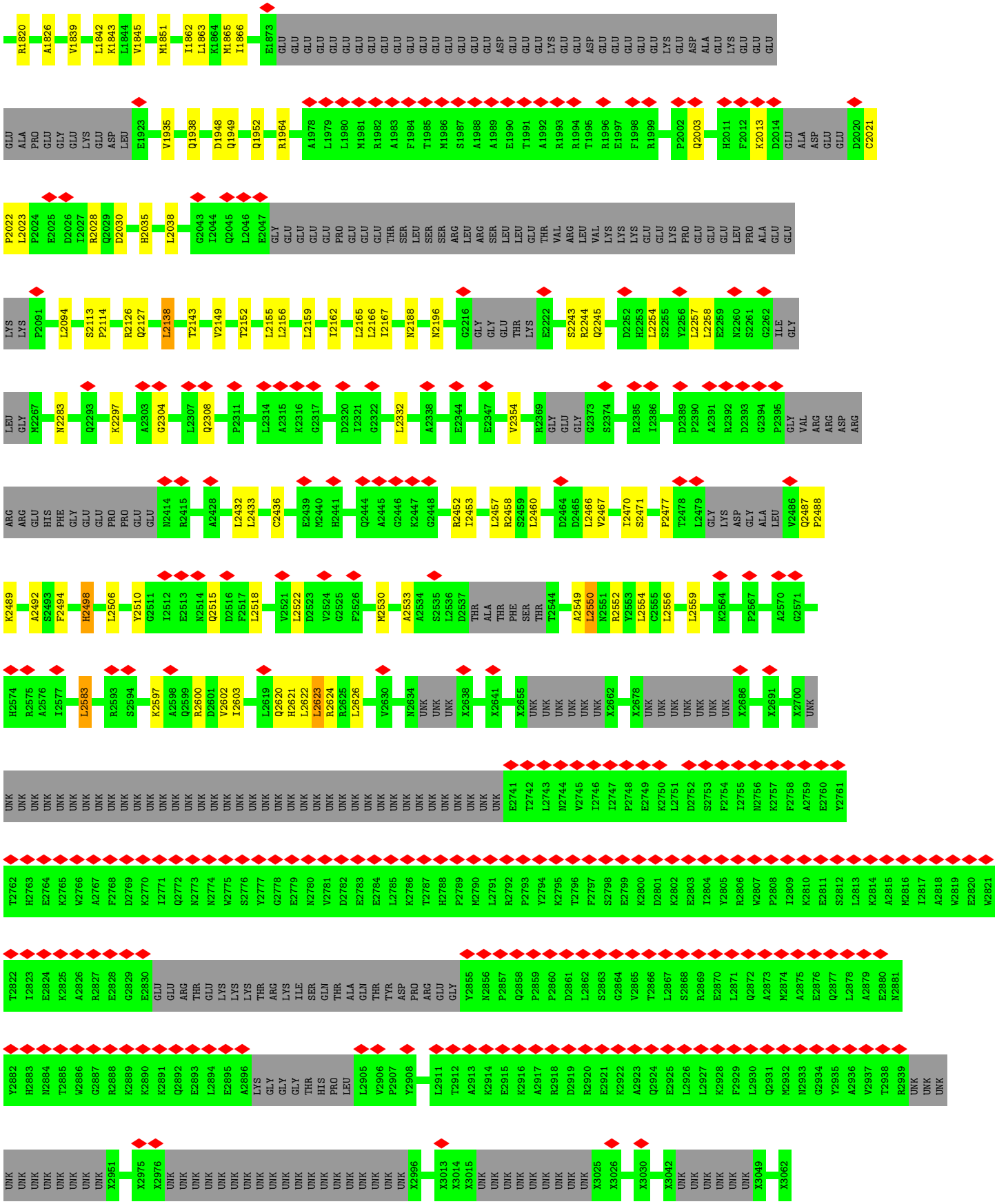
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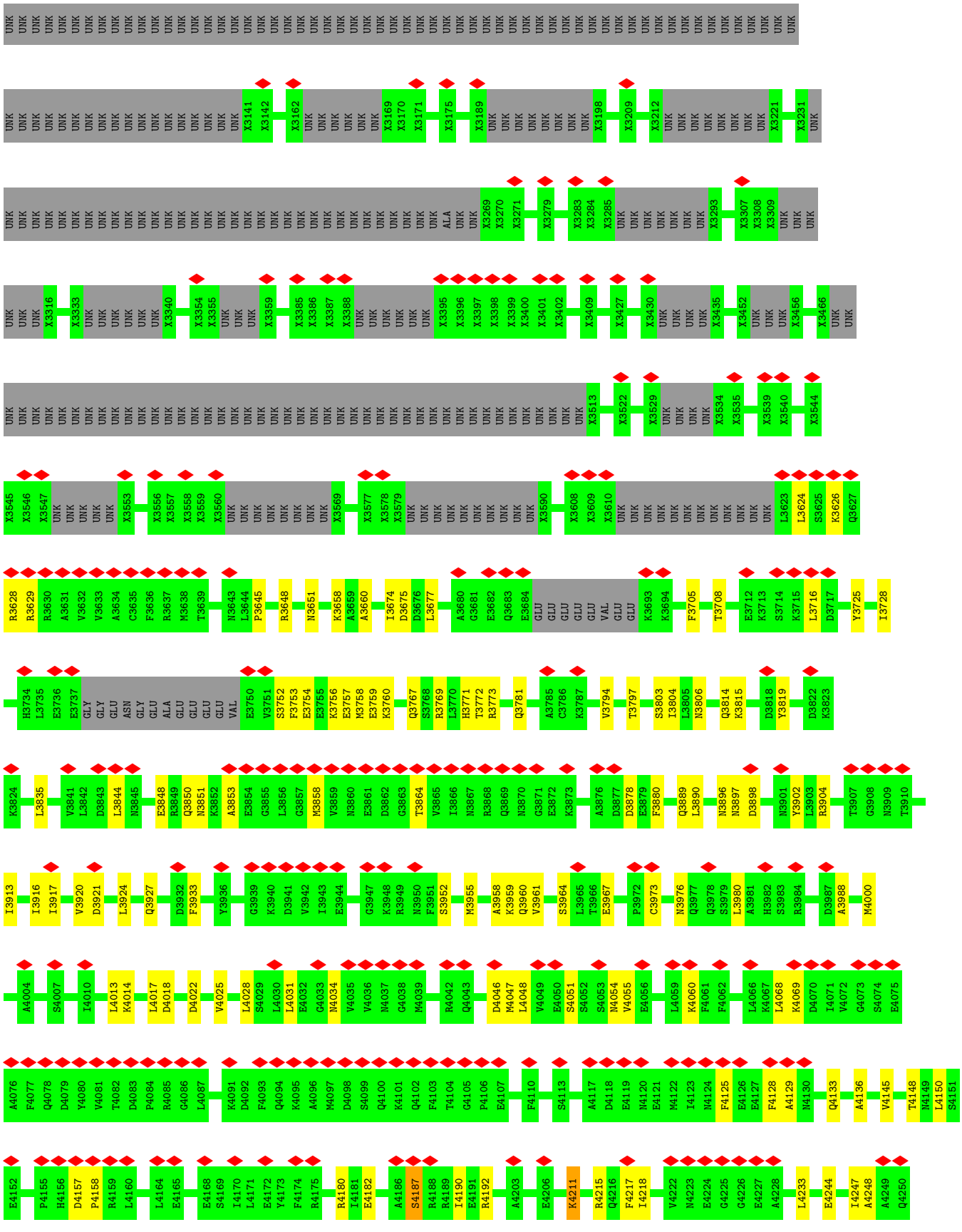
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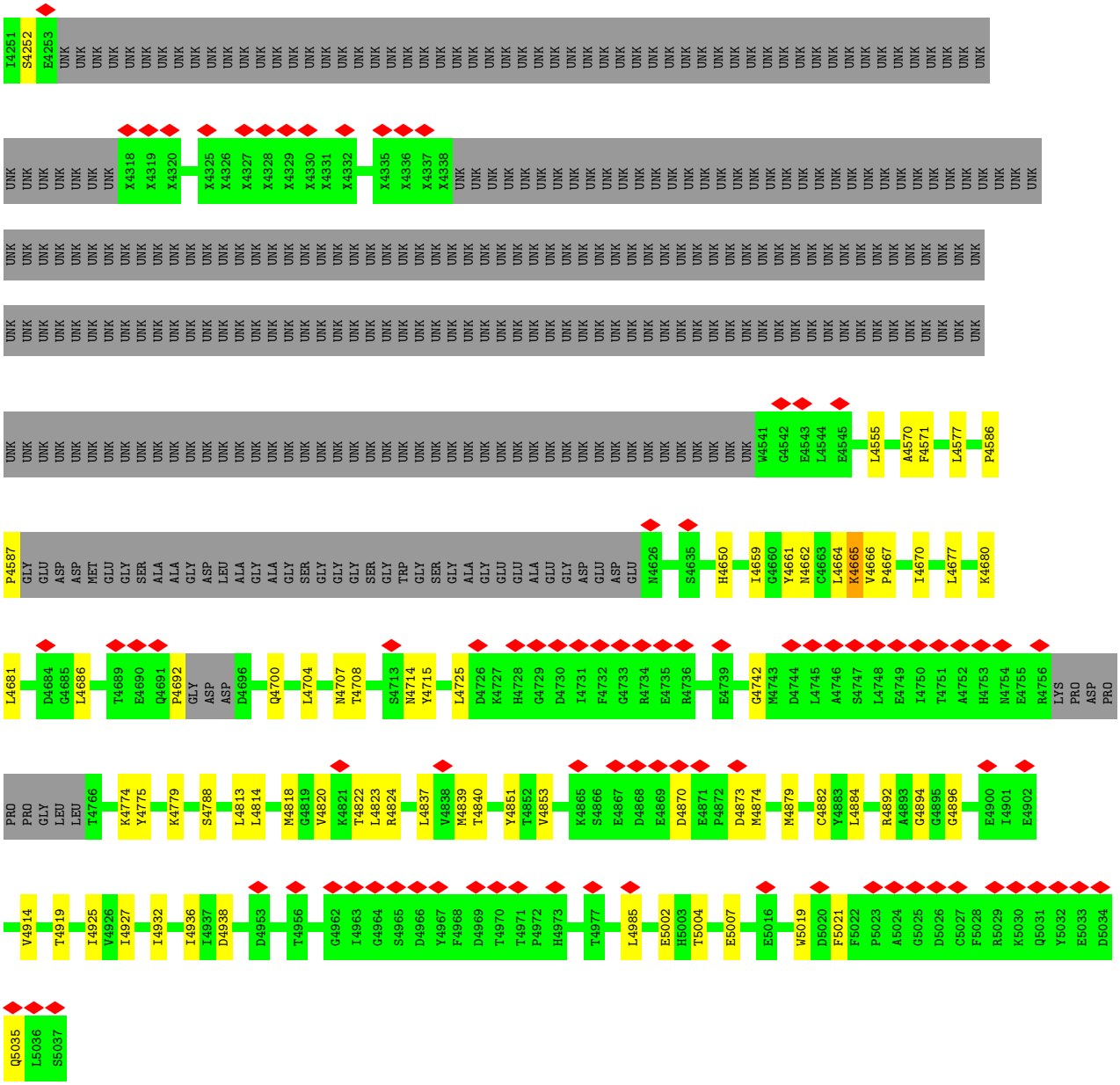
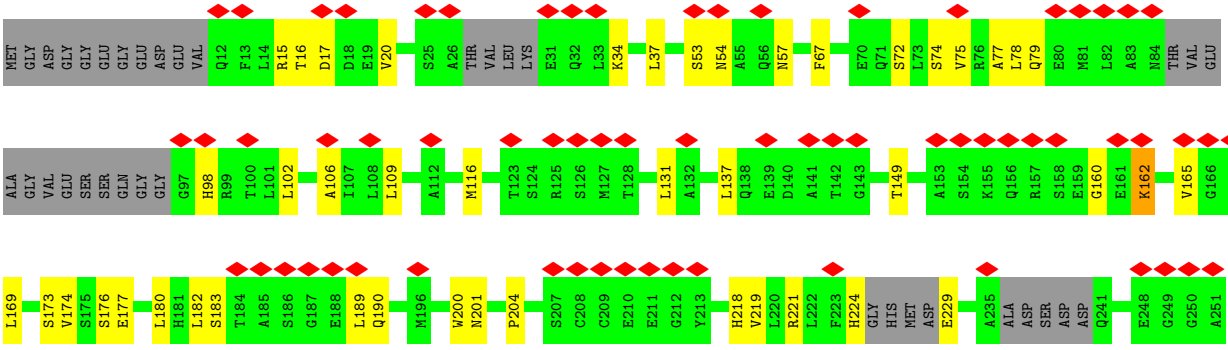
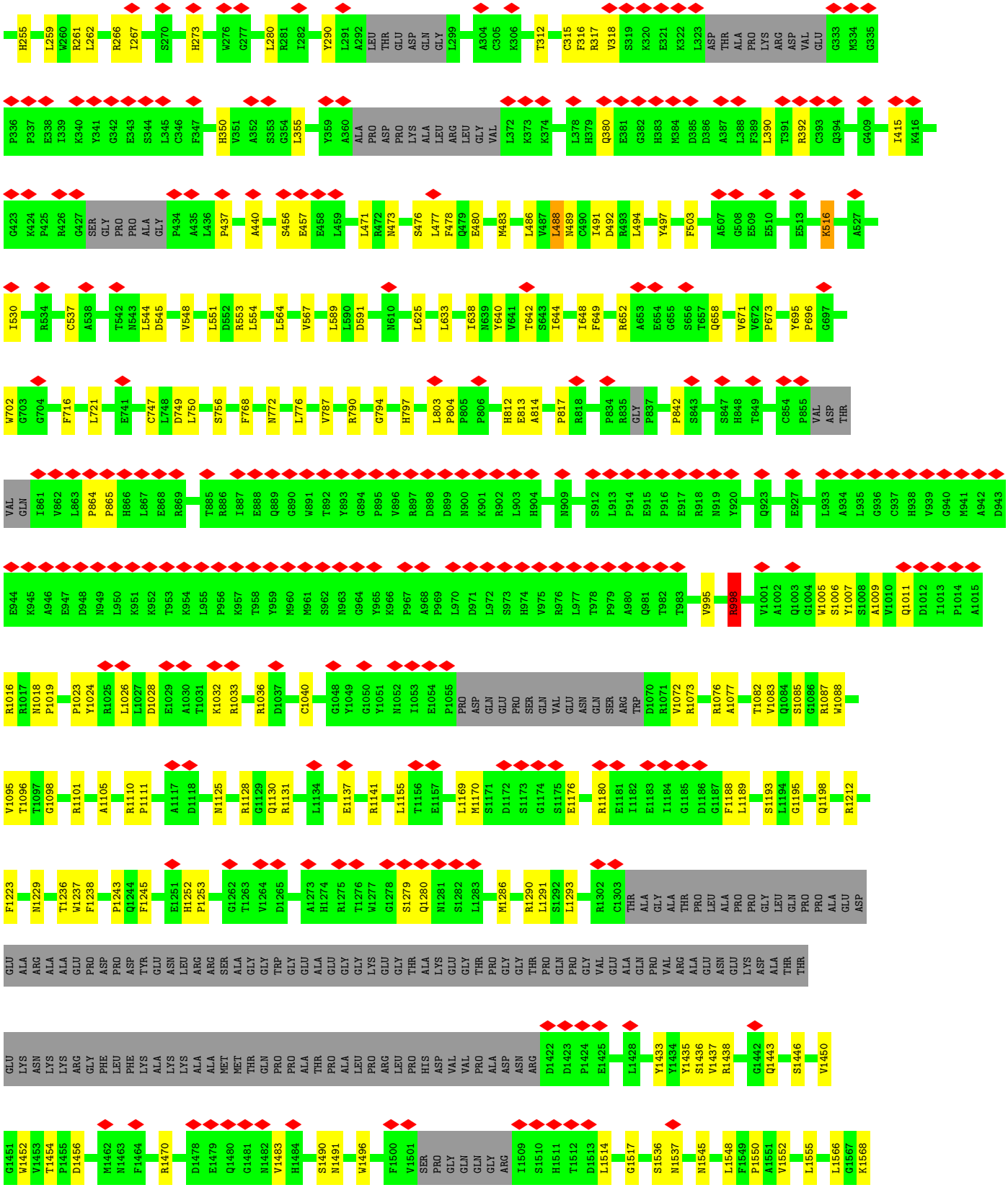


• Molecule 1: Ryanodine receptor 1,RyR1

Chain G:

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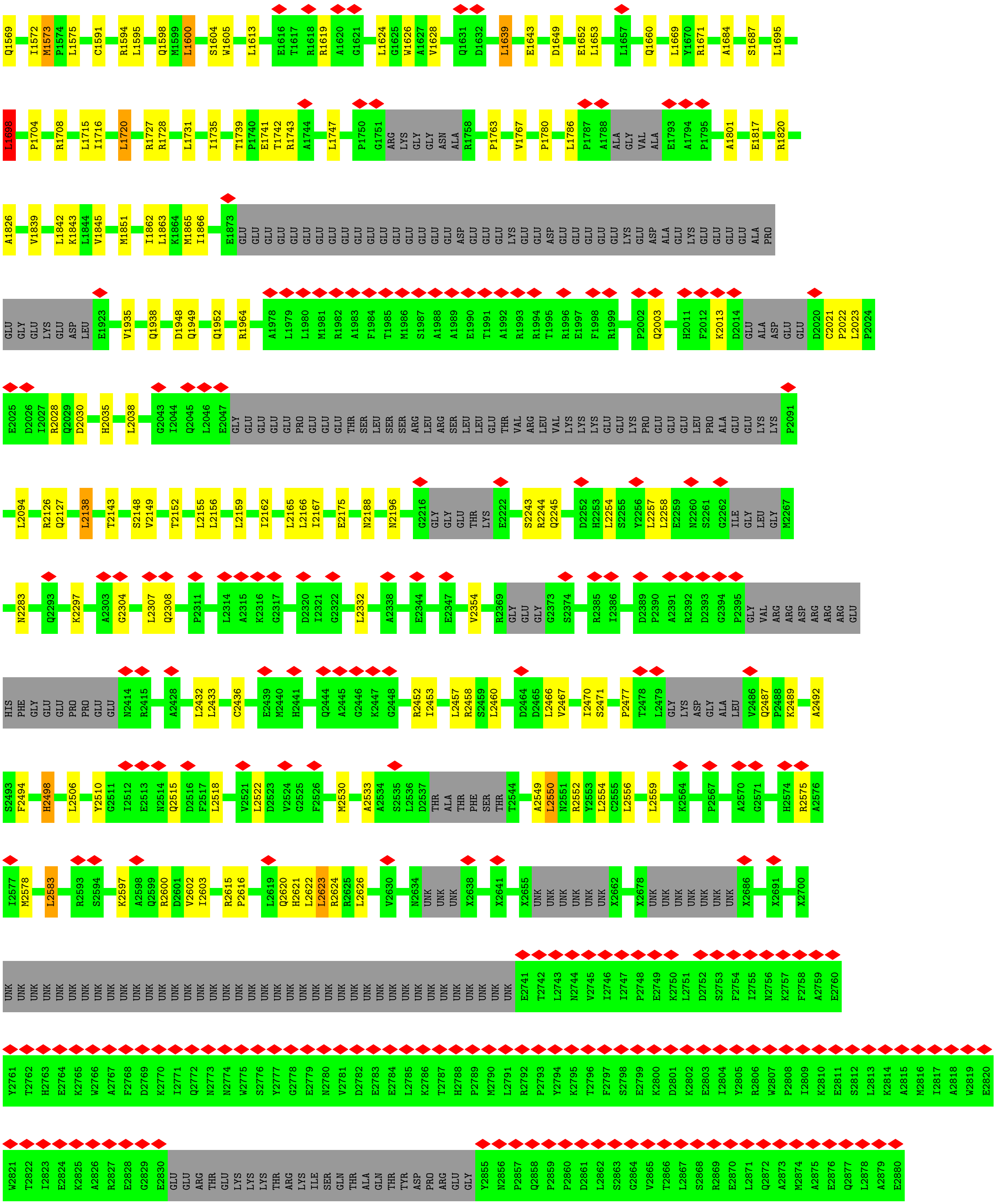
GLU ALA ARG ALA ALA GLU PRO ASP PRO ASP TYR GLU ASN LEU ARG ARG SER ALA GLY GLY TRP GLY GLU ALA GLU GLY GLY LYS GLU GLY THR ALA LYS GLU GLY THR PRO GLY GLY THR PRO GLN PRO GLY VAL GLU ALA GLN PRO VAL ARG ALA GLU ASN GLU LYS ASP ALA THR THR
GLU LYS ASN LYS LYS ARG GLY PHE LEU PHE LYS ALA LYS LYS ALA ALA MET MET THR GLN PRO PRO ALA THR PRO ALA LEU PRO ARG LEU PRO HIS ASP VAL VAL PRO ALA ASP ASN ARG D1422 D1423 P1424 E1425 L1428 Y1433 Y1434 Y1435 S1436 V1437 R1438 G1442 Q1443 S1446 V1450
G1451 W1452 Y1453 T1454 P1455 D1456 M1462 N1463 F1464 R1470 D1478 E1479 Q1480 G1481 N1482 V1483 H1484 S1490 N1491 W1496 F1500 V1501 SER PRO GLY GLN GLN GLY ARG I1509 S1510 H1511 T1512 D1513 L1514 G1517 S1536 N1537 N1545 L1548 F1549 P1550 A1551 V1552 L1555 L1566 G1567 K1568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E2025 D2026 I2027 R2028 Q2029 D2030 H2035 L2038 G2043 I2044 Q2045 L2046 E2047 GLY GLU GLU GLU GLU PRO GLU GLU GLU THR SER LEU SER SER ARG LEU ARG SER LEU LEU GLU THR VAL ARG LEU VAL LYS LYS LYS GLU GLU LYS PRO GLU GLU GLU LEU PRO ALA GLU GLU LYS LYS P2091
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HIS PHE GLY GLU GLU PRO PRO GLU GLU N2414 R2415 A2428 L2432 L2433 C2436 E2439 M2440 H2441 Q2444 A2445 G2446 K2447 G2448 R2452 I2453 L2457 R2458 S2459 L2460 D2464 D2465 L2466 V2467 I2470 S2471 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 P2488 K2489 A2492
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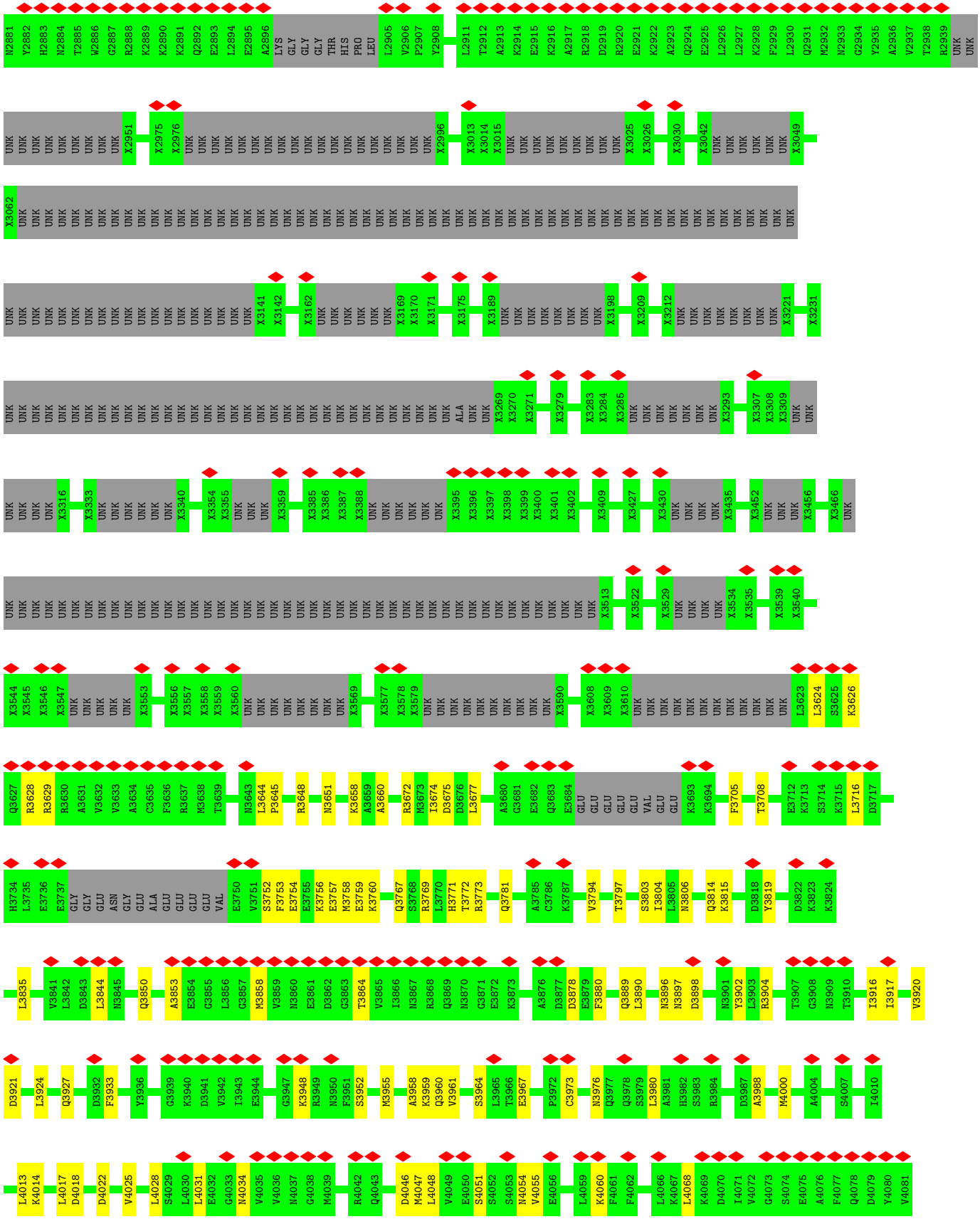
W2821 T2822 I2823 E2824 K2825 A2826 R2827 E2828 G2829 E2830 GLU GLU ARG THR GLU LYS LYS LYS THR ARG LYS ILE SER GLN THR ALA GLN THR TYR ASP PRO ARG GLU GLY Y2855 N2856 P2857 Q2858 G2859 P2860 D2861 L2862 S2863 G2864 V2865 T2866 L2867 S2868 R2869 E2870 L2871 Q2872 A2873 M2874 A2875 E2876 Q2877 L2878 A2879 E2880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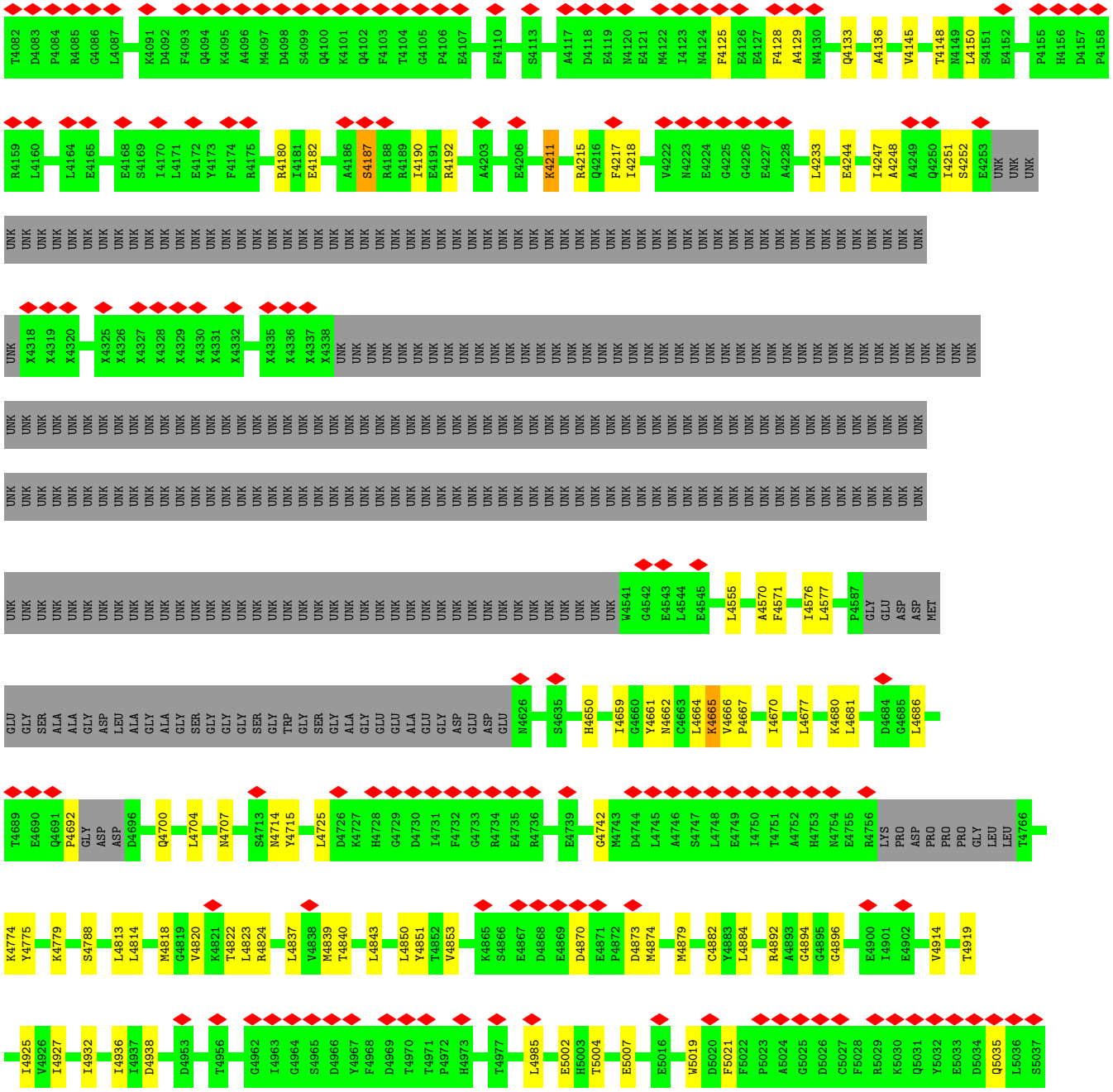
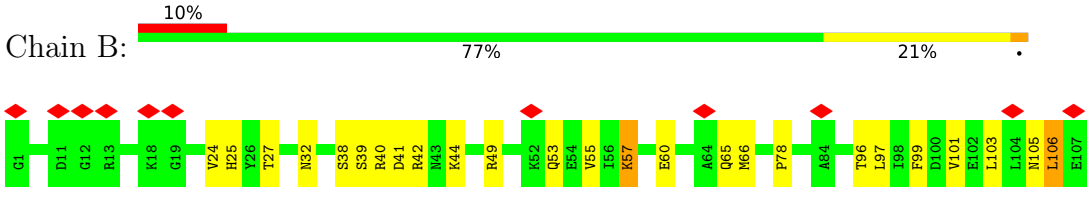
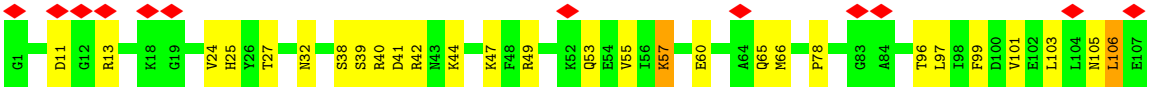


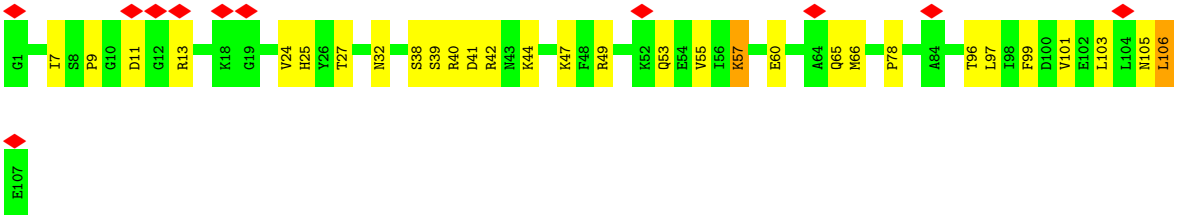
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



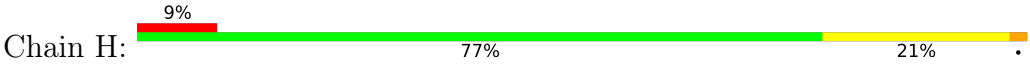
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B

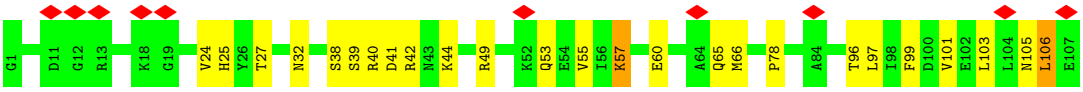


• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	35780	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.001	Depositor
Minimum map value	-0.000	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.000	Depositor
Recommended contour level	8e-05	Depositor
Map size (Å)	483.84003, 483.84003, 483.84003	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: F0U, CA, ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.32	0/26486	0.72	40/36018 (0.1%)
1	C	0.32	0/26486	0.72	40/36018 (0.1%)
1	E	0.32	0/26486	0.72	40/36018 (0.1%)
1	G	0.32	0/26486	0.72	40/36018 (0.1%)
2	B	0.33	0/820	0.76	0/1105
2	D	0.34	0/820	0.76	0/1105
2	F	0.34	0/820	0.76	0/1105
2	H	0.34	0/820	0.76	0/1105
All	All	0.32	0/109224	0.72	160/148492 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	C	0	2
1	E	0	2
1	G	0	2
All	All	0	8

There are no bond length outliers.

All (160) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	998	ARG	CA-CB-CG	8.63	132.39	113.40
1	E	998	ARG	CA-CB-CG	8.61	132.35	113.40
1	A	998	ARG	CA-CB-CG	8.61	132.34	113.40
1	G	998	ARG	CA-CB-CG	8.61	132.34	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	4211	LYS	CD-CE-NZ	8.17	130.49	111.70
1	G	4211	LYS	CD-CE-NZ	8.17	130.49	111.70
1	E	4211	LYS	CD-CE-NZ	8.16	130.46	111.70
1	C	4211	LYS	CD-CE-NZ	8.15	130.44	111.70
1	A	78	LEU	CA-CB-CG	7.31	132.11	115.30
1	E	78	LEU	CA-CB-CG	7.30	132.10	115.30
1	G	78	LEU	CA-CB-CG	7.30	132.09	115.30
1	C	78	LEU	CA-CB-CG	7.29	132.06	115.30
1	C	2623	LEU	CA-CB-CG	6.48	130.20	115.30
1	E	2623	LEU	CA-CB-CG	6.48	130.20	115.30
1	A	2623	LEU	CA-CB-CG	6.47	130.18	115.30
1	G	2623	LEU	CA-CB-CG	6.46	130.15	115.30
1	A	516	LYS	CD-CE-NZ	6.45	126.53	111.70
1	G	477	LEU	CA-CB-CG	6.45	130.13	115.30
1	E	477	LEU	CA-CB-CG	6.44	130.12	115.30
1	A	477	LEU	CA-CB-CG	6.44	130.11	115.30
1	C	477	LEU	CA-CB-CG	6.44	130.11	115.30
1	G	516	LYS	CD-CE-NZ	6.43	126.50	111.70
1	C	516	LYS	CD-CE-NZ	6.42	126.47	111.70
1	E	516	LYS	CD-CE-NZ	6.41	126.44	111.70
1	A	4017	LEU	CB-CG-CD2	6.22	121.57	111.00
1	E	4017	LEU	CB-CG-CD2	6.20	121.54	111.00
1	G	4017	LEU	CB-CG-CD2	6.19	121.53	111.00
1	C	4017	LEU	CB-CG-CD2	6.19	121.52	111.00
1	C	1438	ARG	NE-CZ-NH1	6.14	123.37	120.30
1	A	1438	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	E	1438	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	G	1438	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	C	1720	LEU	CA-CB-CG	6.05	129.21	115.30
1	E	1720	LEU	CA-CB-CG	6.04	129.20	115.30
1	G	1720	LEU	CA-CB-CG	6.04	129.20	115.30
1	A	1720	LEU	CA-CB-CG	6.03	129.17	115.30
1	G	1698	LEU	CA-CB-CG	6.03	129.16	115.30
1	C	1698	LEU	CA-CB-CG	6.02	129.15	115.30
1	E	1698	LEU	CA-CB-CG	6.02	129.15	115.30
1	A	1698	LEU	CA-CB-CG	6.02	129.14	115.30
1	C	488	LEU	CA-CB-CG	6.00	129.09	115.30
1	E	488	LEU	CA-CB-CG	6.00	129.09	115.30
1	A	488	LEU	CA-CB-CG	5.99	129.07	115.30
1	G	488	LEU	CA-CB-CG	5.98	129.06	115.30
1	A	1715	LEU	CA-CB-CG	5.94	128.97	115.30
1	C	1715	LEU	CA-CB-CG	5.94	128.97	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	1715	LEU	CA-CB-CG	5.94	128.97	115.30
1	G	1715	LEU	CA-CB-CG	5.94	128.95	115.30
1	G	4677	LEU	CA-CB-CG	5.85	128.76	115.30
1	A	553	ARG	NE-CZ-NH1	5.85	123.22	120.30
1	C	553	ARG	NE-CZ-NH1	5.85	123.22	120.30
1	C	4677	LEU	CA-CB-CG	5.85	128.75	115.30
1	E	4677	LEU	CA-CB-CG	5.85	128.75	115.30
1	A	4677	LEU	CA-CB-CG	5.84	128.73	115.30
1	G	553	ARG	NE-CZ-NH1	5.76	123.18	120.30
1	E	553	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	G	1669	LEU	CA-CB-CG	5.69	128.39	115.30
1	E	1669	LEU	CA-CB-CG	5.68	128.37	115.30
1	A	1669	LEU	CA-CB-CG	5.67	128.34	115.30
1	C	1669	LEU	CA-CB-CG	5.65	128.30	115.30
1	A	544	LEU	CA-CB-CG	5.56	128.08	115.30
1	C	544	LEU	CA-CB-CG	5.55	128.06	115.30
1	E	544	LEU	CA-CB-CG	5.55	128.06	115.30
1	G	544	LEU	CA-CB-CG	5.55	128.06	115.30
1	C	2138	LEU	CA-CB-CG	5.54	128.03	115.30
1	G	2138	LEU	CA-CB-CG	5.54	128.03	115.30
1	A	2138	LEU	CA-CB-CG	5.53	128.01	115.30
1	E	2138	LEU	CA-CB-CG	5.53	128.01	115.30
1	A	1671	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	E	4046	ASP	CB-CG-OD2	5.44	123.20	118.30
1	G	2165	LEU	CA-CB-CG	5.44	127.82	115.30
1	A	2165	LEU	CA-CB-CG	5.42	127.76	115.30
1	A	4046	ASP	CB-CG-OD2	5.42	123.17	118.30
1	C	4046	ASP	CB-CG-OD2	5.42	123.17	118.30
1	G	4046	ASP	CB-CG-OD2	5.42	123.17	118.30
1	C	2165	LEU	CA-CB-CG	5.41	127.75	115.30
1	E	2165	LEU	CA-CB-CG	5.41	127.75	115.30
1	A	998	ARG	NE-CZ-NH2	-5.40	117.60	120.30
1	C	998	ARG	NE-CZ-NH2	-5.40	117.60	120.30
1	G	998	ARG	NE-CZ-NH2	-5.40	117.60	120.30
1	G	1671	ARG	NE-CZ-NH1	5.38	122.99	120.30
1	C	3716	LEU	CA-CB-CG	5.37	127.65	115.30
1	C	37	LEU	CA-CB-CG	5.36	127.62	115.30
1	A	625	LEU	CA-CB-CG	5.35	127.60	115.30
1	A	3716	LEU	CA-CB-CG	5.35	127.60	115.30
1	C	625	LEU	CA-CB-CG	5.35	127.60	115.30
1	E	625	LEU	CA-CB-CG	5.35	127.60	115.30
1	E	3716	LEU	CA-CB-CG	5.35	127.60	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	3716	LEU	CA-CB-CG	5.35	127.60	115.30
1	A	37	LEU	CA-CB-CG	5.34	127.59	115.30
1	G	37	LEU	CA-CB-CG	5.34	127.59	115.30
1	E	1671	ARG	NE-CZ-NH1	5.34	122.97	120.30
1	C	1671	ARG	NE-CZ-NH1	5.33	122.96	120.30
1	E	37	LEU	CA-CB-CG	5.32	127.55	115.30
1	E	4150	LEU	CA-CB-CG	5.32	127.54	115.30
1	G	625	LEU	CA-CB-CG	5.32	127.53	115.30
1	A	4150	LEU	CA-CB-CG	5.32	127.53	115.30
1	E	998	ARG	NE-CZ-NH2	-5.31	117.64	120.30
1	C	471	LEU	CA-CB-CG	5.30	127.50	115.30
1	E	471	LEU	CA-CB-CG	5.30	127.50	115.30
1	G	471	LEU	CA-CB-CG	5.30	127.50	115.30
1	C	4150	LEU	CA-CB-CG	5.29	127.48	115.30
1	G	4150	LEU	CA-CB-CG	5.29	127.48	115.30
1	C	2550	LEU	CA-CB-CG	5.28	127.44	115.30
1	E	2550	LEU	CA-CB-CG	5.28	127.44	115.30
1	A	2550	LEU	CA-CB-CG	5.27	127.42	115.30
1	A	471	LEU	CA-CB-CG	5.27	127.41	115.30
1	G	2550	LEU	CA-CB-CG	5.26	127.39	115.30
1	A	1600	LEU	CA-CB-CG	5.25	127.36	115.30
1	C	1600	LEU	CA-CB-CG	5.25	127.36	115.30
1	E	2583	LEU	CA-CB-CG	5.25	127.36	115.30
1	E	1600	LEU	CA-CB-CG	5.24	127.36	115.30
1	G	1600	LEU	CA-CB-CG	5.24	127.36	115.30
1	A	4577	LEU	CA-CB-CG	5.24	127.34	115.30
1	C	2583	LEU	CA-CB-CG	5.24	127.34	115.30
1	G	2583	LEU	CA-CB-CG	5.24	127.34	115.30
1	A	1786	LEU	CA-CB-CG	5.23	127.33	115.30
1	C	1786	LEU	CA-CB-CG	5.23	127.33	115.30
1	E	1786	LEU	CA-CB-CG	5.23	127.34	115.30
1	G	1786	LEU	CA-CB-CG	5.23	127.33	115.30
1	G	2522	LEU	CA-CB-CG	5.23	127.33	115.30
1	A	2583	LEU	CA-CB-CG	5.23	127.32	115.30
1	C	4577	LEU	CA-CB-CG	5.22	127.32	115.30
1	E	4577	LEU	CA-CB-CG	5.22	127.32	115.30
1	G	4577	LEU	CA-CB-CG	5.22	127.32	115.30
1	A	2522	LEU	CA-CB-CG	5.22	127.31	115.30
1	C	2522	LEU	CA-CB-CG	5.22	127.31	115.30
1	E	2522	LEU	CA-CB-CG	5.21	127.30	115.30
1	G	2023	LEU	CA-CB-CG	5.19	127.24	115.30
1	E	4681	LEU	CA-CB-CG	5.19	127.23	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	4681	LEU	CA-CB-CG	5.19	127.23	115.30
1	A	2023	LEU	CA-CB-CG	5.18	127.23	115.30
1	C	2023	LEU	CA-CB-CG	5.18	127.23	115.30
1	C	1514	LEU	CA-CB-CG	5.18	127.21	115.30
1	E	1514	LEU	CA-CB-CG	5.18	127.21	115.30
1	G	1514	LEU	CA-CB-CG	5.18	127.21	115.30
1	C	4555	LEU	CA-CB-CG	5.18	127.21	115.30
1	E	2023	LEU	CA-CB-CG	5.18	127.21	115.30
1	A	4555	LEU	CA-CB-CG	5.17	127.19	115.30
1	A	4681	LEU	CA-CB-CG	5.17	127.19	115.30
1	C	4681	LEU	CA-CB-CG	5.17	127.19	115.30
1	E	4555	LEU	CA-CB-CG	5.17	127.19	115.30
1	G	4555	LEU	CA-CB-CG	5.17	127.19	115.30
1	E	4873	ASP	CB-CG-OD1	5.16	122.95	118.30
1	A	1514	LEU	CA-CB-CG	5.15	127.16	115.30
1	G	1639	LEU	CA-CB-CG	5.13	127.10	115.30
1	A	1639	LEU	CA-CB-CG	5.13	127.09	115.30
1	E	1639	LEU	CA-CB-CG	5.12	127.08	115.30
1	C	1639	LEU	CA-CB-CG	5.12	127.07	115.30
1	G	4873	ASP	CB-CG-OD1	5.11	122.90	118.30
1	A	4873	ASP	CB-CG-OD1	5.10	122.89	118.30
1	C	4873	ASP	CB-CG-OD1	5.10	122.89	118.30
1	E	554	LEU	CA-CB-CG	5.09	127.00	115.30
1	A	554	LEU	CA-CB-CG	5.09	127.00	115.30
1	G	554	LEU	CA-CB-CG	5.08	126.99	115.30
1	C	554	LEU	CA-CB-CG	5.08	126.98	115.30
1	E	2022	PRO	C-N-CA	5.08	134.40	121.70
1	G	2022	PRO	C-N-CA	5.07	134.38	121.70
1	A	2022	PRO	C-N-CA	5.07	134.36	121.70
1	C	2022	PRO	C-N-CA	5.07	134.36	121.70

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	4018	ASP	Peptide
1	A	749	ASP	Peptide
1	C	4018	ASP	Peptide
1	C	749	ASP	Peptide
1	E	4018	ASP	Peptide
1	E	749	ASP	Peptide
1	G	4018	ASP	Peptide

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Mol	Chain	Res	Type	Group
1	G	749	ASP	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	28192	0	24933	290	0
1	C	28192	0	24933	285	0
1	E	28192	0	24933	291	0
1	G	28192	0	24933	291	0
2	B	804	0	812	8	0
2	D	804	0	812	9	0
2	F	804	0	812	11	0
2	H	804	0	812	7	0
3	A	1	0	0	0	0
3	C	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
4	A	1	0	0	0	0
4	C	1	0	0	0	0
4	E	1	0	0	0	0
4	G	1	0	0	0	0
5	A	28	0	0	0	0
5	C	28	0	0	0	0
5	E	28	0	0	0	0
5	G	28	0	0	0	0
All	All	116104	0	102980	1155	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 5.

All (1155) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:652:ARG:HD3	1:C:750:LEU:HB3	1.69	0.74
1:E:652:ARG:HD3	1:E:750:LEU:HB3	1.69	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:2304:GLY:O	1:E:2308:GLN:HB2	1.88	0.73
1:A:2304:GLY:O	1:A:2308:GLN:HB2	1.88	0.73
1:G:652:ARG:HD3	1:G:750:LEU:HB3	1.69	0.73
1:G:2304:GLY:O	1:G:2308:GLN:HB2	1.88	0.73
1:A:652:ARG:HD3	1:A:750:LEU:HB3	1.69	0.73
1:C:2304:GLY:O	1:C:2308:GLN:HB2	1.88	0.72
1:G:794:GLY:HA3	1:G:812:HIS:HB3	1.72	0.72
1:A:794:GLY:HA3	1:A:812:HIS:HB3	1.72	0.72
1:C:794:GLY:HA3	1:C:812:HIS:HB3	1.72	0.71
1:E:794:GLY:HA3	1:E:812:HIS:HB3	1.72	0.70
1:E:2620:GLN:HA	1:E:2623:LEU:HG	1.76	0.68
1:G:4661:TYR:HH	1:G:4788:SER:HG	1.42	0.68
1:G:2620:GLN:HA	1:G:2623:LEU:HG	1.76	0.68
1:A:2620:GLN:HA	1:A:2623:LEU:HG	1.76	0.67
1:C:2620:GLN:HA	1:C:2623:LEU:HG	1.76	0.66
1:G:74:SER:HB3	1:G:77:ALA:HB2	1.78	0.66
1:C:74:SER:HB3	1:C:77:ALA:HB2	1.78	0.66
1:E:74:SER:HB3	1:E:77:ALA:HB2	1.78	0.66
1:A:74:SER:HB3	1:A:77:ALA:HB2	1.78	0.66
1:A:3767:GLN:NE2	1:A:3803:SER:O	2.29	0.65
1:G:3767:GLN:NE2	1:G:3803:SER:O	2.29	0.65
1:C:3767:GLN:NE2	1:C:3803:SER:O	2.29	0.65
1:E:3767:GLN:NE2	1:E:3803:SER:O	2.29	0.65
1:G:3924:LEU:HA	1:G:3927:GLN:HG3	1.79	0.65
1:A:3924:LEU:HA	1:A:3927:GLN:HG3	1.79	0.65
1:A:176:SER:O	1:G:2452:ARG:NH1	2.30	0.65
1:A:2452:ARG:NH1	1:C:176:SER:O	2.30	0.64
1:C:2452:ARG:NH1	1:E:176:SER:O	2.30	0.64
1:E:2452:ARG:NH1	1:G:176:SER:O	2.30	0.64
1:C:1763:PRO:HG3	1:C:2094:LEU:HD13	1.80	0.64
1:C:3924:LEU:HA	1:C:3927:GLN:HG3	1.79	0.64
1:E:3924:LEU:HA	1:E:3927:GLN:HG3	1.79	0.64
1:A:1763:PRO:HG3	1:A:2094:LEU:HD13	1.80	0.64
1:E:1780:PRO:HD3	1:E:1801:ALA:H	1.63	0.64
1:A:1780:PRO:HD3	1:A:1801:ALA:H	1.63	0.64
1:G:1763:PRO:HG3	1:G:2094:LEU:HD13	1.80	0.63
1:A:4661:TYR:HH	1:A:4788:SER:HG	1.47	0.63
1:G:1780:PRO:HD3	1:G:1801:ALA:H	1.63	0.63
1:C:1780:PRO:HD3	1:C:1801:ALA:H	1.63	0.63
1:G:2143:THR:H	1:G:3651:ASN:HD21	1.45	0.62
1:E:4068:LEU:HD21	1:E:4129:ALA:HA	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2143:THR:H	1:A:3651:ASN:HD21	1.46	0.62
1:G:488:LEU:HA	1:G:491:ILE:HG22	1.82	0.62
1:G:4068:LEU:HD21	1:G:4129:ALA:HA	1.81	0.62
1:A:1704:PRO:O	1:A:1708:ARG:HB2	1.99	0.62
1:A:3889:GLN:NE2	1:A:3967:GLU:OE1	2.33	0.62
1:G:1024:TYR:O	1:G:1032:LYS:NZ	2.32	0.62
1:C:2003:GLN:NE2	1:C:3864:THR:OG1	2.33	0.62
1:C:4680:LYS:HD3	1:C:4686:LEU:HD13	1.82	0.62
1:E:1763:PRO:HG3	1:E:2094:LEU:HD13	1.80	0.62
1:C:1085:SER:HA	1:C:1155:LEU:HD11	1.81	0.62
1:C:1704:PRO:O	1:C:1708:ARG:HB2	1.99	0.62
1:C:4068:LEU:HD21	1:C:4129:ALA:HA	1.82	0.62
1:E:488:LEU:HA	1:E:491:ILE:HG22	1.82	0.62
1:E:1243:PRO:HB2	1:E:1600:LEU:HD21	1.82	0.62
1:G:1243:PRO:HB2	1:G:1600:LEU:HD21	1.82	0.62
1:G:1948:ASP:OD1	1:G:2126:ARG:NH1	2.31	0.62
1:A:488:LEU:HA	1:A:491:ILE:HG22	1.82	0.62
1:A:4068:LEU:HD21	1:A:4129:ALA:HA	1.81	0.62
1:C:1024:TYR:O	1:C:1032:LYS:NZ	2.32	0.62
1:C:3889:GLN:NE2	1:C:3967:GLU:OE1	2.33	0.62
1:E:1085:SER:HA	1:E:1155:LEU:HD11	1.81	0.62
1:E:1704:PRO:O	1:E:1708:ARG:HB2	1.99	0.62
1:E:4680:LYS:HD3	1:E:4686:LEU:HD13	1.82	0.62
1:G:3889:GLN:NE2	1:G:3967:GLU:OE1	2.33	0.62
1:A:1024:TYR:O	1:A:1032:LYS:NZ	2.32	0.62
1:C:1545:ASN:HD21	2:D:32:ASN:HA	1.65	0.62
1:E:2143:THR:H	1:E:3651:ASN:HD21	1.45	0.62
1:A:4680:LYS:HD3	1:A:4686:LEU:HD13	1.82	0.62
1:E:2003:GLN:NE2	1:E:3864:THR:OG1	2.33	0.61
1:G:1085:SER:HA	1:G:1155:LEU:HD11	1.81	0.61
1:C:2143:THR:H	1:C:3651:ASN:HD21	1.45	0.61
1:A:1085:SER:HA	1:A:1155:LEU:HD11	1.81	0.61
1:C:16:THR:HB	1:C:98:HIS:HB3	1.83	0.61
1:A:2003:GLN:NE2	1:A:3864:THR:OG1	2.33	0.61
1:C:488:LEU:HA	1:C:491:ILE:HG22	1.82	0.61
1:E:16:THR:HB	1:E:98:HIS:HB3	1.83	0.61
1:G:1704:PRO:O	1:G:1708:ARG:HB2	1.99	0.61
1:G:4680:LYS:HD3	1:G:4686:LEU:HD13	1.82	0.61
1:A:34:LYS:H	1:A:53:SER:HB3	1.66	0.61
1:G:2003:GLN:NE2	1:G:3864:THR:OG1	2.33	0.61
1:C:1243:PRO:HB2	1:C:1600:LEU:HD21	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1739:THR:HG23	1:C:1741:GLU:H	1.66	0.60
1:E:3889:GLN:NE2	1:E:3967:GLU:OE1	2.33	0.60
1:G:842:PRO:HD3	1:G:1073:ARG:HD2	1.83	0.60
1:E:1739:THR:HG23	1:E:1741:GLU:H	1.66	0.60
1:E:1948:ASP:OD1	1:E:2126:ARG:NH1	2.31	0.60
1:G:16:THR:HB	1:G:98:HIS:HB3	1.83	0.60
1:A:1739:THR:HG23	1:A:1741:GLU:H	1.66	0.60
1:C:34:LYS:H	1:C:53:SER:HB3	1.66	0.60
1:A:842:PRO:HD3	1:A:1073:ARG:HD2	1.83	0.60
1:A:1243:PRO:HB2	1:A:1600:LEU:HD21	1.82	0.60
1:C:1569:GLN:HE21	1:C:1572:ILE:HD13	1.66	0.60
1:E:34:LYS:H	1:E:53:SER:HB3	1.66	0.60
1:G:34:LYS:H	1:G:53:SER:HB3	1.67	0.60
1:G:2477:PRO:HB3	1:G:2487:GLN:HA	1.83	0.60
1:C:633:LEU:HB3	1:C:1639:LEU:HD11	1.83	0.60
1:G:1569:GLN:HE21	1:G:1572:ILE:HD13	1.66	0.60
1:A:644:ILE:HG21	1:A:1628:VAL:HG21	1.83	0.60
2:B:42:ARG:HB3	2:B:44:LYS:HG3	1.83	0.60
1:G:644:ILE:HG21	1:G:1628:VAL:HG21	1.83	0.60
1:A:1569:GLN:HE21	1:A:1572:ILE:HD13	1.66	0.60
1:E:842:PRO:HD3	1:E:1073:ARG:HD2	1.83	0.60
1:E:1545:ASN:HD21	2:F:32:ASN:HA	1.66	0.60
1:A:2094:LEU:HG	1:A:2127:GLN:HE22	1.67	0.60
1:E:644:ILE:HG21	1:E:1628:VAL:HG21	1.83	0.60
1:E:1024:TYR:O	1:E:1032:LYS:NZ	2.32	0.60
1:E:2583:LEU:HB3	1:E:2622:LEU:HG	1.84	0.60
1:G:1739:THR:HG23	1:G:1741:GLU:H	1.66	0.60
1:A:2477:PRO:HB3	1:A:2487:GLN:HA	1.84	0.60
1:C:1948:ASP:OD1	1:C:2126:ARG:NH1	2.31	0.60
1:C:2094:LEU:HG	1:C:2127:GLN:HE22	1.67	0.60
1:C:644:ILE:HG21	1:C:1628:VAL:HG21	1.83	0.59
1:G:2583:LEU:HB3	1:G:2622:LEU:HG	1.84	0.59
2:H:42:ARG:HB3	2:H:44:LYS:HG3	1.83	0.59
1:G:633:LEU:HB3	1:G:1639:LEU:HD11	1.83	0.59
1:G:2094:LEU:HG	1:G:2127:GLN:HE22	1.67	0.59
1:A:16:THR:HB	1:A:98:HIS:HB3	1.83	0.59
1:E:2094:LEU:HG	1:E:2127:GLN:HE22	1.67	0.59
1:E:4661:TYR:HH	1:E:4788:SER:HG	1.50	0.59
1:A:817:PRO:HB2	1:A:1028:ASP:HB2	1.85	0.59
1:E:633:LEU:HB3	1:E:1639:LEU:HD11	1.83	0.59
1:C:2583:LEU:HB3	1:C:2622:LEU:HG	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1569:GLN:HE21	1:E:1572:ILE:HD13	1.66	0.59
1:C:2477:PRO:HB3	1:C:2487:GLN:HA	1.84	0.59
1:C:4661:TYR:HH	1:C:4788:SER:HG	1.49	0.59
1:A:1948:ASP:OD1	1:A:2126:ARG:NH1	2.31	0.59
1:C:842:PRO:HD3	1:C:1073:ARG:HD2	1.83	0.59
1:G:817:PRO:HB2	1:G:1028:ASP:HB2	1.85	0.59
1:A:4025:VAL:HA	1:A:4028:LEU:HB2	1.85	0.59
1:A:1839:VAL:HB	1:A:1935:VAL:HG12	1.85	0.59
1:C:1839:VAL:HB	1:C:1935:VAL:HG12	1.85	0.59
1:E:2196:ASN:HD21	1:E:2245:GLN:HE21	1.51	0.59
1:E:2477:PRO:HB3	1:E:2487:GLN:HA	1.83	0.59
1:A:633:LEU:HB3	1:A:1639:LEU:HD11	1.83	0.59
1:C:2196:ASN:HD21	1:C:2245:GLN:HE21	1.51	0.59
1:C:4025:VAL:HA	1:C:4028:LEU:HB2	1.85	0.59
1:G:1839:VAL:HB	1:G:1935:VAL:HG12	1.85	0.59
2:F:42:ARG:HB3	2:F:44:LYS:HG3	1.83	0.58
1:A:2583:LEU:HB3	1:A:2622:LEU:HG	1.84	0.58
1:C:4818:MET:O	1:C:4824:ARG:NH2	2.36	0.58
2:D:42:ARG:HB3	2:D:44:LYS:HG3	1.83	0.58
1:E:1839:VAL:HB	1:E:1935:VAL:HG12	1.85	0.58
1:G:3645:PRO:HD2	1:G:3648:ARG:HD3	1.86	0.58
1:A:173:SER:OG	1:A:174:VAL:N	2.37	0.58
1:C:4664:LEU:HD23	1:C:4665:LYS:HB3	1.86	0.58
1:G:4025:VAL:HA	1:G:4028:LEU:HB2	1.85	0.58
1:A:437:PRO:HB2	1:A:440:ALA:HB3	1.86	0.58
1:A:1131:ARG:HB2	1:A:1137:GLU:H	1.69	0.58
1:A:3645:PRO:HD2	1:A:3648:ARG:HD3	1.86	0.58
1:C:173:SER:OG	1:C:174:VAL:N	2.37	0.58
1:G:1131:ARG:HB2	1:G:1137:GLU:H	1.69	0.58
1:C:2494:PHE:HE2	1:C:2498:HIS:HB2	1.69	0.58
1:E:1131:ARG:HB2	1:E:1137:GLU:H	1.69	0.58
1:E:4818:MET:O	1:E:4824:ARG:NH2	2.36	0.58
1:C:1727:ARG:NH1	1:C:1851:MET:O	2.37	0.58
1:C:3645:PRO:HD2	1:C:3648:ARG:HD3	1.86	0.58
1:G:4818:MET:O	1:G:4824:ARG:NH2	2.36	0.58
1:A:4818:MET:O	1:A:4824:ARG:NH2	2.36	0.58
1:E:3645:PRO:HD2	1:E:3648:ARG:HD3	1.86	0.58
1:E:4664:LEU:HD23	1:E:4665:LYS:HB3	1.86	0.58
1:A:315:CYS:SG	1:A:316:PHE:N	2.77	0.58
1:A:4182:GLU:HB3	1:A:4190:ILE:HD11	1.86	0.58
1:C:817:PRO:HB2	1:C:1028:ASP:HB2	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:817:PRO:HB2	1:E:1028:ASP:HB2	1.85	0.58
1:E:1727:ARG:NH1	1:E:1851:MET:O	2.37	0.58
1:E:4025:VAL:HA	1:E:4028:LEU:HB2	1.85	0.58
1:G:437:PRO:HB2	1:G:440:ALA:HB3	1.86	0.58
1:A:2196:ASN:HD21	1:A:2245:GLN:HE21	1.51	0.57
1:C:1131:ARG:HB2	1:C:1137:GLU:H	1.69	0.57
1:C:1728:ARG:HA	1:C:1731:LEU:HD23	1.86	0.57
1:E:2494:PHE:HE2	1:E:2498:HIS:HB2	1.69	0.57
1:A:2494:PHE:HE2	1:A:2498:HIS:HB2	1.69	0.57
1:G:2494:PHE:HE2	1:G:2498:HIS:HB2	1.69	0.57
1:G:4215:ARG:HA	1:G:4218:ILE:HB	1.86	0.57
1:G:4664:LEU:HD23	1:G:4665:LYS:HB3	1.86	0.57
1:G:4182:GLU:HB3	1:G:4190:ILE:HD11	1.86	0.57
1:C:4215:ARG:HA	1:C:4218:ILE:HB	1.86	0.57
1:E:173:SER:OG	1:E:174:VAL:N	2.37	0.57
1:E:315:CYS:SG	1:E:316:PHE:N	2.77	0.57
1:G:315:CYS:SG	1:G:316:PHE:N	2.77	0.57
1:G:2196:ASN:HD21	1:G:2245:GLN:HE21	1.51	0.57
1:E:4215:ARG:HA	1:E:4218:ILE:HB	1.86	0.57
1:G:1728:ARG:HA	1:G:1731:LEU:HD23	1.86	0.57
1:C:74:SER:OG	1:C:75:VAL:N	2.38	0.57
1:G:173:SER:OG	1:G:174:VAL:N	2.37	0.57
1:A:1727:ARG:NH1	1:A:1851:MET:O	2.37	0.57
1:A:4664:LEU:HD23	1:A:4665:LYS:HB3	1.86	0.57
1:A:4704:LEU:HB3	1:A:4774:LYS:HD3	1.87	0.57
1:C:315:CYS:SG	1:C:316:PHE:N	2.77	0.57
1:C:4704:LEU:HB3	1:C:4774:LYS:HD3	1.87	0.57
1:A:1728:ARG:HA	1:A:1731:LEU:HD23	1.86	0.56
1:E:437:PRO:HB2	1:E:440:ALA:HB3	1.86	0.56
1:C:437:PRO:HB2	1:C:440:ALA:HB3	1.86	0.56
1:E:4182:GLU:HB3	1:E:4190:ILE:HD11	1.86	0.56
1:G:640:TYR:HB3	1:G:1613:LEU:HD11	1.88	0.56
1:E:3917:ILE:HA	1:E:3920:VAL:HG12	1.88	0.56
1:G:74:SER:OG	1:G:75:VAL:N	2.38	0.56
1:G:1727:ARG:NH1	1:G:1851:MET:O	2.37	0.56
1:C:4125:PHE:HA	1:C:4128:PHE:HB3	1.87	0.56
1:E:3757:GLU:HA	1:E:3760:LYS:HG2	1.88	0.56
1:E:4125:PHE:HA	1:E:4128:PHE:HB3	1.87	0.56
1:G:3757:GLU:HA	1:G:3760:LYS:HG2	1.88	0.56
1:A:4215:ARG:HA	1:A:4218:ILE:HB	1.86	0.56
1:C:4182:GLU:HB3	1:C:4190:ILE:HD11	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2138:LEU:HD11	1:C:3658:LYS:HB2	1.88	0.56
1:C:3917:ILE:HA	1:C:3920:VAL:HG12	1.88	0.56
2:F:105:ASN:OD1	2:F:106:LEU:N	2.39	0.56
1:A:491:ILE:HA	1:A:494:LEU:HB2	1.88	0.56
1:A:3917:ILE:HA	1:A:3920:VAL:HG12	1.88	0.56
1:E:74:SER:OG	1:E:75:VAL:N	2.38	0.56
1:E:491:ILE:HA	1:E:494:LEU:HB2	1.88	0.56
1:G:3958:ALA:HA	1:G:3961:VAL:HG12	1.87	0.56
1:A:1594:ARG:NH2	1:A:1643:GLU:OE2	2.39	0.56
2:B:105:ASN:OD1	2:B:106:LEU:N	2.39	0.56
1:C:1291:LEU:HB3	1:C:1595:LEU:HD22	1.87	0.56
1:C:106:ALA:HA	1:C:149:THR:HA	1.88	0.56
1:E:106:ALA:HA	1:E:149:THR:HA	1.88	0.56
1:G:3917:ILE:HA	1:G:3920:VAL:HG12	1.88	0.56
1:G:4704:LEU:HB3	1:G:4774:LYS:HD3	1.87	0.56
1:A:3624:LEU:HD13	1:A:3629:ARG:HH12	1.71	0.56
1:C:3757:GLU:HA	1:C:3760:LYS:HG2	1.88	0.56
1:E:1452:TRP:HB3	1:E:1548:LEU:HB3	1.88	0.56
1:E:1594:ARG:NH2	1:E:1643:GLU:OE2	2.39	0.55
1:A:3958:ALA:HA	1:A:3961:VAL:HG12	1.87	0.55
1:C:491:ILE:HA	1:C:494:LEU:HB2	1.88	0.55
1:E:1291:LEU:HB3	1:E:1595:LEU:HD22	1.87	0.55
1:E:1728:ARG:HA	1:E:1731:LEU:HD23	1.86	0.55
1:E:4704:LEU:HB3	1:E:4774:LYS:HD3	1.87	0.55
1:G:1594:ARG:NH2	1:G:1643:GLU:OE2	2.39	0.55
1:A:2138:LEU:HD11	1:A:3658:LYS:HB2	1.88	0.55
1:G:491:ILE:HA	1:G:494:LEU:HB2	1.88	0.55
1:G:1545:ASN:HD21	2:H:32:ASN:HA	1.71	0.55
1:A:640:TYR:HB3	1:A:1613:LEU:HD11	1.88	0.55
1:A:1649:ASP:HB3	1:A:1652:GLU:HG3	1.88	0.55
1:C:640:TYR:HB3	1:C:1613:LEU:HD11	1.87	0.55
2:D:78:PRO:HD3	2:D:96:THR:HG22	1.88	0.55
1:C:1452:TRP:HB3	1:C:1548:LEU:HB3	1.88	0.55
1:C:1594:ARG:NH2	1:C:1643:GLU:OE2	2.39	0.55
1:E:1006:SER:OG	1:E:1007:TYR:N	2.40	0.55
1:E:640:TYR:HB3	1:E:1613:LEU:HD11	1.87	0.55
1:E:2138:LEU:HD11	1:E:3658:LYS:HB2	1.88	0.55
2:F:78:PRO:HD3	2:F:96:THR:HG22	1.88	0.55
1:E:224:HIS:O	1:E:229:GLU:N	2.40	0.55
1:G:3624:LEU:HD13	1:G:3629:ARG:HH12	1.71	0.55
1:A:3757:GLU:HA	1:A:3760:LYS:HG2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:813:GLU:HG2	1:C:1009:ALA:HB3	1.89	0.55
1:C:3958:ALA:HA	1:C:3961:VAL:HG12	1.87	0.55
2:H:105:ASN:OD1	2:H:106:LEU:N	2.39	0.55
1:C:4714:ASN:ND2	1:C:4775:TYR:OH	2.40	0.55
1:E:4247:ILE:HD13	1:E:4667:PRO:HG2	1.89	0.55
1:G:4125:PHE:HA	1:G:4128:PHE:HB3	1.87	0.55
2:H:57:LYS:HA	2:H:60:GLU:HG2	1.89	0.55
1:C:3624:LEU:HD13	1:C:3629:ARG:HH12	1.71	0.55
1:E:3958:ALA:HA	1:E:3961:VAL:HG12	1.87	0.55
1:G:106:ALA:HA	1:G:149:THR:HA	1.88	0.55
1:C:224:HIS:O	1:C:229:GLU:N	2.40	0.54
1:E:4714:ASN:ND2	1:E:4775:TYR:OH	2.40	0.54
2:F:57:LYS:HA	2:F:60:GLU:HG2	1.89	0.54
1:G:102:LEU:HD13	1:G:160:GLY:HA2	1.89	0.54
1:A:1291:LEU:HB3	1:A:1595:LEU:HD22	1.87	0.54
1:C:1279:SER:OG	1:C:1280:GLN:N	2.41	0.54
1:E:1279:SER:OG	1:E:1280:GLN:N	2.41	0.54
1:E:1649:ASP:HB3	1:E:1652:GLU:HG3	1.88	0.54
1:G:813:GLU:HG2	1:G:1009:ALA:HB3	1.89	0.54
1:G:1279:SER:OG	1:G:1280:GLN:N	2.41	0.54
1:G:1286:MET:HG3	1:G:1555:LEU:HB2	1.90	0.54
1:G:1291:LEU:HB3	1:G:1595:LEU:HD22	1.87	0.54
1:A:415:ILE:HD11	1:A:486:LEU:HD11	1.89	0.54
1:A:4125:PHE:HA	1:A:4128:PHE:HB3	1.87	0.54
1:C:1286:MET:HG3	1:C:1555:LEU:HB2	1.90	0.54
1:C:4247:ILE:HD13	1:C:4667:PRO:HG2	1.89	0.54
1:E:165:VAL:HG23	1:E:204:PRO:HD2	1.90	0.54
1:E:3752:SER:OG	1:E:3753:PHE:N	2.41	0.54
1:G:1649:ASP:HB3	1:G:1652:GLU:HG3	1.88	0.54
1:A:54:ASN:HB2	1:A:57:ASN:HD21	1.73	0.54
2:B:78:PRO:HD3	2:B:96:THR:HG22	1.88	0.54
1:C:1006:SER:OG	1:C:1007:TYR:N	2.40	0.54
1:E:3624:LEU:HD13	1:E:3629:ARG:HH12	1.71	0.54
1:E:4851:TYR:HE1	1:E:4919:THR:HG23	1.73	0.54
1:G:224:HIS:O	1:G:229:GLU:N	2.40	0.54
1:G:1452:TRP:HB3	1:G:1548:LEU:HB3	1.88	0.54
1:G:2138:LEU:HD11	1:G:3658:LYS:HB2	1.88	0.54
1:G:4851:TYR:HE1	1:G:4919:THR:HG23	1.73	0.54
1:A:102:LEU:HD13	1:A:160:GLY:HA2	1.89	0.54
1:A:4133:GLN:HA	1:A:4136:ALA:HB3	1.90	0.54
1:C:3771:HIS:HB3	1:C:3804:ILE:HD11	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:165:VAL:HG23	1:G:204:PRO:HD2	1.90	0.54
1:A:106:ALA:HA	1:A:149:THR:HA	1.88	0.54
1:A:317:ARG:NH2	1:A:350:HIS:O	2.41	0.54
1:A:1452:TRP:HB3	1:A:1548:LEU:HB3	1.88	0.54
1:E:1286:MET:HG3	1:E:1555:LEU:HB2	1.90	0.54
1:E:4051:SER:HB2	1:E:4054:ASN:HD21	1.73	0.54
1:E:4823:LEU:HD11	1:G:4839:MET:HG2	1.90	0.54
2:H:78:PRO:HD3	2:H:96:THR:HG22	1.88	0.54
1:A:131:LEU:HD11	1:G:2460:LEU:HB2	1.90	0.54
1:A:224:HIS:O	1:A:229:GLU:N	2.40	0.54
1:A:4823:LEU:HD11	1:C:4839:MET:HG2	1.90	0.54
2:B:57:LYS:HA	2:B:60:GLU:HG2	1.89	0.54
1:C:1170:MET:HA	1:C:1176:GLU:HA	1.89	0.54
1:C:1649:ASP:HB3	1:C:1652:GLU:HG3	1.88	0.54
2:D:105:ASN:OD1	2:D:106:LEU:N	2.39	0.54
1:E:54:ASN:HB2	1:E:57:ASN:HD21	1.73	0.54
1:E:2159:LEU:HA	1:E:2162:ILE:HG22	1.90	0.54
1:G:3771:HIS:HB3	1:G:3804:ILE:HD11	1.90	0.54
1:A:4714:ASN:ND2	1:A:4775:TYR:OH	2.40	0.54
1:C:2460:LEU:HB2	1:E:131:LEU:HD11	1.90	0.54
2:D:57:LYS:HA	2:D:60:GLU:HG2	1.89	0.54
1:E:415:ILE:HD11	1:E:486:LEU:HD11	1.89	0.54
1:E:3771:HIS:HB3	1:E:3804:ILE:HD11	1.90	0.54
1:G:3752:SER:OG	1:G:3753:PHE:N	2.41	0.54
1:A:3752:SER:OG	1:A:3753:PHE:N	2.41	0.54
1:C:317:ARG:NH2	1:C:350:HIS:O	2.41	0.54
1:C:4823:LEU:HD11	1:E:4839:MET:HG2	1.90	0.54
1:E:2460:LEU:HB2	1:G:131:LEU:HD11	1.90	0.54
1:G:2159:LEU:HA	1:G:2162:ILE:HG22	1.89	0.54
1:A:1286:MET:HG3	1:A:1555:LEU:HB2	1.90	0.54
1:A:2460:LEU:HB2	1:C:131:LEU:HD11	1.90	0.54
1:C:2258:LEU:HD12	1:C:2297:LYS:HE2	1.90	0.54
1:C:4051:SER:HB2	1:C:4054:ASN:HD21	1.73	0.54
1:C:54:ASN:HB2	1:C:57:ASN:HD21	1.73	0.53
1:G:2258:LEU:HD12	1:G:2297:LYS:HE2	1.90	0.53
1:G:4247:ILE:HD13	1:G:4667:PRO:HG2	1.89	0.53
1:A:813:GLU:HG2	1:A:1009:ALA:HB3	1.89	0.53
1:C:102:LEU:HD13	1:C:160:GLY:HA2	1.89	0.53
1:G:4133:GLN:HA	1:G:4136:ALA:HB3	1.90	0.53
1:A:3771:HIS:HB3	1:A:3804:ILE:HD11	1.90	0.53
1:C:1695:LEU:HA	1:C:1698:LEU:HD22	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:813:GLU:HG2	1:E:1009:ALA:HB3	1.89	0.53
1:E:2258:LEU:HD12	1:E:2297:LYS:HE2	1.90	0.53
1:G:415:ILE:HD11	1:G:486:LEU:HD11	1.89	0.53
1:G:1011:GLN:HB3	1:G:1019:PRO:HD3	1.91	0.53
1:A:2013:LYS:NZ	1:A:3660:ALA:O	2.41	0.53
1:C:1011:GLN:HB3	1:C:1019:PRO:HD3	1.91	0.53
1:C:3878:ASP:OD1	1:C:3878:ASP:N	2.42	0.53
1:A:1695:LEU:HA	1:A:1698:LEU:HD22	1.91	0.53
1:A:2159:LEU:HA	1:A:2162:ILE:HG22	1.90	0.53
1:C:415:ILE:HD11	1:C:486:LEU:HD11	1.89	0.53
1:E:1170:MET:HA	1:E:1176:GLU:HA	1.89	0.53
1:E:1695:LEU:HA	1:E:1698:LEU:HD22	1.91	0.53
1:G:1695:LEU:HA	1:G:1698:LEU:HD22	1.91	0.53
1:G:4714:ASN:ND2	1:G:4775:TYR:OH	2.40	0.53
1:A:4247:ILE:HD13	1:A:4667:PRO:HG2	1.89	0.53
1:C:2159:LEU:HA	1:C:2162:ILE:HG22	1.90	0.53
1:E:317:ARG:NH2	1:E:350:HIS:O	2.41	0.53
1:E:4133:GLN:HA	1:E:4136:ALA:HB3	1.90	0.53
1:G:1170:MET:HA	1:G:1176:GLU:HA	1.89	0.53
1:A:1011:GLN:HB3	1:A:1019:PRO:HD3	1.91	0.53
1:E:1011:GLN:HB3	1:E:1019:PRO:HD3	1.91	0.53
1:G:54:ASN:HB2	1:G:57:ASN:HD21	1.73	0.53
1:A:165:VAL:HG23	1:A:204:PRO:HD2	1.90	0.53
1:A:1170:MET:HA	1:A:1176:GLU:HA	1.89	0.53
1:C:165:VAL:HG23	1:C:204:PRO:HD2	1.90	0.53
1:E:1089:TYR:HH	1:E:1163:THR:HG1	1.51	0.53
1:G:4051:SER:HB2	1:G:4054:ASN:HD21	1.73	0.53
1:A:1279:SER:OG	1:A:1280:GLN:N	2.41	0.53
1:E:530:ILE:HG21	1:E:567:VAL:HG12	1.91	0.53
1:E:4031:LEU:HA	1:E:4034:ASN:HD22	1.74	0.53
1:G:4031:LEU:HA	1:G:4034:ASN:HD22	1.74	0.53
1:A:1006:SER:OG	1:A:1007:TYR:N	2.40	0.53
1:A:4839:MET:HG2	1:G:4823:LEU:HD11	1.90	0.53
1:E:102:LEU:HD13	1:E:160:GLY:HA2	1.89	0.53
1:G:530:ILE:HG21	1:G:567:VAL:HG12	1.91	0.53
1:G:1006:SER:OG	1:G:1007:TYR:N	2.40	0.53
1:G:1141:ARG:HG3	1:G:1169:LEU:HD11	1.91	0.53
1:A:2258:LEU:HD12	1:A:2297:LYS:HE2	1.90	0.52
1:A:4851:TYR:HE1	1:A:4919:THR:HG23	1.73	0.52
1:A:530:ILE:HG21	1:A:567:VAL:HG12	1.91	0.52
1:A:1454:THR:HG23	1:A:1456:ASP:H	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:4133:GLN:HA	1:C:4136:ALA:HB3	1.90	0.52
1:C:4851:TYR:HE1	1:C:4919:THR:HG23	1.73	0.52
1:E:1141:ARG:HG3	1:E:1169:LEU:HD11	1.91	0.52
1:C:545:ASP:HA	1:C:548:VAL:HG22	1.92	0.52
1:C:1023:PRO:HG2	1:C:1026:LEU:HB2	1.92	0.52
1:G:3814:GLN:HE22	1:G:3896:ASN:HD21	1.57	0.52
1:C:3814:GLN:HE22	1:C:3896:ASN:HD21	1.57	0.52
1:A:1072:VAL:HG23	1:A:1195:GLY:HA2	1.92	0.52
1:A:2552:ARG:O	1:A:2556:LEU:HB2	2.10	0.52
1:A:3878:ASP:N	1:A:3878:ASP:OD1	2.42	0.52
1:G:3781:GLN:NE2	1:G:3819:TYR:OH	2.42	0.52
1:A:1023:PRO:HG2	1:A:1026:LEU:HB2	1.92	0.52
1:A:2575:ARG:HH12	1:A:2578:MET:HE3	1.75	0.52
1:E:1291:LEU:HB2	1:E:1550:PRO:HG2	1.91	0.52
1:E:4820:VAL:HG22	1:E:4822:THR:H	1.75	0.52
1:A:591:ASP:O	1:A:1594:ARG:NH1	2.43	0.52
1:A:1291:LEU:HB2	1:A:1550:PRO:HG2	1.91	0.52
1:A:4051:SER:HB2	1:A:4054:ASN:HD21	1.73	0.52
1:C:1072:VAL:HG23	1:C:1195:GLY:HA2	1.92	0.52
1:C:1454:THR:HG23	1:C:1456:ASP:H	1.74	0.52
1:C:4820:VAL:HG22	1:C:4822:THR:H	1.75	0.52
1:G:1291:LEU:HB2	1:G:1550:PRO:HG2	1.92	0.52
1:G:2432:LEU:O	1:G:2436:CYS:HB3	2.10	0.52
1:G:2552:ARG:O	1:G:2556:LEU:HB2	2.10	0.52
1:A:2432:LEU:O	1:A:2436:CYS:HB3	2.10	0.52
1:A:2467:VAL:HA	1:A:2470:ILE:HG22	1.92	0.52
1:C:530:ILE:HG21	1:C:567:VAL:HG12	1.91	0.52
1:E:591:ASP:O	1:E:1594:ARG:NH1	2.43	0.52
1:A:1141:ARG:HG3	1:A:1169:LEU:HD11	1.91	0.51
1:A:4031:LEU:HA	1:A:4034:ASN:HD22	1.74	0.51
1:C:3752:SER:OG	1:C:3753:PHE:N	2.41	0.51
1:A:3814:GLN:HE22	1:A:3896:ASN:HD21	1.57	0.51
1:G:180:LEU:HB2	1:G:200:TRP:HE1	1.76	0.51
1:G:1454:THR:HG23	1:G:1456:ASP:H	1.74	0.51
1:A:74:SER:OG	1:A:75:VAL:N	2.38	0.51
1:C:591:ASP:O	1:C:1594:ARG:NH1	2.43	0.51
1:C:2432:LEU:O	1:C:2436:CYS:HB3	2.10	0.51
1:C:4031:LEU:HA	1:C:4034:ASN:HD22	1.74	0.51
1:E:1023:PRO:HG2	1:E:1026:LEU:HB2	1.92	0.51
1:E:1072:VAL:HG23	1:E:1195:GLY:HA2	1.92	0.51
1:A:2466:LEU:HD11	1:A:2506:LEU:HB2	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3904:ARG:NH2	1:A:3976:ASN:OD1	2.43	0.51
1:C:2467:VAL:HA	1:C:2470:ILE:HG22	1.92	0.51
1:E:456:SER:OG	1:E:457:GLU:N	2.44	0.51
1:E:2467:VAL:HA	1:E:2470:ILE:HG22	1.92	0.51
1:E:3814:GLN:HE22	1:E:3896:ASN:HD21	1.57	0.51
1:E:2432:LEU:O	1:E:2436:CYS:HB3	2.10	0.51
1:E:2552:ARG:O	1:E:2556:LEU:HB2	2.10	0.51
1:E:3781:GLN:NE2	1:E:3819:TYR:OH	2.43	0.51
1:E:4187:SER:O	1:E:4187:SER:OG	2.27	0.51
1:G:545:ASP:HA	1:G:548:VAL:HG22	1.92	0.51
1:G:591:ASP:O	1:G:1594:ARG:NH1	2.43	0.51
1:G:1023:PRO:HG2	1:G:1026:LEU:HB2	1.92	0.51
1:C:1141:ARG:HG3	1:C:1169:LEU:HD11	1.91	0.51
1:E:180:LEU:HB2	1:E:200:TRP:HE1	1.76	0.51
1:A:3781:GLN:NE2	1:A:3819:TYR:OH	2.43	0.51
1:C:3904:ARG:NH2	1:C:3976:ASN:OD1	2.43	0.51
1:E:545:ASP:HA	1:E:548:VAL:HG22	1.92	0.51
1:E:2030:ASP:OD2	1:E:2030:ASP:N	2.44	0.51
1:E:3904:ARG:NH2	1:E:3976:ASN:OD1	2.43	0.51
1:G:456:SER:OG	1:G:457:GLU:N	2.44	0.51
1:G:2549:ALA:HA	1:G:2552:ARG:HD3	1.93	0.51
1:A:642:THR:HG23	1:A:1613:LEU:HD13	1.93	0.51
1:C:2021:CYS:HB2	1:C:2028:ARG:HH22	1.76	0.51
1:C:2552:ARG:O	1:C:2556:LEU:HB2	2.10	0.51
1:E:1454:THR:HG23	1:E:1456:ASP:H	1.75	0.51
1:E:2021:CYS:HB2	1:E:2028:ARG:HH22	1.76	0.51
1:G:551:LEU:HB3	1:G:589:LEU:HD13	1.93	0.51
1:G:642:THR:HG23	1:G:1613:LEU:HD13	1.93	0.51
1:G:1653:LEU:HB3	1:G:1660:GLN:HB3	1.93	0.51
1:C:456:SER:OG	1:C:457:GLU:N	2.44	0.51
1:C:2549:ALA:HA	1:C:2552:ARG:HD3	1.93	0.51
1:E:2549:ALA:HA	1:E:2552:ARG:HD3	1.93	0.51
1:G:2021:CYS:HB2	1:G:2028:ARG:HH22	1.76	0.51
1:G:2467:VAL:HA	1:G:2470:ILE:HG22	1.92	0.51
1:A:4820:VAL:HG22	1:A:4822:THR:H	1.75	0.50
1:G:1072:VAL:HG23	1:G:1195:GLY:HA2	1.92	0.50
1:A:545:ASP:HA	1:A:548:VAL:HG22	1.92	0.50
1:A:2021:CYS:HB2	1:A:2028:ARG:HH22	1.76	0.50
1:A:2549:ALA:HA	1:A:2552:ARG:HD3	1.93	0.50
1:A:4022:ASP:HA	1:A:4025:VAL:HG12	1.94	0.50
1:C:1291:LEU:HB2	1:C:1550:PRO:HG2	1.91	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1653:LEU:HB3	1:E:1660:GLN:HB3	1.93	0.50
1:C:1089:TYR:HH	1:C:1163:THR:HG1	1.56	0.50
1:C:2575:ARG:HH12	1:C:2578:MET:HE3	1.76	0.50
1:G:2433:LEU:HB3	1:G:2457:LEU:HD11	1.94	0.50
1:G:2575:ARG:HH12	1:G:2578:MET:HE3	1.76	0.50
1:A:4892:ARG:HE	1:C:4896:GLY:HA3	1.76	0.50
1:C:1076:ARG:O	1:C:1237:TRP:N	2.45	0.50
1:E:1076:ARG:O	1:E:1237:TRP:N	2.45	0.50
1:A:456:SER:OG	1:A:457:GLU:N	2.44	0.50
1:E:671:VAL:HG22	1:E:787:VAL:HG13	1.93	0.50
1:G:3904:ARG:NH2	1:G:3976:ASN:OD1	2.43	0.50
1:A:180:LEU:HB2	1:A:200:TRP:HE1	1.76	0.50
1:A:1653:LEU:HB3	1:A:1660:GLN:HB3	1.93	0.50
1:C:642:THR:HG23	1:C:1613:LEU:HD13	1.93	0.50
1:E:2433:LEU:HB3	1:E:2457:LEU:HD11	1.94	0.50
1:G:317:ARG:NH2	1:G:350:HIS:O	2.41	0.50
1:G:1076:ARG:O	1:G:1237:TRP:N	2.45	0.50
1:G:4022:ASP:HA	1:G:4025:VAL:HG12	1.94	0.50
1:C:3626:LYS:HA	1:C:3629:ARG:HG2	1.93	0.50
1:C:4022:ASP:HA	1:C:4025:VAL:HG12	1.94	0.50
1:G:648:ILE:HG23	1:G:814:ALA:HB3	1.94	0.50
1:A:551:LEU:HB3	1:A:589:LEU:HD13	1.93	0.50
1:A:671:VAL:HG22	1:A:787:VAL:HG13	1.93	0.50
1:C:2013:LYS:NZ	1:C:3660:ALA:O	2.41	0.50
1:C:2466:LEU:HD11	1:C:2506:LEU:HB2	1.93	0.50
1:G:2466:LEU:HD11	1:G:2506:LEU:HB2	1.93	0.50
1:C:3781:GLN:NE2	1:C:3819:TYR:OH	2.43	0.50
1:C:4187:SER:O	1:C:4187:SER:OG	2.27	0.50
1:E:3626:LYS:HA	1:E:3629:ARG:HG2	1.94	0.50
1:G:4820:VAL:HG22	1:G:4822:THR:H	1.75	0.50
1:C:551:LEU:HB3	1:C:589:LEU:HD13	1.93	0.49
1:E:551:LEU:HB3	1:E:589:LEU:HD13	1.93	0.49
1:A:2149:VAL:HA	1:A:2152:THR:HG22	1.95	0.49
1:A:4896:GLY:HA3	1:G:4892:ARG:HE	1.76	0.49
1:C:1653:LEU:HB3	1:C:1660:GLN:HB3	1.93	0.49
1:C:2149:VAL:HA	1:C:2152:THR:HG22	1.95	0.49
1:E:642:THR:HG23	1:E:1613:LEU:HD13	1.93	0.49
1:E:648:ILE:HG23	1:E:814:ALA:HB3	1.94	0.49
1:C:478:PHE:HB3	1:C:483:MET:HG2	1.95	0.49
1:C:1229:ASN:HB3	1:C:1826:ALA:HA	1.94	0.49
1:E:1229:ASN:HB3	1:E:1826:ALA:HA	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:4022:ASP:HA	1:E:4025:VAL:HG12	1.94	0.49
1:G:1817:GLU:HA	1:G:1820:ARG:HE	1.77	0.49
1:A:478:PHE:HB3	1:A:483:MET:HG2	1.95	0.49
1:A:1862:ILE:HA	1:A:1865:MET:HB2	1.95	0.49
1:C:1443:GLN:NE2	1:C:1555:LEU:O	2.45	0.49
1:E:2466:LEU:HD11	1:E:2506:LEU:HB2	1.93	0.49
1:G:1862:ILE:HA	1:G:1865:MET:HB2	1.95	0.49
1:A:648:ILE:HG23	1:A:814:ALA:HB3	1.94	0.49
1:A:1229:ASN:HB3	1:A:1826:ALA:HA	1.95	0.49
1:C:671:VAL:HG22	1:C:787:VAL:HG13	1.93	0.49
1:G:1229:ASN:HB3	1:G:1826:ALA:HA	1.94	0.49
1:G:2597:LYS:HA	1:G:2600:ARG:HG2	1.95	0.49
1:C:995:VAL:HA	1:C:998:ARG:HB3	1.95	0.49
1:E:478:PHE:HB3	1:E:483:MET:HG2	1.95	0.49
1:G:3626:LYS:HA	1:G:3629:ARG:HG2	1.94	0.49
1:A:995:VAL:HA	1:A:998:ARG:HB3	1.95	0.49
1:C:2433:LEU:HB3	1:C:2457:LEU:HD11	1.94	0.49
1:G:671:VAL:HG22	1:G:787:VAL:HG13	1.93	0.49
1:G:995:VAL:HA	1:G:998:ARG:HB3	1.95	0.49
1:A:4187:SER:O	1:A:4187:SER:OG	2.27	0.49
1:C:355:LEU:HD11	1:C:380:GLN:HA	1.94	0.49
1:C:2559:LEU:HD12	1:C:2602:VAL:HG23	1.95	0.49
1:E:4892:ARG:HE	1:G:4896:GLY:HA3	1.76	0.49
1:A:1735:ILE:HD11	1:A:2156:LEU:HD21	1.95	0.49
1:A:1817:GLU:HA	1:A:1820:ARG:HE	1.77	0.49
1:A:2433:LEU:HB3	1:A:2457:LEU:HD11	1.94	0.49
1:E:355:LEU:HD11	1:E:380:GLN:HA	1.94	0.49
1:E:995:VAL:HA	1:E:998:ARG:HB3	1.95	0.49
1:G:1443:GLN:NE2	1:G:1555:LEU:O	2.45	0.49
1:G:2467:VAL:O	1:G:2471:SER:HB2	2.13	0.49
1:C:1817:GLU:HA	1:C:1820:ARG:HE	1.77	0.49
1:A:1076:ARG:O	1:A:1237:TRP:N	2.45	0.48
1:A:2467:VAL:O	1:A:2471:SER:HB2	2.13	0.48
1:A:2559:LEU:HD12	1:A:2602:VAL:HG23	1.95	0.48
1:C:180:LEU:HB2	1:C:200:TRP:HE1	1.76	0.48
1:C:1862:ILE:HA	1:C:1865:MET:HB2	1.95	0.48
1:C:4667:PRO:HA	1:C:4670:ILE:HB	1.95	0.48
1:C:4892:ARG:HE	1:E:4896:GLY:HA3	1.76	0.48
1:E:1443:GLN:NE2	1:E:1555:LEU:O	2.45	0.48
1:E:1862:ILE:HA	1:E:1865:MET:HB2	1.95	0.48
1:A:3626:LYS:HA	1:A:3629:ARG:HG2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:772:ASN:HB2	1:C:1470:ARG:HG2	1.95	0.48
1:C:2467:VAL:O	1:C:2471:SER:HB2	2.13	0.48
1:E:1105:ALA:O	1:E:1189:LEU:N	2.46	0.48
1:E:1863:LEU:HD23	1:E:1866:ILE:HD11	1.95	0.48
1:E:2149:VAL:HA	1:E:2152:THR:HG22	1.94	0.48
1:G:478:PHE:HB3	1:G:483:MET:HG2	1.95	0.48
1:G:2149:VAL:HA	1:G:2152:THR:HG22	1.95	0.48
1:E:772:ASN:HB2	1:E:1470:ARG:HG2	1.95	0.48
1:E:4667:PRO:HA	1:E:4670:ILE:HB	1.95	0.48
1:G:1735:ILE:HD11	1:G:2156:LEU:HD21	1.95	0.48
1:G:3705:PHE:HA	1:G:3708:THR:HG22	1.95	0.48
1:A:772:ASN:HB2	1:A:1470:ARG:HG2	1.95	0.48
1:A:1443:GLN:NE2	1:A:1555:LEU:O	2.45	0.48
1:C:1105:ALA:O	1:C:1189:LEU:N	2.46	0.48
1:A:3628:ARG:HH12	1:A:3858:MET:H	1.62	0.48
1:C:1735:ILE:HD11	1:C:2156:LEU:HD21	1.95	0.48
1:C:2030:ASP:OD2	1:C:2030:ASP:N	2.44	0.48
1:C:3674:ILE:HG23	1:C:3769:ARG:HH12	1.79	0.48
1:C:3705:PHE:HA	1:C:3708:THR:HG22	1.95	0.48
1:G:355:LEU:HD11	1:G:380:GLN:HA	1.94	0.48
1:A:355:LEU:HD11	1:A:380:GLN:HA	1.94	0.48
1:A:1036:ARG:O	1:A:1040:CYS:HB2	2.14	0.48
1:C:3794:VAL:HA	1:C:3797:THR:HG22	1.96	0.48
1:G:772:ASN:HB2	1:G:1470:ARG:HG2	1.95	0.48
1:G:1036:ARG:O	1:G:1040:CYS:HB2	2.14	0.48
1:C:648:ILE:HG23	1:C:814:ALA:HB3	1.94	0.48
1:E:1817:GLU:HA	1:E:1820:ARG:HE	1.78	0.48
1:E:2013:LYS:NZ	1:E:3660:ALA:O	2.41	0.48
1:E:2559:LEU:HD12	1:E:2602:VAL:HG23	1.95	0.48
1:E:2621:HIS:HA	1:E:2624:ARG:HG2	1.96	0.48
1:G:1843:LYS:HB2	1:G:1938:GLN:HE21	1.79	0.48
1:G:3628:ARG:HH12	1:G:3858:MET:H	1.62	0.48
1:A:116:MET:HB2	1:A:137:LEU:HD23	1.95	0.48
1:A:3705:PHE:HA	1:A:3708:THR:HG22	1.95	0.48
1:C:1435:TYR:HB3	1:C:1575:LEU:HD21	1.96	0.48
1:C:3628:ARG:HH12	1:C:3858:MET:H	1.62	0.48
1:E:1435:TYR:HB3	1:E:1575:LEU:HD21	1.96	0.48
1:E:1735:ILE:HD11	1:E:2156:LEU:HD21	1.95	0.48
1:E:1843:LYS:HB2	1:E:1938:GLN:HE21	1.79	0.48
1:E:3705:PHE:HA	1:E:3708:THR:HG22	1.95	0.48
1:G:2013:LYS:NZ	1:G:3660:ALA:O	2.41	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2458:ARG:HE	1:A:2510:TYR:HA	1.79	0.48
1:E:497:TYR:HB3	1:E:503:PHE:HB3	1.96	0.48
1:E:3674:ILE:HG23	1:E:3769:ARG:HH12	1.79	0.48
1:G:1105:ALA:O	1:G:1189:LEU:N	2.46	0.48
1:A:1073:ARG:HH21	1:A:1238:PHE:HE2	1.62	0.47
1:A:1863:LEU:HD23	1:A:1866:ILE:HD11	1.95	0.47
1:C:2597:LYS:HA	1:C:2600:ARG:HG2	1.95	0.47
1:C:3916:ILE:HG21	1:C:3980:LEU:HD21	1.97	0.47
1:E:1073:ARG:HH21	1:E:1238:PHE:HE2	1.62	0.47
1:E:3628:ARG:HH12	1:E:3858:MET:H	1.62	0.47
1:G:1073:ARG:HH21	1:G:1238:PHE:HE2	1.62	0.47
1:G:2621:HIS:HA	1:G:2624:ARG:HG2	1.96	0.47
1:C:497:TYR:HB3	1:C:503:PHE:HB3	1.96	0.47
1:C:1073:ARG:HH21	1:C:1238:PHE:HE2	1.62	0.47
1:C:5004:THR:H	1:C:5007:GLU:HB2	1.80	0.47
1:E:1036:ARG:O	1:E:1040:CYS:HB2	2.14	0.47
1:E:2597:LYS:HA	1:E:2600:ARG:HG2	1.95	0.47
1:E:3794:VAL:HA	1:E:3797:THR:HG22	1.96	0.47
1:G:1863:LEU:HD23	1:G:1866:ILE:HD11	1.95	0.47
1:C:2254:LEU:HA	1:C:2257:LEU:HB2	1.96	0.47
1:C:4870:ASP:OD1	1:C:4870:ASP:N	2.48	0.47
1:G:4667:PRO:HA	1:G:4670:ILE:HB	1.95	0.47
1:A:492:ASP:OD1	1:A:492:ASP:N	2.48	0.47
1:A:1545:ASN:HD21	2:B:32:ASN:HA	1.78	0.47
1:A:1604:SER:OG	1:A:1605:TRP:N	2.48	0.47
1:A:3674:ILE:HG23	1:A:3769:ARG:HH12	1.79	0.47
1:C:1863:LEU:HD23	1:C:1866:ILE:HD11	1.95	0.47
1:E:2467:VAL:O	1:E:2471:SER:HB2	2.13	0.47
1:G:3674:ILE:HG23	1:G:3769:ARG:HH12	1.79	0.47
1:A:2254:LEU:HA	1:A:2257:LEU:HB2	1.96	0.47
1:A:2597:LYS:HA	1:A:2600:ARG:HG2	1.95	0.47
1:A:4667:PRO:HA	1:A:4670:ILE:HB	1.95	0.47
1:G:492:ASP:OD1	1:G:492:ASP:N	2.48	0.47
1:G:1435:TYR:HB3	1:G:1575:LEU:HD21	1.96	0.47
1:A:1105:ALA:O	1:A:1189:LEU:N	2.46	0.47
1:A:3916:ILE:HG21	1:A:3980:LEU:HD21	1.97	0.47
1:C:1036:ARG:O	1:C:1040:CYS:HB2	2.14	0.47
1:C:1604:SER:OG	1:C:1605:TRP:N	2.48	0.47
1:G:497:TYR:HB3	1:G:503:PHE:HB3	1.96	0.47
1:G:2030:ASP:OD2	1:G:2030:ASP:N	2.44	0.47
1:G:2458:ARG:HE	1:G:2510:TYR:HA	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:2559:LEU:HD12	1:G:2602:VAL:HG23	1.95	0.47
1:G:3916:ILE:HG21	1:G:3980:LEU:HD21	1.97	0.47
1:G:4048:LEU:HD23	1:G:4055:VAL:HG11	1.97	0.47
1:A:1101:ARG:HB2	1:A:1193:SER:HB3	1.97	0.47
1:A:1436:SER:HA	1:A:1517:GLY:HA2	1.96	0.47
1:A:2621:HIS:HA	1:A:2624:ARG:HG2	1.96	0.47
1:C:1436:SER:HA	1:C:1517:GLY:HA2	1.96	0.47
1:C:2458:ARG:HE	1:C:2510:TYR:HA	1.79	0.47
1:C:2621:HIS:HA	1:C:2624:ARG:HG2	1.96	0.47
1:E:492:ASP:N	1:E:492:ASP:OD1	2.48	0.47
1:E:3916:ILE:HG21	1:E:3980:LEU:HD21	1.97	0.47
1:E:4884:LEU:HD21	1:G:4914:VAL:HG11	1.97	0.47
1:G:72:SER:O	1:G:72:SER:OG	2.32	0.47
1:G:564:LEU:HA	1:G:567:VAL:HG22	1.97	0.47
1:G:2254:LEU:HA	1:G:2257:LEU:HB2	1.97	0.47
1:G:3794:VAL:HA	1:G:3797:THR:HG22	1.96	0.47
1:A:564:LEU:HA	1:A:567:VAL:HG22	1.97	0.47
1:A:3794:VAL:HA	1:A:3797:THR:HG22	1.96	0.47
1:E:3675:ASP:OD1	1:E:3675:ASP:N	2.48	0.47
1:E:4244:GLU:HA	1:E:4247:ILE:HG22	1.97	0.47
1:G:116:MET:HB2	1:G:137:LEU:HD23	1.96	0.47
1:A:4870:ASP:N	1:A:4870:ASP:OD1	2.48	0.47
1:A:4884:LEU:HD21	1:C:4914:VAL:HG11	1.97	0.47
1:C:3772:THR:HG23	1:C:3773:ARG:HG3	1.97	0.47
1:E:5004:THR:H	1:E:5007:GLU:HB2	1.80	0.47
1:A:1435:TYR:HB3	1:A:1575:LEU:HD21	1.96	0.47
1:A:3772:THR:HG23	1:A:3773:ARG:HG3	1.97	0.47
1:A:4048:LEU:HD23	1:A:4055:VAL:HG11	1.97	0.47
1:A:4914:VAL:HG11	1:G:4884:LEU:HD21	1.97	0.47
1:C:116:MET:HB2	1:C:137:LEU:HD23	1.96	0.47
1:E:183:SER:HB3	1:E:190:GLN:H	1.80	0.47
1:E:1536:SER:OG	1:E:1537:ASN:N	2.47	0.47
1:E:4048:LEU:HD23	1:E:4055:VAL:HG11	1.97	0.47
1:G:1101:ARG:HB2	1:G:1193:SER:HB3	1.97	0.47
1:G:5004:THR:H	1:G:5007:GLU:HB2	1.80	0.47
1:A:497:TYR:HB3	1:A:503:PHE:HB3	1.96	0.46
1:A:5004:THR:H	1:A:5007:GLU:HB2	1.80	0.46
1:C:1101:ARG:HB2	1:C:1193:SER:HB3	1.97	0.46
1:C:4048:LEU:HD23	1:C:4055:VAL:HG11	1.96	0.46
1:C:4884:LEU:HD21	1:E:4914:VAL:HG11	1.97	0.46
1:C:183:SER:HB3	1:C:190:GLN:H	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:116:MET:HB2	1:E:137:LEU:HD23	1.96	0.46
1:E:649:PHE:HB3	1:E:776:LEU:HD22	1.97	0.46
1:G:2515:GLN:HG3	1:G:2518:LEU:HB3	1.96	0.46
1:G:4244:GLU:HA	1:G:4247:ILE:HG22	1.97	0.46
1:A:649:PHE:HB3	1:A:776:LEU:HD22	1.97	0.46
1:E:2254:LEU:HA	1:E:2257:LEU:HB2	1.96	0.46
1:E:2332:LEU:HD12	1:E:2432:LEU:HD13	1.98	0.46
1:G:1436:SER:HA	1:G:1517:GLY:HA2	1.96	0.46
1:A:1436:SER:OG	1:A:1437:VAL:N	2.49	0.46
1:A:1536:SER:OG	1:A:1537:ASN:N	2.47	0.46
1:A:2515:GLN:HG3	1:A:2518:LEU:HB3	1.96	0.46
1:C:652:ARG:HG2	1:C:658:GLN:HG2	1.98	0.46
1:C:3960:GLN:O	1:C:3964:SER:OG	2.34	0.46
1:E:1436:SER:HA	1:E:1517:GLY:HA2	1.96	0.46
1:G:183:SER:HB3	1:G:190:GLN:H	1.80	0.46
1:G:1436:SER:OG	1:G:1437:VAL:N	2.49	0.46
1:C:1619:ARG:HB2	1:C:1626:TRP:HA	1.97	0.46
1:C:2515:GLN:HG3	1:C:2518:LEU:HB3	1.96	0.46
1:E:1101:ARG:HB2	1:E:1193:SER:HB3	1.97	0.46
1:E:3960:GLN:O	1:E:3964:SER:OG	2.34	0.46
1:G:1604:SER:OG	1:G:1605:TRP:N	2.48	0.46
1:A:183:SER:HB3	1:A:190:GLN:H	1.80	0.46
1:E:2458:ARG:HE	1:E:2510:TYR:HA	1.79	0.46
1:E:3878:ASP:OD1	1:E:3878:ASP:N	2.42	0.46
1:G:649:PHE:HB3	1:G:776:LEU:HD22	1.97	0.46
1:G:1082:THR:OG1	1:G:1188:PHE:O	2.27	0.46
1:G:1536:SER:OG	1:G:1537:ASN:N	2.48	0.46
1:C:162:LYS:HD2	1:C:162:LYS:HA	1.69	0.46
1:E:1604:SER:OG	1:E:1605:TRP:N	2.48	0.46
1:G:162:LYS:HD2	1:G:162:LYS:HA	1.69	0.46
1:A:1619:ARG:HB2	1:A:1626:TRP:HA	1.97	0.46
1:C:564:LEU:HA	1:C:567:VAL:HG22	1.97	0.46
1:G:1619:ARG:HB2	1:G:1626:TRP:HA	1.97	0.46
1:G:3948:LYS:HD3	1:G:3948:LYS:HA	1.77	0.46
1:A:162:LYS:HD2	1:A:162:LYS:HA	1.69	0.46
1:A:1843:LYS:HB2	1:A:1938:GLN:HE21	1.79	0.46
1:A:1949:GLN:HA	1:A:1952:GLN:HB2	1.98	0.46
1:A:2030:ASP:OD2	1:A:2030:ASP:N	2.44	0.46
1:C:4244:GLU:HA	1:C:4247:ILE:HG22	1.97	0.46
1:G:1949:GLN:HA	1:G:1952:GLN:HB2	1.98	0.46
1:A:4000:MET:HB3	1:A:4013:LEU:HD11	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1843:LYS:HB2	1:C:1938:GLN:HE21	1.79	0.46
1:C:4837:LEU:HA	1:C:4840:THR:HG22	1.98	0.46
1:E:4000:MET:HB3	1:E:4013:LEU:HD11	1.98	0.46
1:G:3878:ASP:OD1	1:G:3878:ASP:N	2.42	0.46
1:A:652:ARG:HG2	1:A:658:GLN:HG2	1.98	0.45
1:A:2623:LEU:HA	1:A:2626:LEU:HB3	1.98	0.45
1:E:564:LEU:HA	1:E:567:VAL:HG22	1.97	0.45
1:E:2515:GLN:HG3	1:E:2518:LEU:HB3	1.96	0.45
1:G:3960:GLN:O	1:G:3964:SER:OG	2.34	0.45
1:A:3844:LEU:HD21	1:A:3933:PHE:HA	1.99	0.45
1:A:3960:GLN:O	1:A:3964:SER:OG	2.34	0.45
1:C:649:PHE:HB3	1:C:776:LEU:HD22	1.97	0.45
1:G:1739:THR:HG22	1:G:1742:THR:HG23	1.99	0.45
1:G:4000:MET:HB3	1:G:4013:LEU:HD11	1.98	0.45
1:E:3772:THR:HG23	1:E:3773:ARG:HG3	1.97	0.45
1:E:4571:PHE:HD1	1:E:4813:LEU:HD21	1.82	0.45
1:G:4187:SER:O	1:G:4187:SER:OG	2.27	0.45
1:C:2623:LEU:HA	1:C:2626:LEU:HB3	1.98	0.45
1:E:1619:ARG:HB2	1:E:1626:TRP:HA	1.97	0.45
1:A:72:SER:O	1:A:72:SER:OG	2.32	0.45
1:C:266:ARG:HD3	1:C:267:ILE:H	1.82	0.45
1:C:492:ASP:N	1:C:492:ASP:OD1	2.48	0.45
1:C:2155:LEU:HB2	1:C:2188:ASN:ND2	2.31	0.45
1:C:2332:LEU:HD12	1:C:2432:LEU:HD13	1.97	0.45
1:C:4571:PHE:HD1	1:C:4813:LEU:HD21	1.82	0.45
1:E:290:TYR:HB3	1:E:312:THR:HG21	1.99	0.45
1:E:1739:THR:HG22	1:E:1742:THR:HG23	1.99	0.45
1:E:4837:LEU:HA	1:E:4840:THR:HG22	1.98	0.45
1:A:2332:LEU:HD12	1:A:2432:LEU:HD13	1.98	0.45
1:A:4244:GLU:HA	1:A:4247:ILE:HG22	1.97	0.45
1:E:2155:LEU:HB2	1:E:2188:ASN:ND2	2.31	0.45
1:G:3772:THR:HG23	1:G:3773:ARG:HG3	1.97	0.45
1:G:4060:LYS:HA	1:G:4060:LYS:HD3	1.74	0.45
1:G:4837:LEU:HA	1:G:4840:THR:HG22	1.98	0.45
1:A:4837:LEU:HA	1:A:4840:THR:HG22	1.98	0.45
1:C:3844:LEU:HD21	1:C:3933:PHE:HA	1.99	0.45
1:E:2623:LEU:HA	1:E:2626:LEU:HB3	1.98	0.45
1:E:4060:LYS:HA	1:E:4060:LYS:HD3	1.74	0.45
1:G:3921:ASP:HA	1:G:3924:LEU:HG	1.99	0.45
1:A:266:ARG:HD3	1:A:267:ILE:H	1.82	0.45
1:A:1128:ARG:HB2	1:A:1130:GLN:HE22	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:3675:ASP:OD1	1:C:3675:ASP:N	2.48	0.45
1:E:790:ARG:HE	1:E:1624:LEU:HB3	1.82	0.45
1:G:290:TYR:HB3	1:G:312:THR:HG21	1.99	0.45
1:G:2155:LEU:HB2	1:G:2188:ASN:ND2	2.31	0.45
1:G:2623:LEU:HA	1:G:2626:LEU:HB3	1.99	0.45
1:G:4180:ARG:HD3	1:G:4192:ARG:NH2	2.32	0.45
1:A:4180:ARG:HD3	1:A:4192:ARG:NH2	2.32	0.45
1:C:790:ARG:HE	1:C:1624:LEU:HB3	1.82	0.45
1:C:1128:ARG:HB2	1:C:1130:GLN:HE22	1.82	0.45
1:C:4000:MET:HB3	1:C:4013:LEU:HD11	1.98	0.45
1:G:3754:GLU:O	1:G:3758:MET:HB2	2.17	0.45
1:G:4047:MET:HB3	1:G:4048:LEU:HD12	1.99	0.45
1:A:790:ARG:HE	1:A:1624:LEU:HB3	1.82	0.45
1:A:3921:ASP:HA	1:A:3924:LEU:HG	1.99	0.45
1:A:290:TYR:HB3	1:A:312:THR:HG21	1.99	0.44
1:A:3754:GLU:O	1:A:3758:MET:HB2	2.17	0.44
1:A:3850:GLN:HA	1:A:3853:ALA:HB3	2.00	0.44
1:C:4180:ARG:HD3	1:C:4192:ARG:NH2	2.32	0.44
1:G:652:ARG:HG2	1:G:658:GLN:HG2	1.98	0.44
1:G:2332:LEU:HD12	1:G:2432:LEU:HD13	1.98	0.44
1:A:2155:LEU:HB2	1:A:2188:ASN:ND2	2.31	0.44
1:A:4879:MET:HA	1:A:4882:CYS:HB3	1.99	0.44
1:C:1739:THR:HG22	1:C:1742:THR:HG23	1.99	0.44
1:C:1949:GLN:HA	1:C:1952:GLN:HB2	1.98	0.44
1:C:4936:ILE:HG21	1:E:4927:ILE:HG23	1.99	0.44
1:E:182:LEU:HD22	1:E:189:LEU:HD21	2.00	0.44
1:E:3754:GLU:O	1:E:3758:MET:HB2	2.17	0.44
1:G:790:ARG:HE	1:G:1624:LEU:HB3	1.82	0.44
1:G:1095:VAL:HG13	1:G:1096:THR:HG23	1.99	0.44
1:G:4879:MET:HA	1:G:4882:CYS:HB3	1.99	0.44
1:A:1095:VAL:HG13	1:A:1096:THR:HG23	1.99	0.44
1:A:4217:PHE:HZ	1:A:4233:LEU:HD22	1.83	0.44
1:C:1436:SER:OG	1:C:1437:VAL:N	2.49	0.44
1:C:3850:GLN:HA	1:C:3853:ALA:HB3	2.00	0.44
1:C:4060:LYS:HD3	1:C:4060:LYS:HA	1.74	0.44
1:E:4879:MET:HA	1:E:4882:CYS:HB3	2.00	0.44
1:G:266:ARG:HD3	1:G:267:ILE:H	1.82	0.44
1:G:1128:ARG:HB2	1:G:1130:GLN:HE22	1.82	0.44
1:G:4217:PHE:HZ	1:G:4233:LEU:HD22	1.83	0.44
1:A:1739:THR:HG22	1:A:1742:THR:HG23	1.99	0.44
1:A:4047:MET:HB3	1:A:4048:LEU:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:4707:ASN:HA	1:C:4742:GLY:HA3	1.99	0.44
1:C:4879:MET:HA	1:C:4882:CYS:HB3	2.00	0.44
1:E:266:ARG:HD3	1:E:267:ILE:H	1.82	0.44
1:E:652:ARG:HG2	1:E:658:GLN:HG2	1.98	0.44
1:E:1128:ARG:HB2	1:E:1130:GLN:HE22	1.82	0.44
1:E:4047:MET:HB3	1:E:4048:LEU:HD12	1.99	0.44
1:E:4707:ASN:HA	1:E:4742:GLY:HA3	1.99	0.44
1:G:4571:PHE:HD1	1:G:4813:LEU:HD21	1.82	0.44
1:A:1684:ALA:O	1:A:1687:SER:OG	2.35	0.44
1:A:3675:ASP:N	1:A:3675:ASP:OD1	2.48	0.44
1:A:4571:PHE:HD1	1:A:4813:LEU:HD21	1.82	0.44
1:C:2244:ARG:NH2	1:C:2283:ASN:HB2	2.33	0.44
1:C:4047:MET:HB3	1:C:4048:LEU:HD12	1.99	0.44
1:A:1005:TRP:HA	1:A:1016:ARG:HG3	2.00	0.44
1:A:4707:ASN:HA	1:A:4742:GLY:HA3	1.99	0.44
1:C:1566:LEU:HG	1:C:1591:CYS:HB2	1.99	0.44
1:E:721:LEU:HB3	1:E:768:PHE:HZ	1.83	0.44
1:E:1436:SER:OG	1:E:1437:VAL:N	2.49	0.44
1:E:4069:LYS:HD2	1:E:4069:LYS:HA	1.85	0.44
1:E:4936:ILE:HG21	1:G:4927:ILE:HG23	1.99	0.44
1:A:1077:ALA:HA	1:A:1236:THR:HA	2.00	0.44
1:A:2243:SER:OG	1:A:2244:ARG:N	2.51	0.44
1:C:290:TYR:HB3	1:C:312:THR:HG21	1.99	0.44
1:C:721:LEU:HB3	1:C:768:PHE:HZ	1.83	0.44
1:C:1077:ALA:HA	1:C:1236:THR:HA	2.00	0.44
1:C:2243:SER:OG	1:C:2244:ARG:N	2.51	0.44
1:E:1490:SER:OG	1:E:1491:ASN:N	2.51	0.44
1:G:182:LEU:HD22	1:G:189:LEU:HD21	2.00	0.44
1:C:182:LEU:HD22	1:C:189:LEU:HD21	2.00	0.44
1:C:1245:PHE:HA	1:C:1600:LEU:HA	1.99	0.44
1:E:719:LEU:HD21	2:F:7:ILE:HG12	1.99	0.44
1:E:3844:LEU:HD21	1:E:3933:PHE:HA	1.99	0.44
1:G:3850:GLN:HA	1:G:3853:ALA:HB3	2.00	0.44
1:A:4662:ASN:HA	1:A:4666:VAL:HG13	2.00	0.44
1:C:3754:GLU:O	1:C:3758:MET:HB2	2.17	0.44
1:C:3921:ASP:HA	1:C:3924:LEU:HG	1.99	0.44
1:E:173:SER:HB3	1:E:177:GLU:H	1.83	0.44
1:E:1245:PHE:HA	1:E:1600:LEU:HA	1.99	0.44
1:E:1566:LEU:HG	1:E:1591:CYS:HB2	1.99	0.44
1:E:1716:ILE:HA	1:E:1720:LEU:HD23	2.00	0.44
1:E:1949:GLN:HA	1:E:1952:GLN:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:2155:LEU:HB2	1:E:2188:ASN:HD21	1.83	0.44
1:G:1077:ALA:HA	1:G:1236:THR:HA	2.00	0.44
1:G:4707:ASN:HA	1:G:4742:GLY:HA3	1.99	0.44
1:C:173:SER:HB3	1:C:177:GLU:H	1.83	0.43
1:C:2155:LEU:HB2	1:C:2188:ASN:HD21	1.83	0.43
1:C:3771:HIS:O	1:C:3815:LYS:NZ	2.51	0.43
1:E:3850:GLN:HA	1:E:3853:ALA:HB3	2.00	0.43
1:A:3771:HIS:O	1:A:3815:LYS:NZ	2.51	0.43
1:C:1490:SER:OG	1:C:1491:ASN:N	2.51	0.43
1:C:1864:LYS:NZ	1:C:1871:PHE:O	2.48	0.43
1:E:219:VAL:HG13	1:E:261:ARG:HD3	2.00	0.43
1:E:2244:ARG:NH2	1:E:2283:ASN:HB2	2.33	0.43
1:E:3921:ASP:HA	1:E:3924:LEU:HG	1.99	0.43
1:G:173:SER:HB3	1:G:177:GLU:H	1.83	0.43
1:G:864:PRO:HA	1:G:865:PRO:HD3	1.89	0.43
1:G:1490:SER:OG	1:G:1491:ASN:N	2.51	0.43
1:G:1566:LEU:HG	1:G:1591:CYS:HB2	1.99	0.43
1:G:2155:LEU:HB2	1:G:2188:ASN:HD21	1.83	0.43
1:G:4662:ASN:HA	1:G:4666:VAL:HG13	2.00	0.43
1:C:2113:SER:HA	1:C:2114:PRO:HD3	1.89	0.43
1:E:162:LYS:HA	1:E:162:LYS:HD2	1.69	0.43
1:E:4180:ARG:HD3	1:E:4192:ARG:NH2	2.32	0.43
1:E:4217:PHE:HZ	1:E:4233:LEU:HD22	1.83	0.43
1:G:638:ILE:HD13	1:G:702:TRP:HD1	1.83	0.43
1:G:1716:ILE:HA	1:G:1720:LEU:HD23	2.00	0.43
1:A:1245:PHE:HA	1:A:1600:LEU:HA	1.99	0.43
1:C:1095:VAL:HG13	1:C:1096:THR:HG23	1.99	0.43
1:C:1684:ALA:O	1:C:1687:SER:OG	2.35	0.43
1:C:1716:ILE:HA	1:C:1720:LEU:HD23	2.00	0.43
1:G:1083:VAL:HG21	1:G:1088:TRP:CD1	2.54	0.43
1:G:1245:PHE:HA	1:G:1600:LEU:HA	1.99	0.43
1:G:1842:LEU:HA	1:G:1845:VAL:HG12	2.01	0.43
1:A:182:LEU:HD22	1:A:189:LEU:HD21	2.00	0.43
1:A:1082:THR:OG1	1:A:1188:PHE:O	2.27	0.43
1:A:1566:LEU:HG	1:A:1591:CYS:HB2	1.99	0.43
1:A:1842:LEU:HA	1:A:1845:VAL:HG12	2.01	0.43
1:A:4927:ILE:HG23	1:G:4936:ILE:HG21	1.99	0.43
1:E:1095:VAL:HG13	1:E:1096:THR:HG23	1.99	0.43
1:E:4870:ASP:OD1	1:E:4870:ASP:N	2.48	0.43
1:G:67:PHE:HD2	1:G:109:LEU:HD13	1.84	0.43
1:A:4936:ILE:HG21	1:C:4927:ILE:HG23	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:72:SER:O	1:C:72:SER:OG	2.32	0.43
1:C:638:ILE:HD13	1:C:702:TRP:HD1	1.83	0.43
1:C:1005:TRP:HA	1:C:1016:ARG:HG3	2.00	0.43
1:C:1842:LEU:HA	1:C:1845:VAL:HG12	2.01	0.43
1:C:4692:PRO:O	1:C:4700:GLN:NE2	2.52	0.43
1:E:20:VAL:N	1:E:67:PHE:O	2.46	0.43
1:E:1005:TRP:HA	1:E:1016:ARG:HG3	2.00	0.43
1:E:1842:LEU:HA	1:E:1845:VAL:HG12	2.01	0.43
1:E:3771:HIS:O	1:E:3815:LYS:NZ	2.51	0.43
1:E:3924:LEU:HB3	1:E:3988:ALA:HB2	2.00	0.43
1:G:2244:ARG:NH2	1:G:2283:ASN:HB2	2.33	0.43
1:A:1083:VAL:HG21	1:A:1088:TRP:CD1	2.54	0.43
1:A:2244:ARG:NH2	1:A:2283:ASN:HB2	2.33	0.43
1:C:1083:VAL:HG21	1:C:1088:TRP:CD1	2.54	0.43
1:C:1125:ASN:HB3	1:C:1130:GLN:H	1.84	0.43
1:C:2615:ARG:HA	1:C:2616:PRO:HD3	1.88	0.43
1:C:3924:LEU:HB3	1:C:3988:ALA:HB2	2.00	0.43
1:C:3952:SER:HA	1:C:3955:MET:HG2	2.01	0.43
1:E:1077:ALA:HA	1:E:1236:THR:HA	2.00	0.43
1:E:1125:ASN:HB3	1:E:1130:GLN:H	1.84	0.43
1:E:4586:PRO:HA	1:E:4587:PRO:HD3	1.92	0.43
1:G:262:LEU:HG	1:G:280:LEU:HD22	2.01	0.43
1:G:3924:LEU:HB3	1:G:3988:ALA:HB2	2.00	0.43
1:A:1125:ASN:HB3	1:A:1130:GLN:H	1.84	0.43
1:A:4570:ALA:HB2	1:A:4650:HIS:CD2	2.54	0.43
1:C:262:LEU:HG	1:C:280:LEU:HD22	2.01	0.43
1:C:4570:ALA:HB2	1:C:4650:HIS:CD2	2.54	0.43
1:E:221:ARG:HG3	1:E:259:LEU:HD23	2.01	0.43
1:E:1110:ARG:HH11	1:E:1111:PRO:HD2	1.84	0.43
1:E:4692:PRO:O	1:E:4700:GLN:NE2	2.52	0.43
2:F:47:LYS:HB3	2:F:47:LYS:HE3	1.85	0.43
1:G:721:LEU:HB3	1:G:768:PHE:HZ	1.83	0.43
1:G:2615:ARG:HA	1:G:2616:PRO:HD3	1.88	0.43
1:G:3675:ASP:OD1	1:G:3675:ASP:N	2.48	0.43
1:G:3844:LEU:HD21	1:G:3933:PHE:HA	1.99	0.43
1:A:173:SER:HB3	1:A:177:GLU:H	1.83	0.43
1:A:221:ARG:HG3	1:A:259:LEU:HD23	2.01	0.43
1:A:1110:ARG:HH11	1:A:1111:PRO:HD2	1.84	0.43
1:A:1747:LEU:HD13	1:A:2038:LEU:HD12	2.01	0.43
1:A:2155:LEU:HB2	1:A:2188:ASN:HD21	1.83	0.43
1:C:221:ARG:HG3	1:C:259:LEU:HD23	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:530:ILE:HG23	1:E:537:CYS:HB3	2.01	0.43
1:E:1743:ARG:O	1:E:1964:ARG:NH2	2.52	0.43
1:E:2243:SER:OG	1:E:2244:ARG:N	2.51	0.43
1:E:4570:ALA:HB2	1:E:4650:HIS:CD2	2.54	0.43
1:G:221:ARG:HG3	1:G:259:LEU:HD23	2.01	0.43
1:G:1747:LEU:HD13	1:G:2038:LEU:HD12	2.01	0.43
1:G:2243:SER:OG	1:G:2244:ARG:N	2.51	0.43
1:G:3952:SER:HA	1:G:3955:MET:HG2	2.01	0.43
1:G:4570:ALA:HB2	1:G:4650:HIS:CD2	2.54	0.43
1:C:169:LEU:HD13	1:C:201:ASN:HA	2.01	0.43
1:C:219:VAL:HG13	1:C:261:ARG:HD3	2.00	0.43
1:C:1110:ARG:HH11	1:C:1111:PRO:HD2	1.84	0.43
2:D:47:LYS:HB3	2:D:47:LYS:HE3	1.85	0.43
1:E:169:LEU:HD13	1:E:201:ASN:HA	2.01	0.43
1:E:262:LEU:HG	1:E:280:LEU:HD22	2.01	0.43
1:E:1684:ALA:O	1:E:1687:SER:OG	2.35	0.43
1:E:2354:VAL:HG11	1:E:2453:ILE:HG23	2.01	0.43
1:E:4813:LEU:HD23	1:E:4813:LEU:HA	1.87	0.43
1:G:219:VAL:HG13	1:G:261:ARG:HD3	2.00	0.43
1:G:1110:ARG:HH11	1:G:1111:PRO:HD2	1.84	0.43
1:G:1743:ARG:O	1:G:1964:ARG:NH2	2.52	0.43
1:G:3771:HIS:O	1:G:3815:LYS:NZ	2.51	0.43
1:A:3952:SER:HA	1:A:3955:MET:HG2	2.01	0.42
1:C:2489:LYS:HZ2	1:C:2492:ALA:HB2	1.84	0.42
1:C:2530:MET:HG3	1:C:2554:LEU:HD11	2.01	0.42
1:E:1082:THR:OG1	1:E:1188:PHE:O	2.27	0.42
1:G:1005:TRP:HA	1:G:1016:ARG:HG3	2.00	0.42
1:G:4692:PRO:O	1:G:4700:GLN:NE2	2.52	0.42
1:A:721:LEU:HB3	1:A:768:PHE:HZ	1.83	0.42
1:A:1490:SER:OG	1:A:1491:ASN:N	2.51	0.42
1:A:1743:ARG:O	1:A:1964:ARG:NH2	2.52	0.42
1:A:2533:ALA:HB2	1:A:2550:LEU:HD11	2.01	0.42
1:A:3806:ASN:HA	1:A:3890:LEU:HD23	2.02	0.42
1:C:530:ILE:HG23	1:C:537:CYS:HB3	2.01	0.42
1:C:1536:SER:OG	1:C:1537:ASN:N	2.48	0.42
1:C:1743:ARG:O	1:C:1964:ARG:NH2	2.52	0.42
1:E:2533:ALA:HB2	1:E:2550:LEU:HD11	2.01	0.42
1:G:1684:ALA:O	1:G:1687:SER:OG	2.35	0.42
1:G:2533:ALA:HB2	1:G:2550:LEU:HD11	2.01	0.42
1:G:3806:ASN:HA	1:G:3890:LEU:HD23	2.01	0.42
1:A:638:ILE:HD13	1:A:702:TRP:HD1	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1716:ILE:HA	1:A:1720:LEU:HD23	2.00	0.42
1:C:4217:PHE:HZ	1:C:4233:LEU:HD22	1.83	0.42
1:E:638:ILE:HD13	1:E:702:TRP:HD1	1.83	0.42
1:E:1747:LEU:HD13	1:E:2038:LEU:HD12	2.01	0.42
1:E:2487:GLN:HA	1:E:2488:PRO:HD3	1.88	0.42
1:E:3952:SER:HA	1:E:3955:MET:HG2	2.01	0.42
1:G:1433:TYR:HD1	1:G:1573:MET:HB3	1.85	0.42
1:A:262:LEU:HG	1:A:280:LEU:HD22	2.01	0.42
1:C:1851:MET:HE2	1:C:1851:MET:HB3	1.90	0.42
1:C:4662:ASN:HA	1:C:4666:VAL:HG13	2.00	0.42
1:E:2530:MET:HG3	1:E:2554:LEU:HD11	2.01	0.42
1:E:3806:ASN:HA	1:E:3890:LEU:HD23	2.02	0.42
1:A:169:LEU:HD13	1:A:201:ASN:HA	2.01	0.42
1:A:4692:PRO:O	1:A:4700:GLN:NE2	2.52	0.42
1:C:2307:LEU:HD12	1:C:2307:LEU:HA	1.94	0.42
1:C:2533:ALA:HB2	1:C:2550:LEU:HD11	2.01	0.42
1:C:3756:LYS:HA	1:C:3759:GLU:HG3	2.01	0.42
1:E:1083:VAL:HG21	1:E:1088:TRP:CD1	2.54	0.42
2:H:25:HIS:HE1	2:H:40:ARG:HD3	1.85	0.42
1:A:3898:ASP:O	1:A:3902:TYR:HB2	2.20	0.42
1:A:4145:VAL:HA	1:A:4148:THR:HG22	2.01	0.42
1:C:1087:ARG:HB2	1:C:1223:PHE:CE2	2.54	0.42
1:C:1290:ARG:O	1:C:1598:GLN:N	2.53	0.42
1:C:1433:TYR:HD1	1:C:1573:MET:HB3	1.85	0.42
1:E:4662:ASN:HA	1:E:4666:VAL:HG13	2.00	0.42
2:F:25:HIS:HE1	2:F:40:ARG:HD3	1.84	0.42
1:G:1087:ARG:HB2	1:G:1223:PHE:CE2	2.54	0.42
1:G:2489:LYS:HB3	1:G:2492:ALA:HB3	2.01	0.42
1:A:1433:TYR:HD1	1:A:1573:MET:HB3	1.84	0.42
1:A:3924:LEU:HB3	1:A:3988:ALA:HB2	2.00	0.42
1:A:4060:LYS:HA	1:A:4060:LYS:HD3	1.74	0.42
1:C:1747:LEU:HD13	1:C:2038:LEU:HD12	2.00	0.42
1:C:3806:ASN:HA	1:C:3890:LEU:HD23	2.01	0.42
1:C:3835:LEU:HD22	1:C:3880:PHE:HZ	1.85	0.42
1:C:3948:LYS:HA	1:C:3948:LYS:HD3	1.77	0.42
2:D:25:HIS:HE1	2:D:40:ARG:HD3	1.84	0.42
1:G:1446:SER:O	1:G:1496:TRP:NE1	2.35	0.42
1:G:2530:MET:HG3	1:G:2554:LEU:HD11	2.01	0.42
1:A:1293:LEU:HD12	1:A:1595:LEU:HG	2.02	0.42
1:C:4145:VAL:HA	1:C:4148:THR:HG22	2.01	0.42
1:E:1290:ARG:O	1:E:1598:GLN:N	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:4145:VAL:HA	1:E:4148:THR:HG22	2.01	0.42
1:G:20:VAL:N	1:G:67:PHE:O	2.46	0.42
1:G:4145:VAL:HA	1:G:4148:THR:HG22	2.01	0.42
1:A:219:VAL:HG13	1:A:261:ARG:HD3	2.00	0.42
1:A:1780:PRO:O	2:B:42:ARG:NH2	2.43	0.42
1:A:2354:VAL:HG11	1:A:2453:ILE:HG23	2.01	0.42
2:B:25:HIS:HE1	2:B:40:ARG:HD3	1.84	0.42
1:A:1087:ARG:HB2	1:A:1223:PHE:CE2	2.54	0.42
1:A:1098:GLY:HA3	1:A:1198:GLN:HG2	2.02	0.42
1:A:1290:ARG:O	1:A:1598:GLN:N	2.53	0.42
1:C:15:ARG:HG3	1:C:16:THR:H	1.85	0.42
1:C:67:PHE:HD2	1:C:109:LEU:HD13	1.84	0.42
1:C:315:CYS:O	1:C:349:GLN:N	2.53	0.42
1:C:4586:PRO:HA	1:C:4587:PRO:HD3	1.92	0.42
1:E:15:ARG:HG3	1:E:16:THR:H	1.85	0.42
1:E:2489:LYS:HB3	1:E:2492:ALA:HB3	2.01	0.42
1:G:169:LEU:HD13	1:G:201:ASN:HA	2.01	0.42
1:G:218:HIS:HB3	1:G:392:ARG:HH12	1.85	0.42
1:G:262:LEU:HD11	1:G:280:LEU:HD13	2.02	0.42
1:G:1098:GLY:HA3	1:G:1198:GLN:HG2	2.02	0.42
1:G:3756:LYS:HA	1:G:3759:GLU:HG3	2.01	0.42
1:A:1450:VAL:HA	1:A:1552:VAL:HG12	2.01	0.41
1:C:1450:VAL:HA	1:C:1552:VAL:HG12	2.01	0.41
1:E:218:HIS:HB3	1:E:392:ARG:HH12	1.85	0.41
1:E:2113:SER:HA	1:E:2114:PRO:HD3	1.89	0.41
1:A:530:ILE:HG23	1:A:537:CYS:HB3	2.01	0.41
1:C:2166:LEU:HD12	1:C:2167:ILE:HG23	2.02	0.41
1:C:2354:VAL:HG11	1:C:2453:ILE:HG23	2.01	0.41
1:E:67:PHE:HD2	1:E:109:LEU:HD13	1.84	0.41
1:E:4157:ASP:HA	1:E:4158:PRO:HD3	1.94	0.41
1:G:803:LEU:HA	1:G:804:PRO:HD3	1.93	0.41
1:G:1125:ASN:HB3	1:G:1130:GLN:H	1.84	0.41
1:A:67:PHE:HD2	1:A:109:LEU:HD13	1.84	0.41
1:A:2489:LYS:HB3	1:A:2492:ALA:HB3	2.01	0.41
1:C:2489:LYS:HB3	1:C:2492:ALA:HB3	2.01	0.41
1:E:262:LEU:HD11	1:E:280:LEU:HD13	2.03	0.41
1:E:1087:ARG:HB2	1:E:1223:PHE:CE2	2.54	0.41
1:E:1595:LEU:HD23	1:E:1595:LEU:HA	1.85	0.41
1:G:15:ARG:HG3	1:G:16:THR:H	1.85	0.41
1:G:3672:ARG:O	1:G:3672:ARG:NH2	2.53	0.41
1:A:315:CYS:O	1:A:349:GLN:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:467:LYS:HB3	1:A:467:LYS:HE2	1.86	0.41
1:A:864:PRO:HA	1:A:865:PRO:HD3	1.89	0.41
1:C:218:HIS:HB3	1:C:392:ARG:HH12	1.85	0.41
1:C:473:ASN:HA	1:C:476:SER:HB3	2.02	0.41
1:E:2166:LEU:HD12	1:E:2167:ILE:HG23	2.02	0.41
1:E:3897:ASN:HD22	1:E:3973:CYS:HB2	1.86	0.41
1:G:530:ILE:HG23	1:G:537:CYS:HB3	2.01	0.41
1:A:218:HIS:HB3	1:A:392:ARG:HH12	1.85	0.41
1:A:255:HIS:CD2	1:A:480:GLU:HG3	2.55	0.41
2:B:38:SER:OG	2:B:39:SER:N	2.53	0.41
1:C:3898:ASP:O	1:C:3902:TYR:HB2	2.20	0.41
1:C:4894:GLY:HA2	1:C:4925:ILE:HG12	2.03	0.41
1:E:716:PHE:HB2	1:E:721:LEU:HD23	2.03	0.41
1:E:1450:VAL:HA	1:E:1552:VAL:HG12	2.01	0.41
1:E:3835:LEU:HD22	1:E:3880:PHE:HZ	1.85	0.41
1:E:3898:ASP:O	1:E:3902:TYR:HB2	2.20	0.41
1:G:1293:LEU:HD12	1:G:1595:LEU:HG	2.02	0.41
1:G:3898:ASP:O	1:G:3902:TYR:HB2	2.20	0.41
1:G:4870:ASP:N	1:G:4870:ASP:OD1	2.48	0.41
1:A:3756:LYS:HA	1:A:3759:GLU:HG3	2.01	0.41
1:C:262:LEU:HD11	1:C:280:LEU:HD13	2.03	0.41
1:E:1433:TYR:HD1	1:E:1573:MET:HB3	1.85	0.41
1:E:4814:LEU:HD21	1:G:4850:LEU:HD22	2.03	0.41
1:G:255:HIS:CD2	1:G:480:GLU:HG3	2.55	0.41
1:G:4247:ILE:O	1:G:4251:ILE:HG12	2.21	0.41
1:A:3644:LEU:HA	1:A:3645:PRO:HD3	1.92	0.41
1:A:4894:GLY:HA2	1:A:4925:ILE:HG12	2.03	0.41
1:C:1098:GLY:HA3	1:C:1198:GLN:HG2	2.02	0.41
1:C:1293:LEU:HD12	1:C:1595:LEU:HG	2.02	0.41
2:D:38:SER:OG	2:D:39:SER:N	2.53	0.41
1:E:315:CYS:O	1:E:349:GLN:N	2.53	0.41
1:E:671:VAL:HG11	1:E:682:LEU:HD22	2.03	0.41
1:E:2489:LYS:HZ2	1:E:2492:ALA:HB2	1.85	0.41
1:G:797:HIS:O	1:G:1619:ARG:NH1	2.54	0.41
1:G:2166:LEU:HD12	1:G:2167:ILE:HG23	2.02	0.41
1:G:4894:GLY:HA2	1:G:4925:ILE:HG12	2.03	0.41
1:A:716:PHE:HB2	1:A:721:LEU:HD23	2.03	0.41
1:A:2530:MET:HG3	1:A:2554:LEU:HD11	2.01	0.41
1:A:3672:ARG:O	1:A:3672:ARG:NH2	2.53	0.41
1:A:3780:LEU:HD12	1:A:3780:LEU:HA	1.90	0.41
1:A:4247:ILE:O	1:A:4251:ILE:HG12	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:486:LEU:HA	1:E:489:ASN:HB2	2.03	0.41
1:E:3756:LYS:HA	1:E:3759:GLU:HG3	2.02	0.41
1:G:486:LEU:HA	1:G:489:ASN:HB2	2.03	0.41
1:G:1018:ASN:OD1	1:G:1018:ASN:N	2.54	0.41
1:G:1290:ARG:O	1:G:1598:GLN:N	2.53	0.41
1:G:3897:ASN:HD22	1:G:3973:CYS:HB2	1.86	0.41
1:A:262:LEU:HD11	1:A:280:LEU:HD13	2.02	0.41
1:A:1595:LEU:HD23	1:A:1595:LEU:HA	1.85	0.41
1:A:2489:LYS:HZ2	1:A:2492:ALA:HB2	1.86	0.41
1:A:2615:ARG:HA	1:A:2616:PRO:HD3	1.88	0.41
1:C:255:HIS:CD2	1:C:480:GLU:HG3	2.55	0.41
1:C:716:PHE:HB2	1:C:721:LEU:HD23	2.03	0.41
1:C:797:HIS:O	1:C:1619:ARG:NH1	2.54	0.41
1:C:1018:ASN:OD1	1:C:1018:ASN:N	2.54	0.41
1:C:3725:TYR:HA	1:C:3728:ILE:HG12	2.03	0.41
1:C:4247:ILE:O	1:C:4251:ILE:HG12	2.21	0.41
1:C:4708:THR:HG21	1:C:4775:TYR:HB2	2.03	0.41
1:E:255:HIS:CD2	1:E:480:GLU:HG3	2.55	0.41
1:E:1098:GLY:HA3	1:E:1198:GLN:HG2	2.02	0.41
1:E:3725:TYR:HA	1:E:3728:ILE:HG12	2.03	0.41
1:E:3913:ILE:HD12	1:E:3913:ILE:HA	1.95	0.41
1:G:473:ASN:HA	1:G:476:SER:HB3	2.02	0.41
1:G:2354:VAL:HG11	1:G:2453:ILE:HG23	2.01	0.41
1:G:3835:LEU:HD22	1:G:3880:PHE:HZ	1.85	0.41
1:G:4248:ALA:O	1:G:4252:SER:HB3	2.21	0.41
1:A:4239:GLU:HA	1:A:4242:ILE:HG22	2.03	0.41
1:C:4248:ALA:O	1:C:4252:SER:HB3	2.21	0.41
1:E:2559:LEU:HD11	1:E:2603:ILE:HG13	2.03	0.41
1:E:3848:GLU:HA	1:E:3851:ASN:HB2	2.03	0.41
1:E:4248:ALA:O	1:E:4252:SER:HB3	2.21	0.41
1:E:4708:THR:HG21	1:E:4775:TYR:HB2	2.03	0.41
2:F:38:SER:OG	2:F:39:SER:N	2.53	0.41
1:G:1450:VAL:HA	1:G:1552:VAL:HG12	2.01	0.41
1:G:4576:ILE:HD12	1:G:4576:ILE:HA	1.91	0.41
2:H:38:SER:OG	2:H:39:SER:N	2.53	0.41
1:A:4814:LEU:HD21	1:C:4850:LEU:HD22	2.03	0.40
1:A:4850:LEU:HD22	1:G:4814:LEU:HD21	2.03	0.40
1:C:3897:ASN:HD22	1:C:3973:CYS:HB2	1.86	0.40
1:G:1252:HIS:HA	1:G:1253:PRO:HD3	1.92	0.40
1:G:2148:SER:O	1:G:2148:SER:OG	2.39	0.40
1:A:2113:SER:HA	1:A:2114:PRO:HD3	1.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4157:ASP:HA	1:A:4158:PRO:HD3	1.94	0.40
1:A:4248:ALA:O	1:A:4252:SER:HB3	2.21	0.40
1:C:20:VAL:N	1:C:67:PHE:O	2.46	0.40
1:C:786:GLY:N	1:C:1630:CYS:SG	2.90	0.40
1:C:2175:GLU:OE2	1:C:2175:GLU:N	2.54	0.40
1:E:1293:LEU:HD12	1:E:1595:LEU:HG	2.02	0.40
1:E:4894:GLY:HA2	1:E:4925:ILE:HG12	2.03	0.40
2:F:11:ASP:O	2:F:13:ARG:NH1	2.54	0.40
1:G:716:PHE:HB2	1:G:721:LEU:HD23	2.03	0.40
1:G:747:CYS:SG	1:G:756:SER:HB2	2.62	0.40
1:G:2175:GLU:OE2	1:G:2175:GLU:N	2.54	0.40
1:G:2307:LEU:HD12	1:G:2307:LEU:HA	1.94	0.40
1:G:3644:LEU:HA	1:G:3645:PRO:HD3	1.92	0.40
1:A:15:ARG:HG3	1:A:16:THR:H	1.85	0.40
1:A:273:HIS:ND1	1:A:337:PRO:HA	2.37	0.40
1:A:695:TYR:HA	1:A:696:PRO:HD3	1.97	0.40
1:A:2166:LEU:HD12	1:A:2167:ILE:HG23	2.02	0.40
1:A:2176:ASN:HB2	1:A:2180:GLN:NE2	2.37	0.40
1:A:3897:ASN:HD22	1:A:3973:CYS:HB2	1.86	0.40
1:A:4673:ARG:HE	1:A:4673:ARG:HB2	1.74	0.40
1:A:4843:LEU:HD11	1:G:4823:LEU:HB3	2.03	0.40
1:C:273:HIS:ND1	1:C:337:PRO:HA	2.37	0.40
1:C:3848:GLU:HA	1:C:3851:ASN:HB2	2.03	0.40
1:E:736:HIS:HB3	2:F:9:PRO:HD3	2.03	0.40
1:E:747:CYS:SG	1:E:756:SER:HB2	2.61	0.40
1:E:797:HIS:O	1:E:1619:ARG:NH1	2.54	0.40
1:E:5019:TRP:HD1	1:E:5021:PHE:HE1	1.70	0.40
1:G:2559:LEU:HD11	1:G:2603:ILE:HG13	2.03	0.40
1:A:473:ASN:HA	1:A:476:SER:HB3	2.02	0.40
1:A:747:CYS:SG	1:A:756:SER:HB2	2.62	0.40
1:A:2179:ILE:HA	1:A:2182:ILE:HG12	2.03	0.40
1:A:3725:TYR:HA	1:A:3728:ILE:HG12	2.03	0.40
1:A:4813:LEU:HD23	1:A:4813:LEU:HA	1.87	0.40
2:D:11:ASP:O	2:D:13:ARG:NH1	2.55	0.40
1:E:786:GLY:N	1:E:1630:CYS:SG	2.90	0.40
1:A:3835:LEU:HD22	1:A:3880:PHE:HZ	1.85	0.40
1:A:4823:LEU:HB3	1:C:4843:LEU:HD11	2.03	0.40
1:E:273:HIS:ND1	1:E:337:PRO:HA	2.37	0.40
1:E:473:ASN:HA	1:E:476:SER:HB3	2.02	0.40
1:E:864:PRO:HA	1:E:865:PRO:HD3	1.89	0.40
1:E:1018:ASN:OD1	1:E:1018:ASN:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:4823:LEU:HB3	1:G:4843:LEU:HD11	2.03	0.40
1:G:695:TYR:HA	1:G:696:PRO:HD3	1.97	0.40
1:G:1110:ARG:HD2	1:G:1110:ARG:HA	1.83	0.40
1:G:2489:LYS:HZ2	1:G:2492:ALA:HB2	1.85	0.40
1:G:5019:TRP:HD1	1:G:5021:PHE:HE1	1.70	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	3427/5037 (68%)	3211 (94%)	214 (6%)	2 (0%)	51	85
1	C	3427/5037 (68%)	3211 (94%)	214 (6%)	2 (0%)	51	85
1	E	3427/5037 (68%)	3211 (94%)	214 (6%)	2 (0%)	51	85
1	G	3427/5037 (68%)	3211 (94%)	214 (6%)	2 (0%)	51	85
2	B	105/107 (98%)	99 (94%)	6 (6%)	0	100	100
2	D	105/107 (98%)	99 (94%)	6 (6%)	0	100	100
2	F	105/107 (98%)	99 (94%)	6 (6%)	0	100	100
2	H	105/107 (98%)	99 (94%)	6 (6%)	0	100	100
All	All	14128/20576 (69%)	13240 (94%)	880 (6%)	8 (0%)	54	85

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	318	VAL
1	A	673	PRO
1	C	318	VAL
1	C	673	PRO
1	E	318	VAL

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Mol	Chain	Res	Type
1	E	673	PRO
1	G	318	VAL
1	G	673	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	2495/3416 (73%)	2460 (99%)	35 (1%)	67 81
1	C	2495/3416 (73%)	2461 (99%)	34 (1%)	67 81
1	E	2495/3416 (73%)	2460 (99%)	35 (1%)	67 81
1	G	2495/3416 (73%)	2461 (99%)	34 (1%)	67 81
2	B	84/88 (96%)	70 (83%)	14 (17%)	2 14
2	D	84/88 (96%)	70 (83%)	14 (17%)	2 14
2	F	84/88 (96%)	70 (83%)	14 (17%)	2 14
2	H	84/88 (96%)	70 (83%)	14 (17%)	2 14
All	All	10316/14016 (74%)	10122 (98%)	194 (2%)	59 75

All (194) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	ASP
1	A	79	GLN
1	A	162	LYS
1	A	273	HIS
1	A	390	LEU
1	A	516	LYS
1	A	998	ARG
1	A	1033	ARG
1	A	1180	ARG
1	A	1212	ARG
1	A	1483	VAL
1	A	1568	LYS

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Mol	Chain	Res	Type
1	A	1573	MET
1	A	1634	LEU
1	A	1698	LEU
1	A	1767	VAL
1	A	2035	HIS
1	A	2498	HIS
1	A	3677	LEU
1	A	3959	LYS
1	A	4014	LYS
1	A	4187	SER
1	A	4211	LYS
1	A	4659	ILE
1	A	4665	LYS
1	A	4715	TYR
1	A	4725	LEU
1	A	4779	LYS
1	A	4853	VAL
1	A	4874	MET
1	A	4932	ILE
1	A	4938	ASP
1	A	4985	LEU
1	A	5002	GLU
1	A	5035	GLN
2	B	24	VAL
2	B	27	THR
2	B	41	ASP
2	B	49	ARG
2	B	53	GLN
2	B	55	VAL
2	B	57	LYS
2	B	65	GLN
2	B	66	MET
2	B	97	LEU
2	B	99	PHE
2	B	101	VAL
2	B	103	LEU
2	B	106	LEU
1	C	17	ASP
1	C	79	GLN
1	C	162	LYS
1	C	273	HIS
1	C	390	LEU

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Mol	Chain	Res	Type
1	C	516	LYS
1	C	998	ARG
1	C	1033	ARG
1	C	1180	ARG
1	C	1212	ARG
1	C	1483	VAL
1	C	1568	LYS
1	C	1573	MET
1	C	1698	LEU
1	C	1767	VAL
1	C	2035	HIS
1	C	2498	HIS
1	C	3677	LEU
1	C	3959	LYS
1	C	4014	LYS
1	C	4187	SER
1	C	4211	LYS
1	C	4659	ILE
1	C	4665	LYS
1	C	4715	TYR
1	C	4725	LEU
1	C	4779	LYS
1	C	4853	VAL
1	C	4874	MET
1	C	4932	ILE
1	C	4938	ASP
1	C	4985	LEU
1	C	5002	GLU
1	C	5035	GLN
2	D	24	VAL
2	D	27	THR
2	D	41	ASP
2	D	49	ARG
2	D	53	GLN
2	D	55	VAL
2	D	57	LYS
2	D	65	GLN
2	D	66	MET
2	D	97	LEU
2	D	99	PHE
2	D	101	VAL
2	D	103	LEU

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Mol	Chain	Res	Type
2	D	106	LEU
1	E	17	ASP
1	E	79	GLN
1	E	162	LYS
1	E	273	HIS
1	E	390	LEU
1	E	516	LYS
1	E	998	ARG
1	E	1033	ARG
1	E	1180	ARG
1	E	1212	ARG
1	E	1483	VAL
1	E	1568	LYS
1	E	1573	MET
1	E	1634	LEU
1	E	1698	LEU
1	E	1767	VAL
1	E	2035	HIS
1	E	2498	HIS
1	E	3677	LEU
1	E	3959	LYS
1	E	4014	LYS
1	E	4187	SER
1	E	4211	LYS
1	E	4659	ILE
1	E	4665	LYS
1	E	4715	TYR
1	E	4725	LEU
1	E	4779	LYS
1	E	4853	VAL
1	E	4874	MET
1	E	4932	ILE
1	E	4938	ASP
1	E	4985	LEU
1	E	5002	GLU
1	E	5035	GLN
2	F	24	VAL
2	F	27	THR
2	F	41	ASP
2	F	49	ARG
2	F	53	GLN
2	F	55	VAL

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Mol	Chain	Res	Type
2	F	57	LYS
2	F	65	GLN
2	F	66	MET
2	F	97	LEU
2	F	99	PHE
2	F	101	VAL
2	F	103	LEU
2	F	106	LEU
1	G	17	ASP
1	G	79	GLN
1	G	162	LYS
1	G	273	HIS
1	G	390	LEU
1	G	516	LYS
1	G	998	ARG
1	G	1033	ARG
1	G	1180	ARG
1	G	1212	ARG
1	G	1483	VAL
1	G	1568	LYS
1	G	1573	MET
1	G	1698	LEU
1	G	1767	VAL
1	G	2035	HIS
1	G	2498	HIS
1	G	3677	LEU
1	G	3959	LYS
1	G	4014	LYS
1	G	4187	SER
1	G	4211	LYS
1	G	4659	ILE
1	G	4665	LYS
1	G	4715	TYR
1	G	4725	LEU
1	G	4779	LYS
1	G	4853	VAL
1	G	4874	MET
1	G	4932	ILE
1	G	4938	ASP
1	G	4985	LEU
1	G	5002	GLU
1	G	5035	GLN

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Mol	Chain	Res	Type
2	H	24	VAL
2	H	27	THR
2	H	41	ASP
2	H	49	ARG
2	H	53	GLN
2	H	55	VAL
2	H	57	LYS
2	H	65	GLN
2	H	66	MET
2	H	97	LEU
2	H	99	PHE
2	H	101	VAL
2	H	103	LEU
2	H	106	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (190) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	44	ASN
1	A	57	ASN
1	A	201	ASN
1	A	255	HIS
1	A	520	ASN
1	A	533	ASN
1	A	610	ASN
1	A	1229	ASN
1	A	1252	HIS
1	A	1281	ASN
1	A	1458	HIS
1	A	1569	GLN
1	A	1949	GLN
1	A	1973	GLN
1	A	2003	GLN
1	A	2127	GLN
1	A	2180	GLN
1	A	2188	ASN
1	A	2245	GLN
1	A	2551	ASN
1	A	3647	HIS
1	A	3651	ASN
1	A	3766	GLN
1	A	3767	GLN

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Mol	Chain	Res	Type
1	A	3781	GLN
1	A	3837	GLN
1	A	3851	ASN
1	A	3896	ASN
1	A	3906	GLN
1	A	3950	ASN
1	A	3970	GLN
1	A	4005	GLN
1	A	4034	ASN
1	A	4037	ASN
1	A	4054	ASN
1	A	4124	ASN
1	A	4223	ASN
1	A	4650	HIS
1	A	4832	HIS
1	A	4833	ASN
1	A	4857	ASN
1	A	4946	GLN
1	A	4978	HIS
2	B	25	HIS
2	B	53	GLN
2	B	65	GLN
2	B	94	ASN
1	C	44	ASN
1	C	57	ASN
1	C	201	ASN
1	C	255	HIS
1	C	520	ASN
1	C	533	ASN
1	C	610	ASN
1	C	1229	ASN
1	C	1252	HIS
1	C	1281	ASN
1	C	1458	HIS
1	C	1545	ASN
1	C	1569	GLN
1	C	1949	GLN
1	C	1973	GLN
1	C	2003	GLN
1	C	2127	GLN
1	C	2180	GLN
1	C	2188	ASN

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Mol	Chain	Res	Type
1	C	2245	GLN
1	C	2551	ASN
1	C	3647	HIS
1	C	3651	ASN
1	C	3766	GLN
1	C	3767	GLN
1	C	3781	GLN
1	C	3837	GLN
1	C	3851	ASN
1	C	3896	ASN
1	C	3906	GLN
1	C	3950	ASN
1	C	3970	GLN
1	C	4005	GLN
1	C	4034	ASN
1	C	4054	ASN
1	C	4124	ASN
1	C	4223	ASN
1	C	4650	HIS
1	C	4832	HIS
1	C	4833	ASN
1	C	4857	ASN
1	C	4946	GLN
1	C	4978	HIS
2	D	25	HIS
2	D	53	GLN
2	D	65	GLN
2	D	94	ASN
1	E	44	ASN
1	E	57	ASN
1	E	201	ASN
1	E	255	HIS
1	E	520	ASN
1	E	533	ASN
1	E	610	ASN
1	E	877	ASN
1	E	1229	ASN
1	E	1252	HIS
1	E	1281	ASN
1	E	1458	HIS
1	E	1545	ASN
1	E	1569	GLN

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Mol	Chain	Res	Type
1	E	1949	GLN
1	E	1973	GLN
1	E	2003	GLN
1	E	2127	GLN
1	E	2180	GLN
1	E	2188	ASN
1	E	2245	GLN
1	E	2551	ASN
1	E	3647	HIS
1	E	3651	ASN
1	E	3766	GLN
1	E	3767	GLN
1	E	3781	GLN
1	E	3837	GLN
1	E	3851	ASN
1	E	3896	ASN
1	E	3906	GLN
1	E	3950	ASN
1	E	3970	GLN
1	E	4005	GLN
1	E	4034	ASN
1	E	4054	ASN
1	E	4124	ASN
1	E	4223	ASN
1	E	4650	HIS
1	E	4832	HIS
1	E	4833	ASN
1	E	4857	ASN
1	E	4946	GLN
1	E	4978	HIS
2	F	25	HIS
2	F	31	GLN
2	F	53	GLN
2	F	65	GLN
2	F	94	ASN
1	G	44	ASN
1	G	57	ASN
1	G	201	ASN
1	G	255	HIS
1	G	520	ASN
1	G	533	ASN
1	G	610	ASN

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Mol	Chain	Res	Type
1	G	1229	ASN
1	G	1252	HIS
1	G	1281	ASN
1	G	1458	HIS
1	G	1545	ASN
1	G	1569	GLN
1	G	1949	GLN
1	G	1973	GLN
1	G	2003	GLN
1	G	2127	GLN
1	G	2180	GLN
1	G	2188	ASN
1	G	2245	GLN
1	G	2551	ASN
1	G	3647	HIS
1	G	3651	ASN
1	G	3766	GLN
1	G	3767	GLN
1	G	3781	GLN
1	G	3837	GLN
1	G	3851	ASN
1	G	3896	ASN
1	G	3906	GLN
1	G	3950	ASN
1	G	3970	GLN
1	G	4005	GLN
1	G	4034	ASN
1	G	4054	ASN
1	G	4124	ASN
1	G	4223	ASN
1	G	4650	HIS
1	G	4832	HIS
1	G	4833	ASN
1	G	4857	ASN
1	G	4946	GLN
1	G	4978	HIS
2	H	25	HIS
2	H	53	GLN
2	H	65	GLN
2	H	94	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 12 ligands modelled in this entry, 8 are monoatomic - leaving 4 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	$\#\|Z\| > 2$
5	F0U	E	5203	-	29,30,30	2.30	8 (27%)	31,43,43	1.43	4 (12%)
5	F0U	G	5203	-	29,30,30	2.30	8 (27%)	31,43,43	1.44	4 (12%)
5	F0U	A	5203	-	29,30,30	2.30	8 (27%)	31,43,43	1.43	4 (12%)
5	F0U	C	5203	-	29,30,30	2.30	8 (27%)	31,43,43	1.43	4 (12%)

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
5	F0U	E	5203	-	-	0/11/18/18	0/3/3/3
5	F0U	G	5203	-	-	0/11/18/18	0/3/3/3
5	F0U	A	5203	-	-	0/11/18/18	0/3/3/3
5	F0U	C	5203	-	-	0/11/18/18	0/3/3/3

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	5203	F0U	CAU-NAT	-6.50	1.33	1.44
5	G	5203	F0U	CAU-NAT	-6.50	1.33	1.44
5	C	5203	F0U	CAU-NAT	-6.46	1.33	1.44
5	E	5203	F0U	CAU-NAT	-6.46	1.33	1.44
5	E	5203	F0U	CAG-CAH	-5.20	1.39	1.50
5	A	5203	F0U	CAG-CAH	-5.20	1.39	1.50
5	C	5203	F0U	CAG-CAH	-5.20	1.39	1.50
5	G	5203	F0U	CAG-CAH	-5.20	1.39	1.50
5	A	5203	F0U	CAL-NAM	-4.54	1.34	1.43
5	C	5203	F0U	CAL-NAM	-4.54	1.34	1.43
5	G	5203	F0U	CAL-NAM	-4.54	1.34	1.43
5	E	5203	F0U	CAL-NAM	-4.49	1.34	1.43
5	E	5203	F0U	CAP-CAQ	-4.42	1.33	1.39
5	A	5203	F0U	CAP-CAQ	-4.36	1.33	1.39
5	C	5203	F0U	CAP-CAQ	-4.36	1.33	1.39
5	G	5203	F0U	CAP-CAQ	-4.36	1.33	1.39
5	C	5203	F0U	CAP-CAO	-4.31	1.33	1.39
5	A	5203	F0U	CAP-CAO	-4.26	1.33	1.39
5	E	5203	F0U	CAP-CAO	-4.26	1.33	1.39
5	G	5203	F0U	CAP-CAO	-4.26	1.33	1.39
5	E	5203	F0U	CAZ-NBA	2.65	1.40	1.34
5	A	5203	F0U	CAZ-NBA	2.65	1.40	1.34
5	C	5203	F0U	CAZ-NBA	2.65	1.40	1.34
5	G	5203	F0U	CAZ-NBA	2.65	1.40	1.34
5	E	5203	F0U	NAS-NAT	-2.53	1.34	1.39
5	A	5203	F0U	NAS-NAT	-2.50	1.34	1.39
5	C	5203	F0U	NAS-NAT	-2.50	1.34	1.39
5	G	5203	F0U	NAS-NAT	-2.50	1.34	1.39
5	A	5203	F0U	CAO-CAN	-2.49	1.35	1.50
5	C	5203	F0U	CAO-CAN	-2.49	1.35	1.50
5	E	5203	F0U	CAO-CAN	-2.49	1.35	1.50
5	G	5203	F0U	CAO-CAN	-2.49	1.35	1.50

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	G	5203	F0U	CAJ-NAI-CAH	-4.31	117.00	121.89
5	C	5203	F0U	CAJ-NAI-CAH	-4.30	117.02	121.89
5	A	5203	F0U	CAJ-NAI-CAH	-4.30	117.02	121.89
5	E	5203	F0U	CAJ-NAI-CAH	-4.30	117.02	121.89
5	A	5203	F0U	CAZ-NBA-CAU	4.11	120.63	115.98
5	C	5203	F0U	CAZ-NBA-CAU	4.11	120.63	115.98

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	G	5203	F0U	CAZ-NBA-CAU	4.11	120.63	115.98
5	E	5203	F0U	CAZ-NBA-CAU	4.10	120.62	115.98
5	C	5203	F0U	CAY-CAZ-NBA	-2.57	119.24	123.43
5	A	5203	F0U	CAY-CAZ-NBA	-2.56	119.24	123.43
5	G	5203	F0U	CAY-CAZ-NBA	-2.56	119.24	123.43
5	E	5203	F0U	CAY-CAZ-NBA	-2.56	119.25	123.43
5	C	5203	F0U	CAP-CAO-CAN	-2.33	121.29	128.55
5	A	5203	F0U	CAP-CAO-CAN	-2.32	121.30	128.55
5	E	5203	F0U	CAP-CAO-CAN	-2.32	121.30	128.55
5	G	5203	F0U	CAP-CAO-CAN	-2.32	121.30	128.55

There are no chirality outliers.

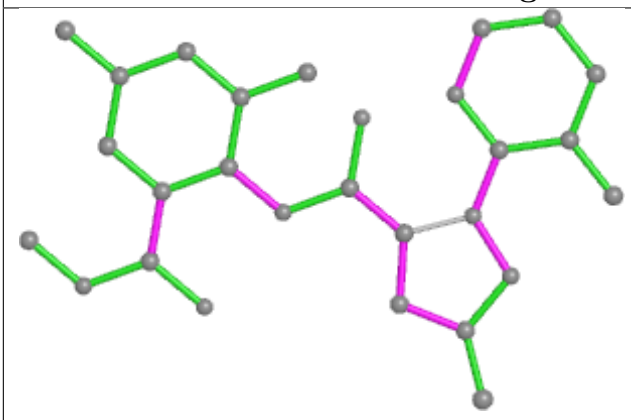
There are no torsion outliers.

There are no ring outliers.

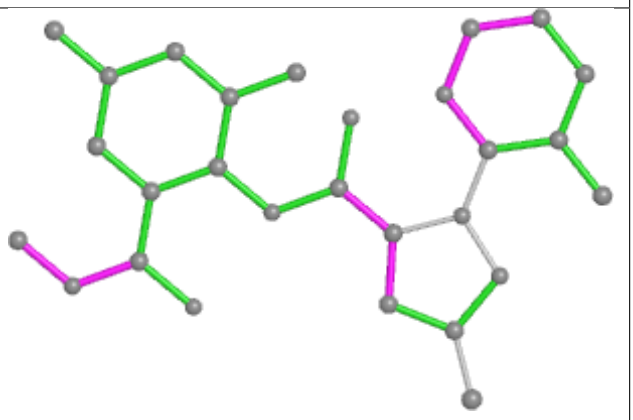
No monomer is involved in short contacts.

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 then 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.

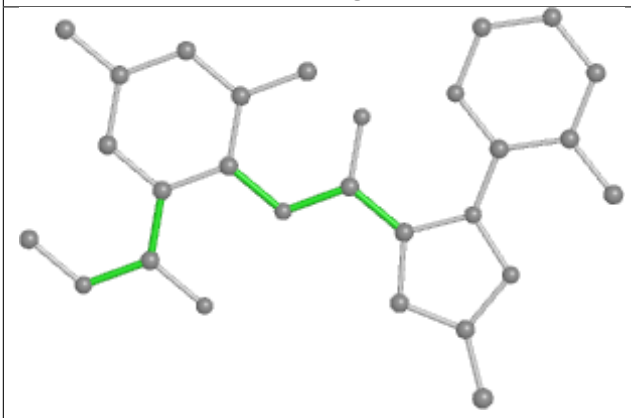
Ligand F0U E 5203



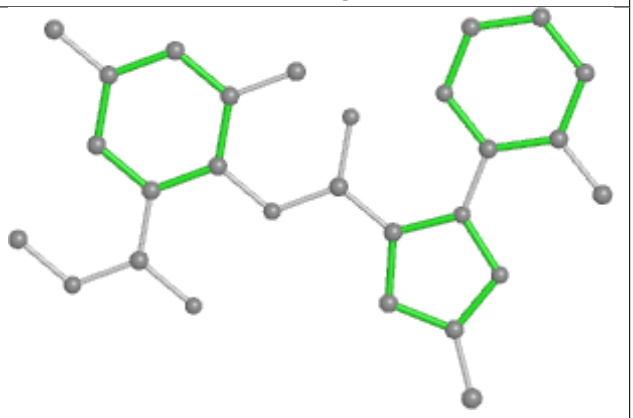
Bond lengths



Bond angles

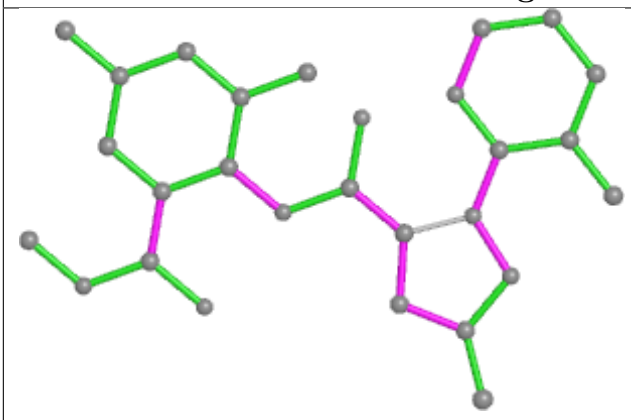


Torsions

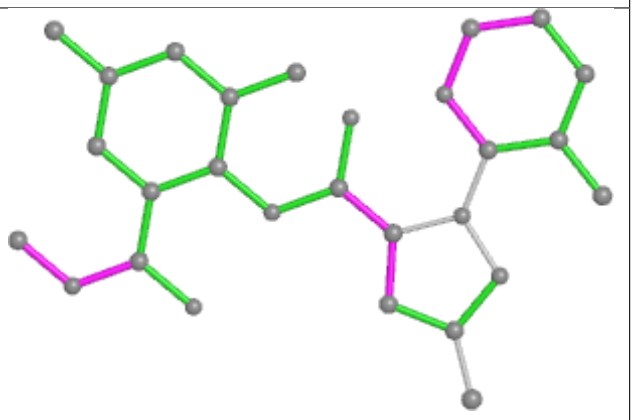


Rings

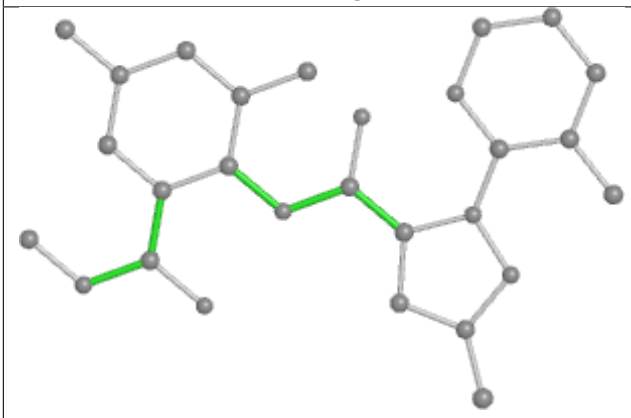
Ligand F0U G 5203



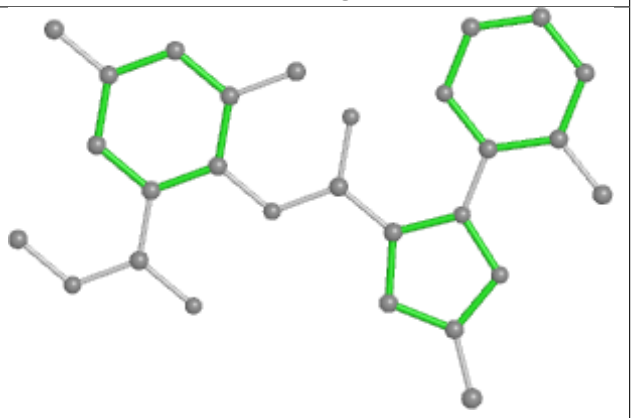
Bond lengths



Bond angles

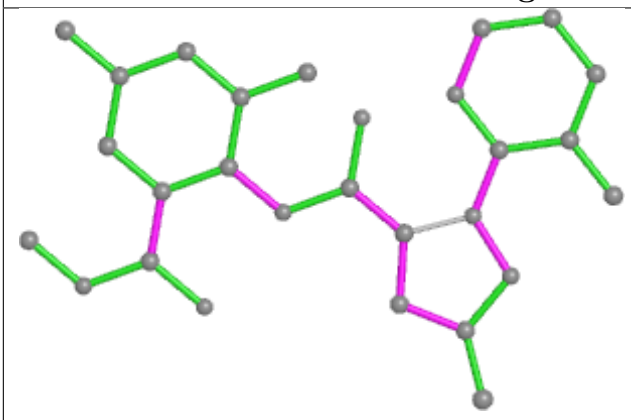


Torsions

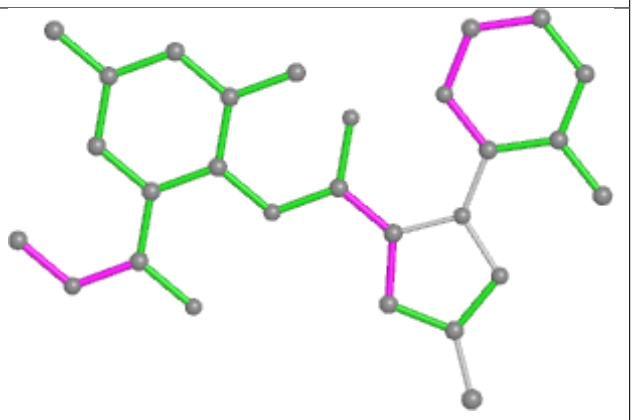


Rings

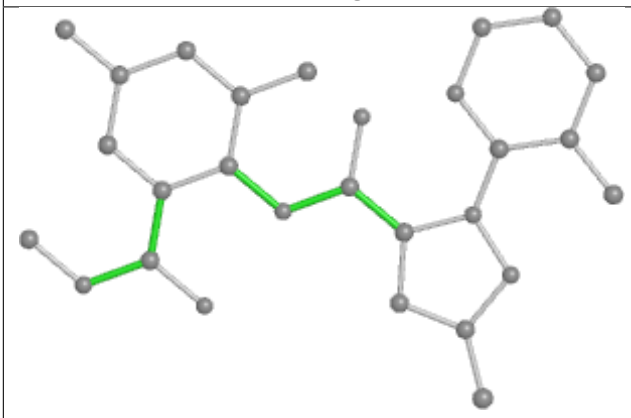
Ligand F0U A 5203



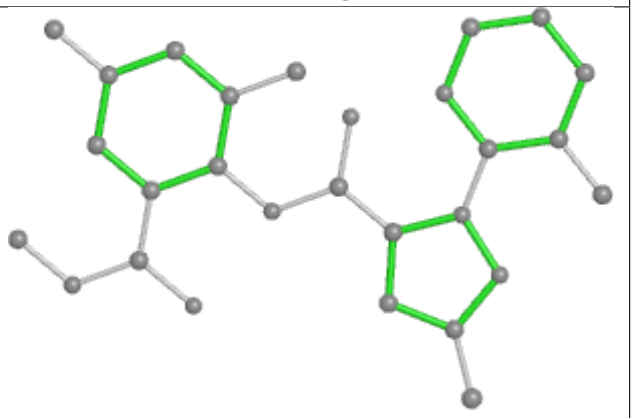
Bond lengths



Bond angles

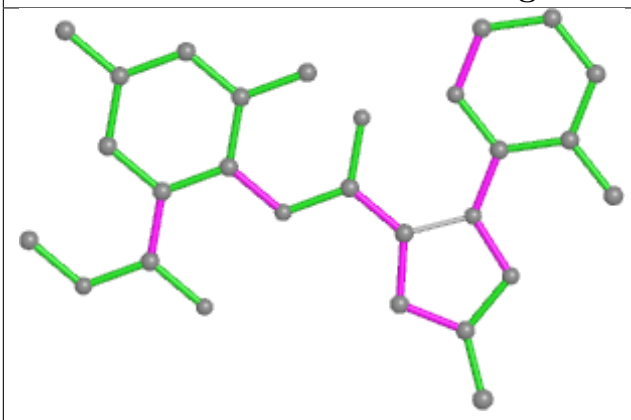


Torsions

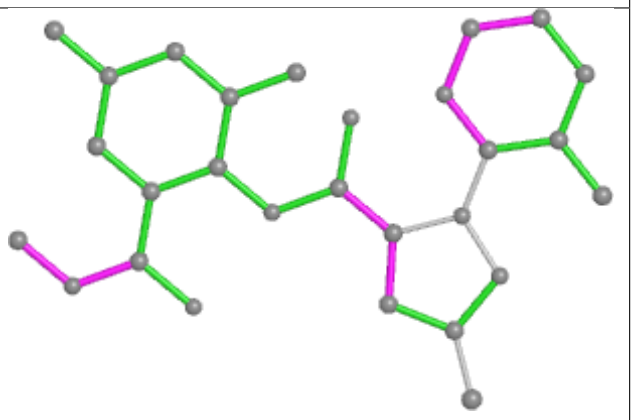


Rings

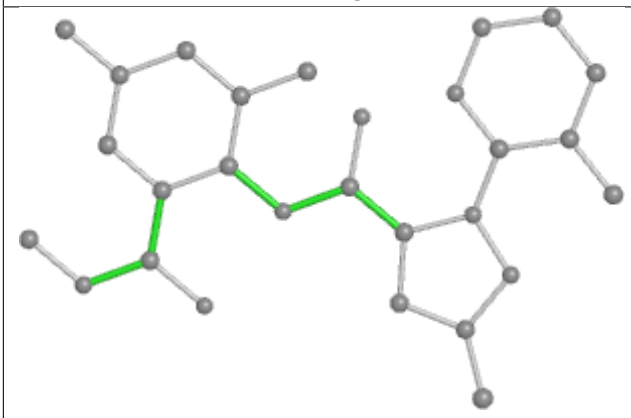
Ligand F0U C 5203



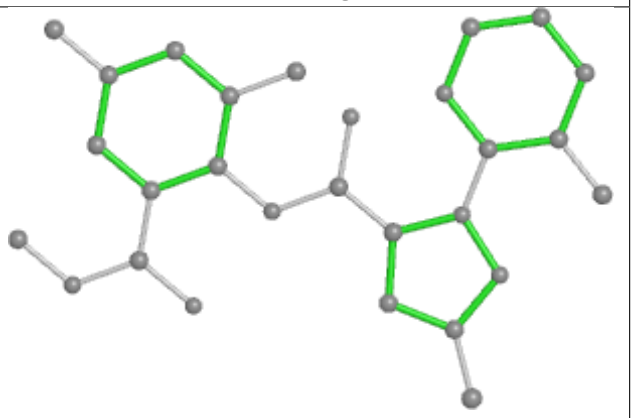
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

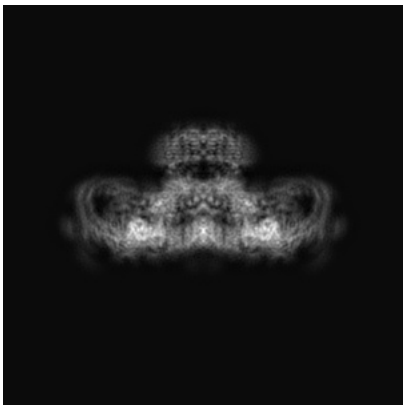
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-30343. These allow visual inspection of the internal detail of the map and identification of artifacts.

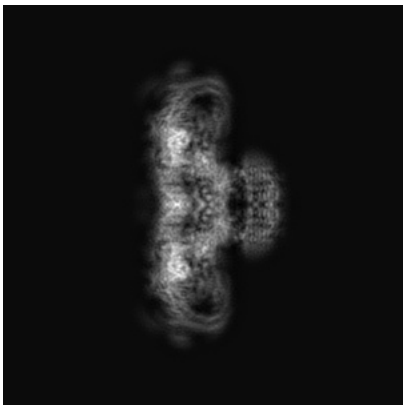
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

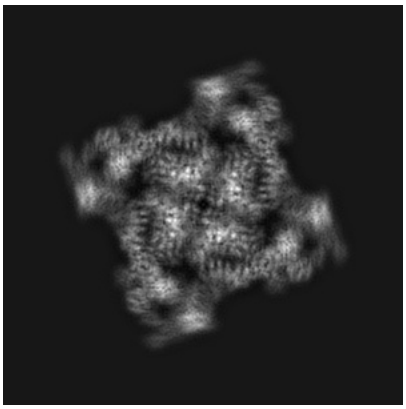
6.1.1 Primary map



X

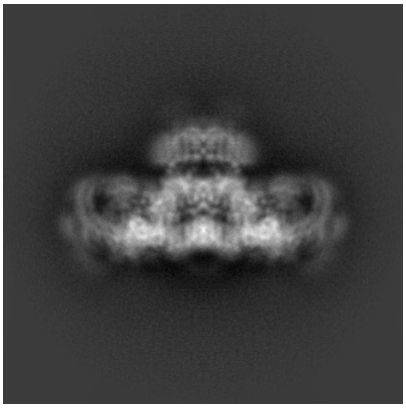


Y

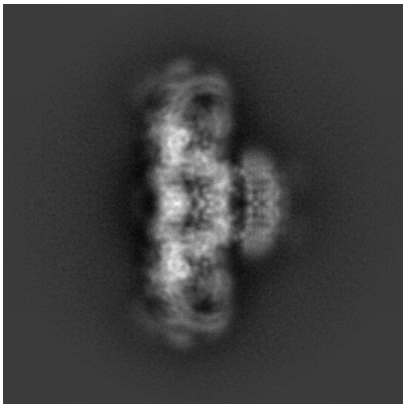


Z

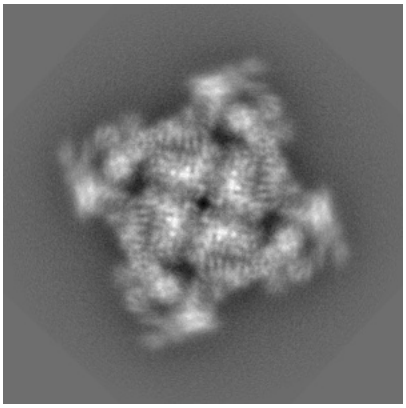
6.1.2 Raw map



X



Y



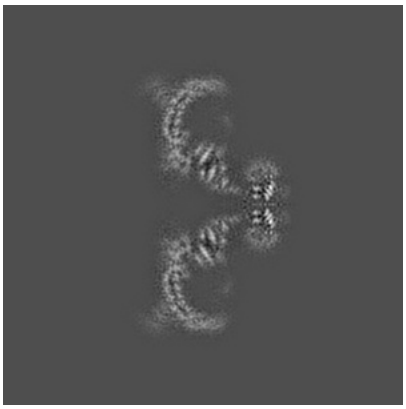
Z

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

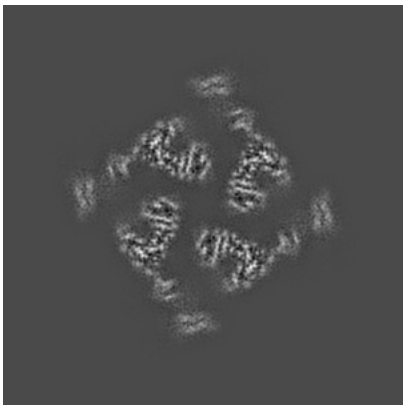
6.2 Central slices (i)

6.2.1 Primary map

X Index: 224

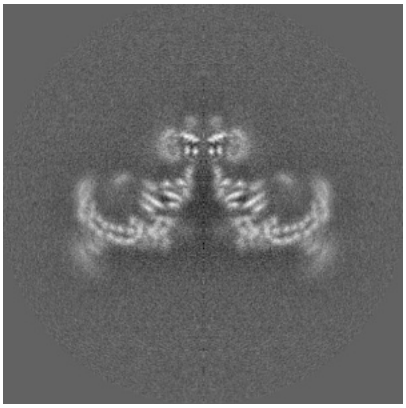


Y Index: 224

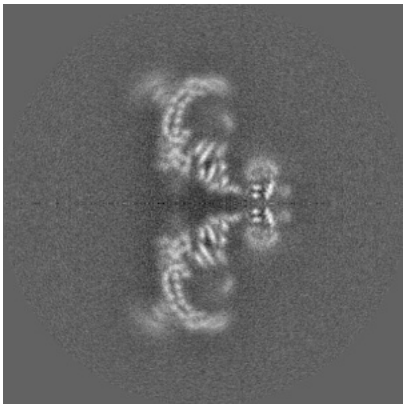


Z Index: 224

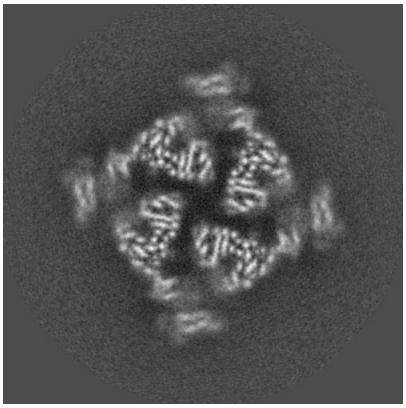
6.2.2 Raw map



X Index: 224



Y Index: 224



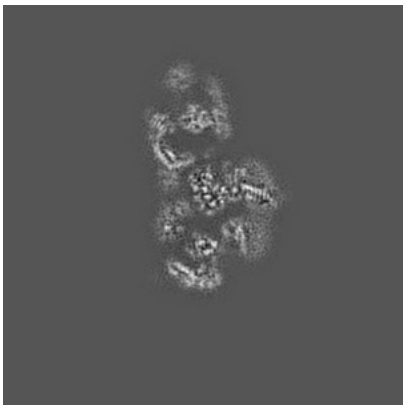
Z Index: 224

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

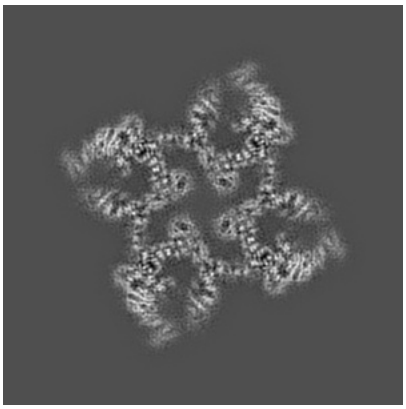
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 186

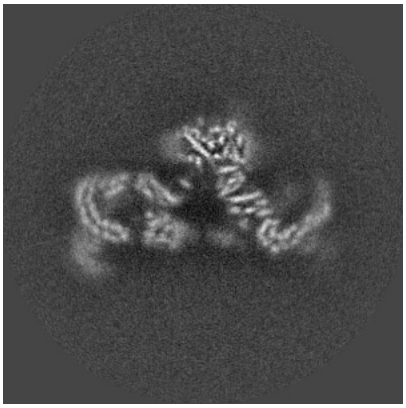


Y Index: 186

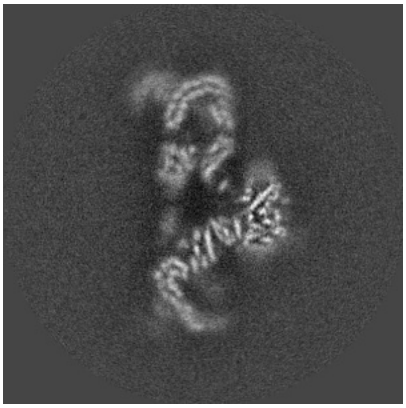


Z Index: 190

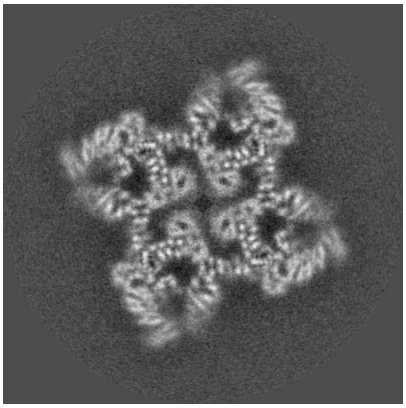
6.3.2 Raw map



X Index: 215



Y Index: 215

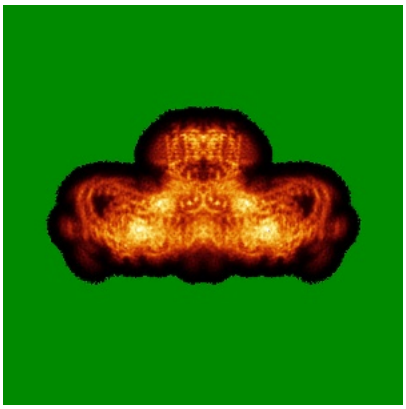


Z Index: 189

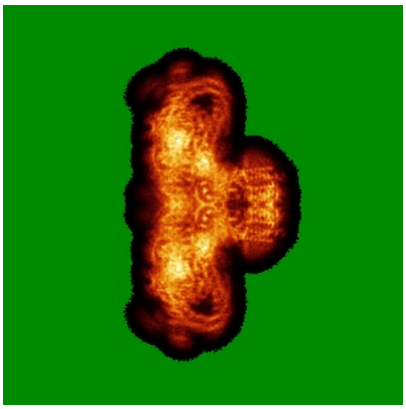
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

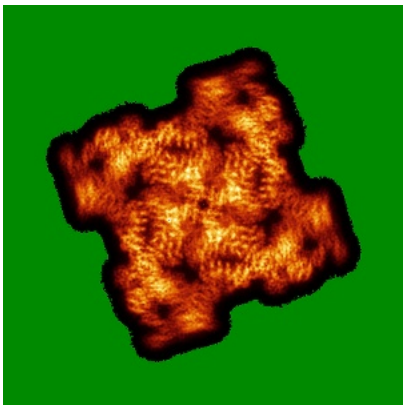
6.4.1 Primary map



X



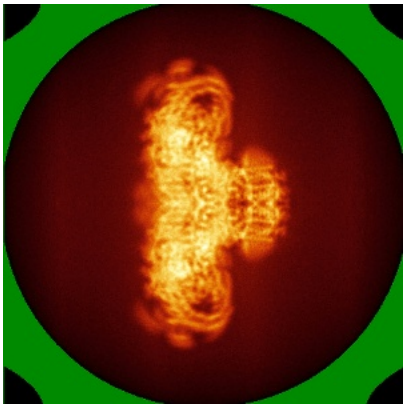
Y



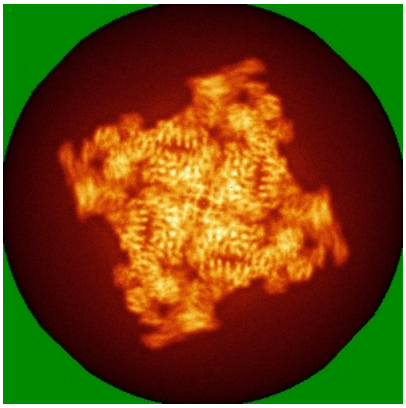
Z

6.4.2 Raw map

X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

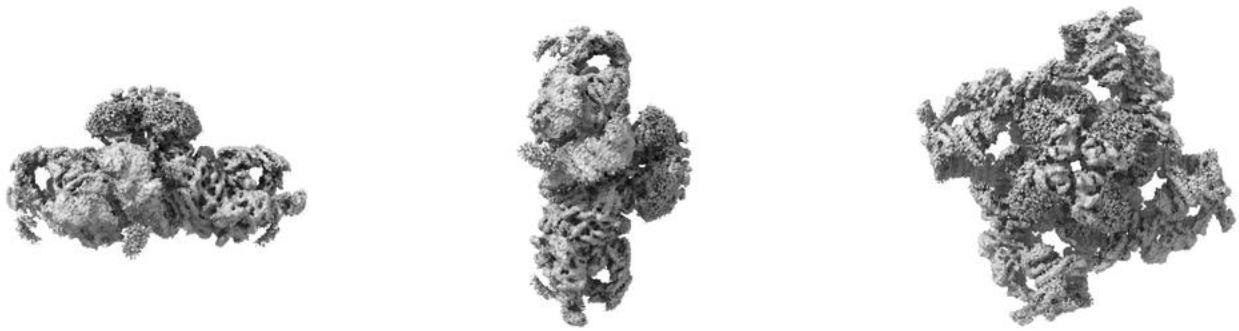
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 8e-05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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.

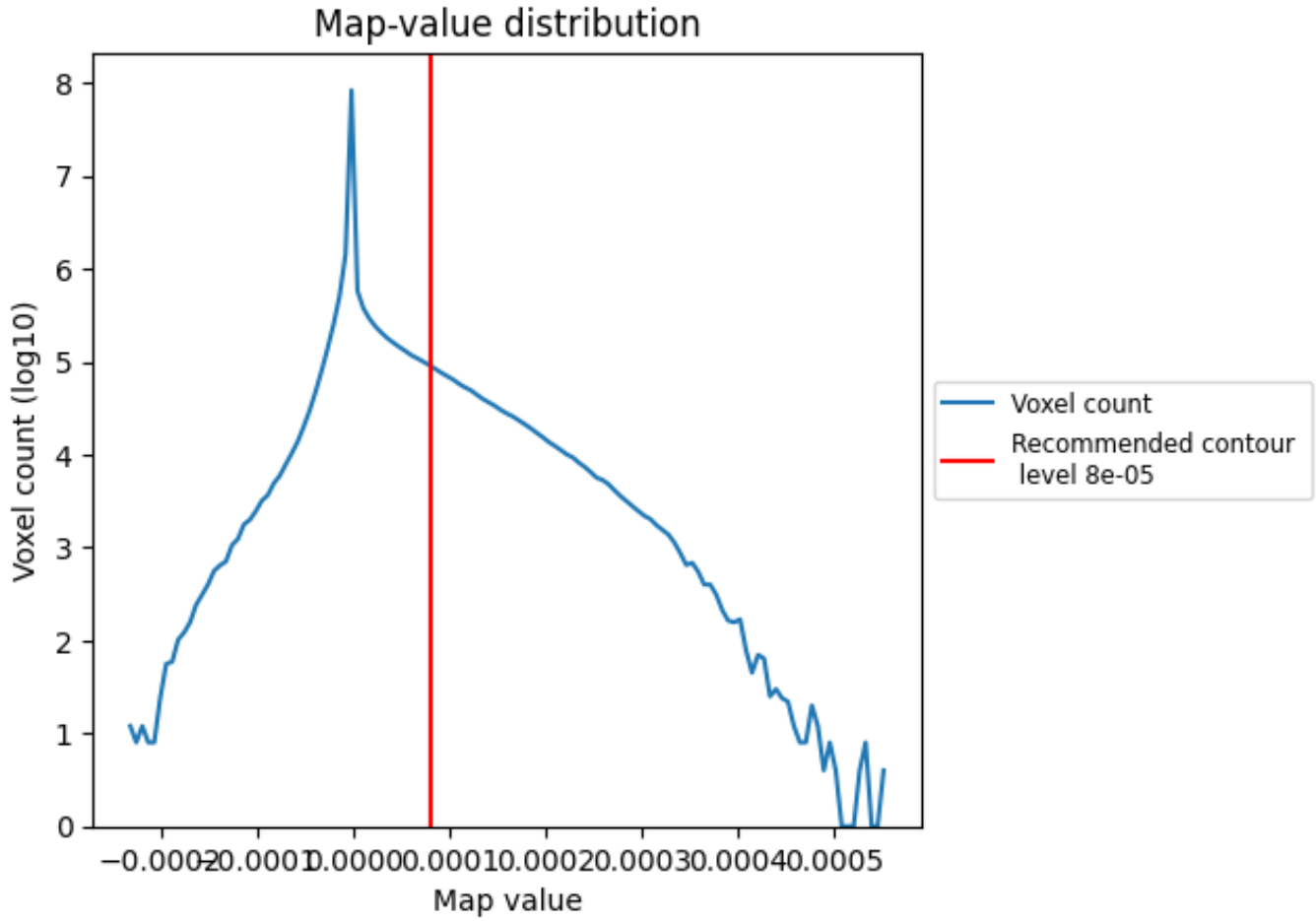
6.6 Mask visualisation (i)

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

7 Map analysis

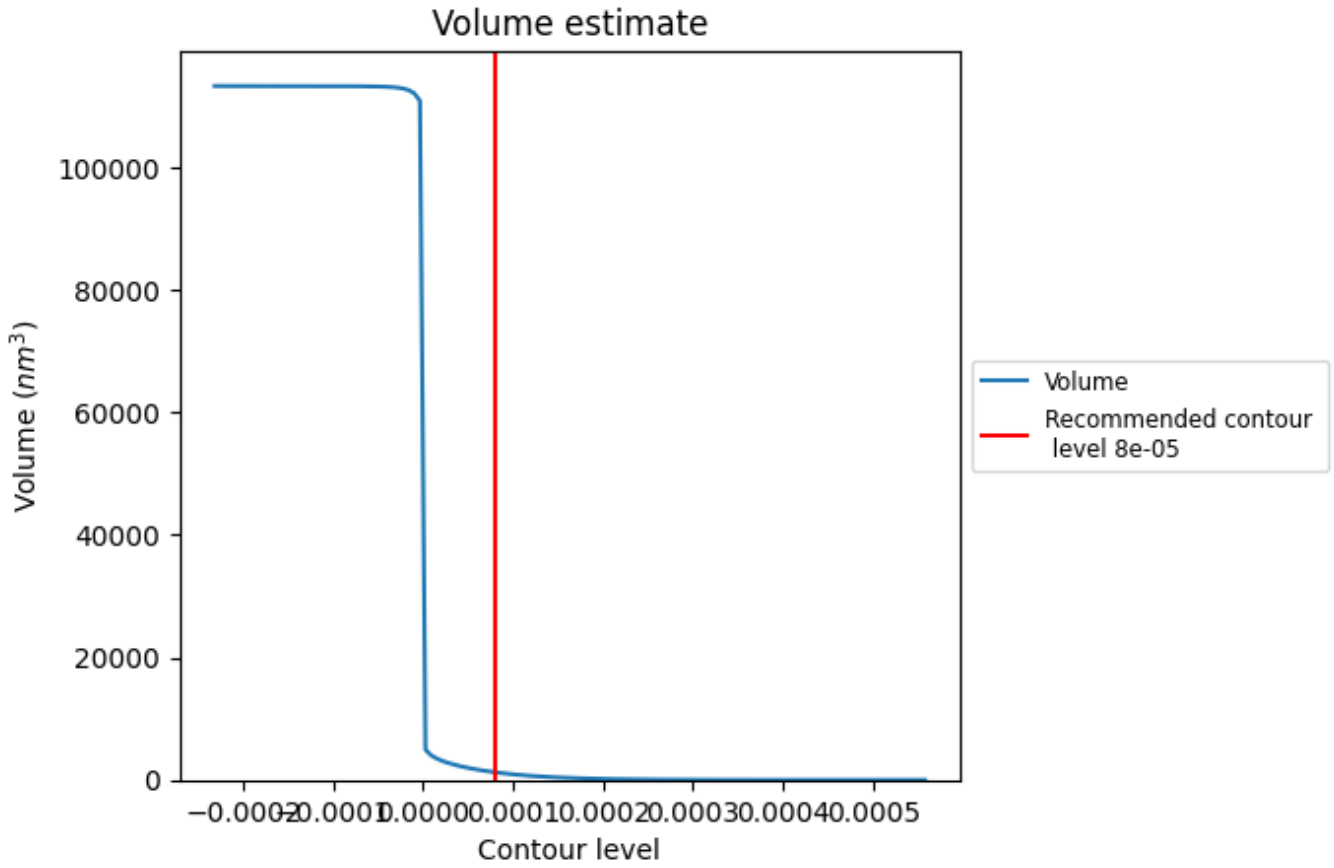
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

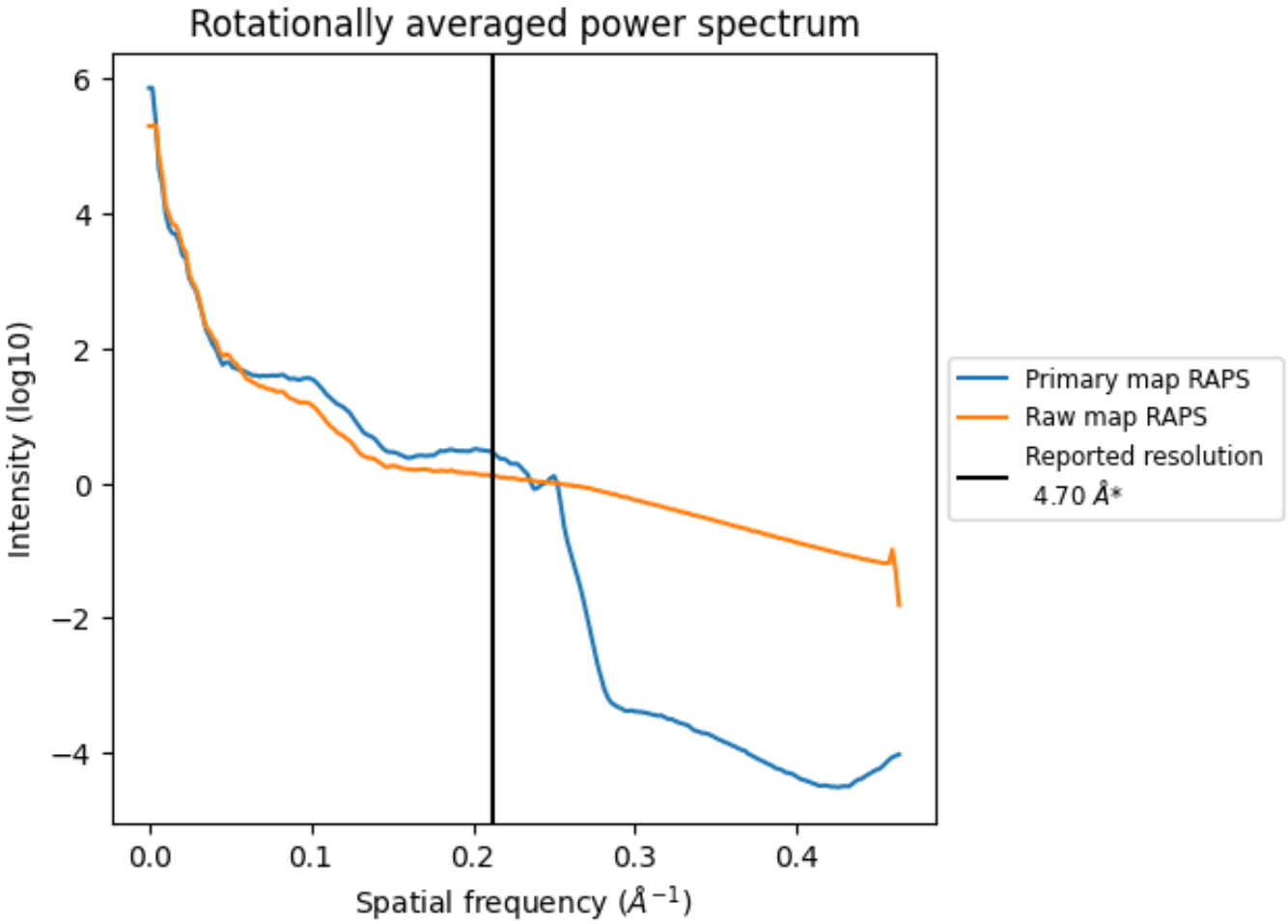
7.2 Volume estimate



The volume at the recommended contour level is 1251 nm^3; this corresponds to an approximate mass of 1130 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)

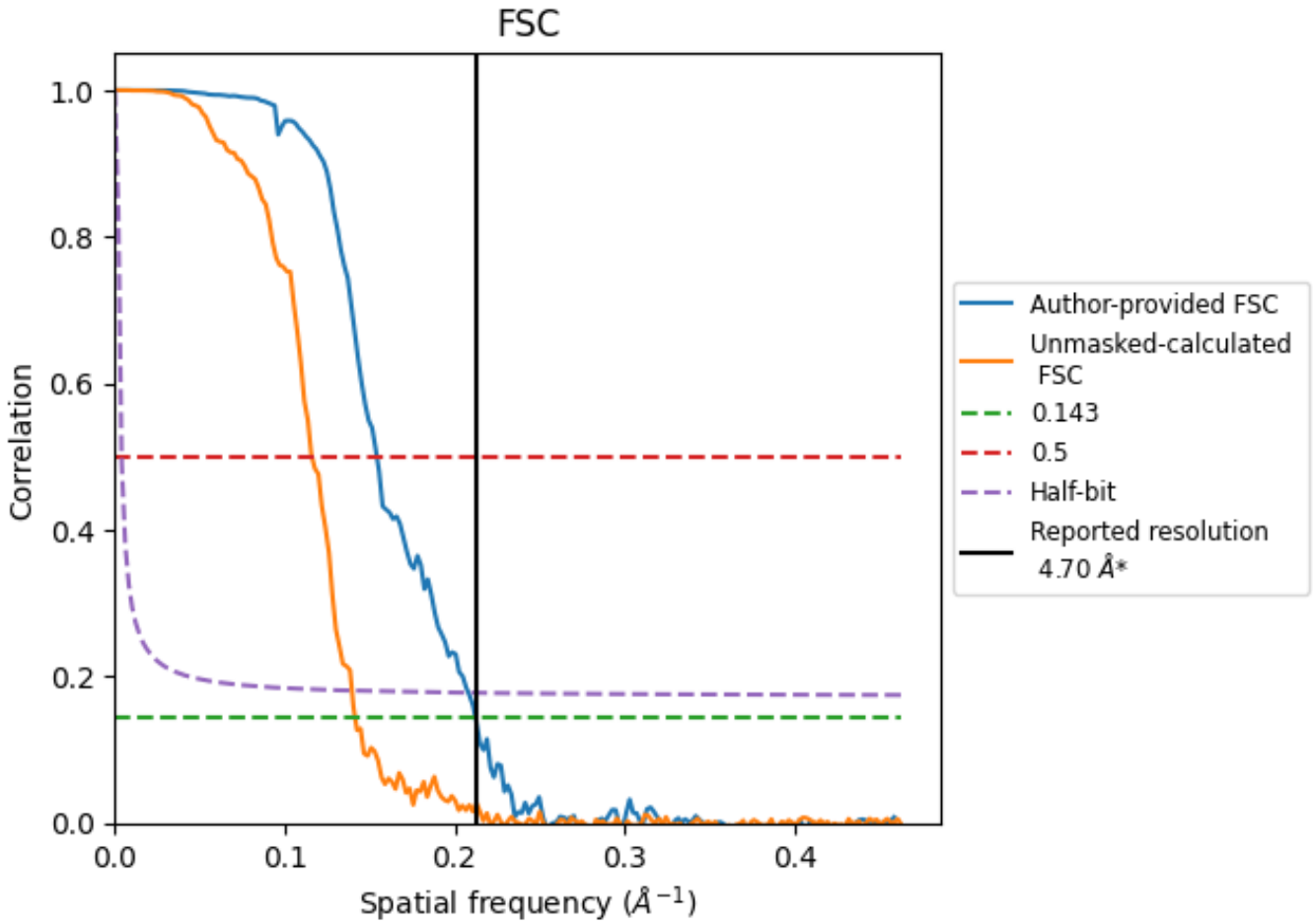


*Reported resolution corresponds to spatial frequency of 0.213 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.213 Å^{-1}

8.2 Resolution estimates (i)

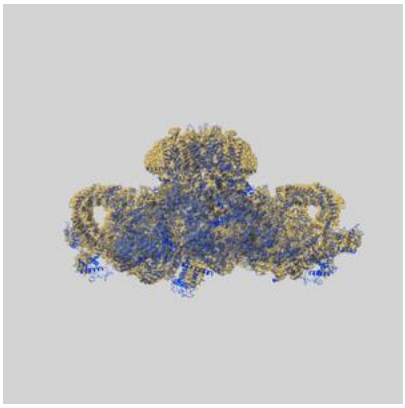
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.70	-	-
Author-provided FSC curve	4.71	6.48	4.80
Unmasked-calculated*	7.07	8.62	7.16

*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 7.07 differs from the reported value 4.7 by more than 10 %

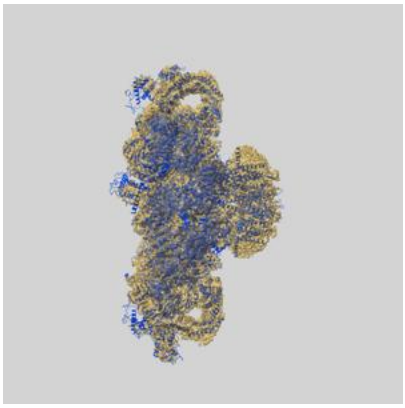
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-30343 and PDB model 7CF9. Per-residue inclusion information can be found in section 3 on page 5.

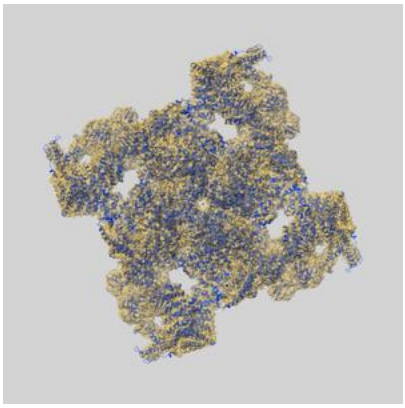
9.1 Map-model overlay



X



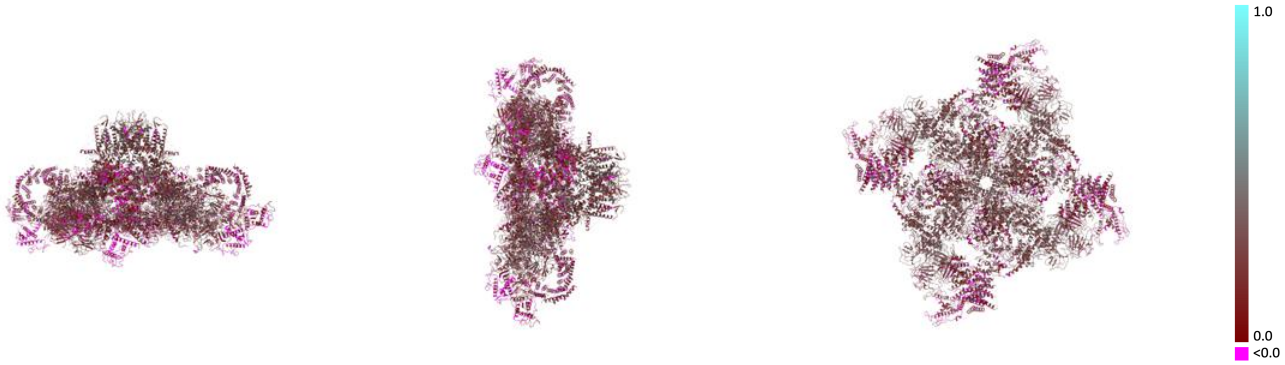
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 8e-05 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.

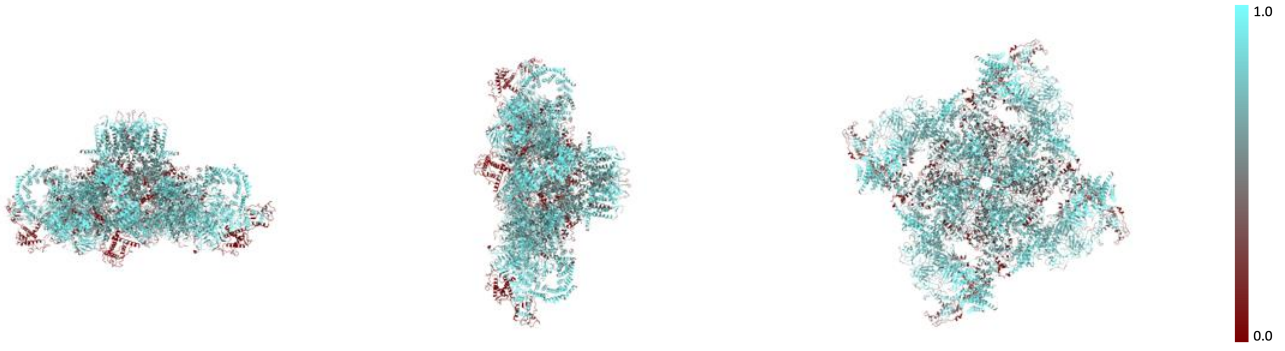
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

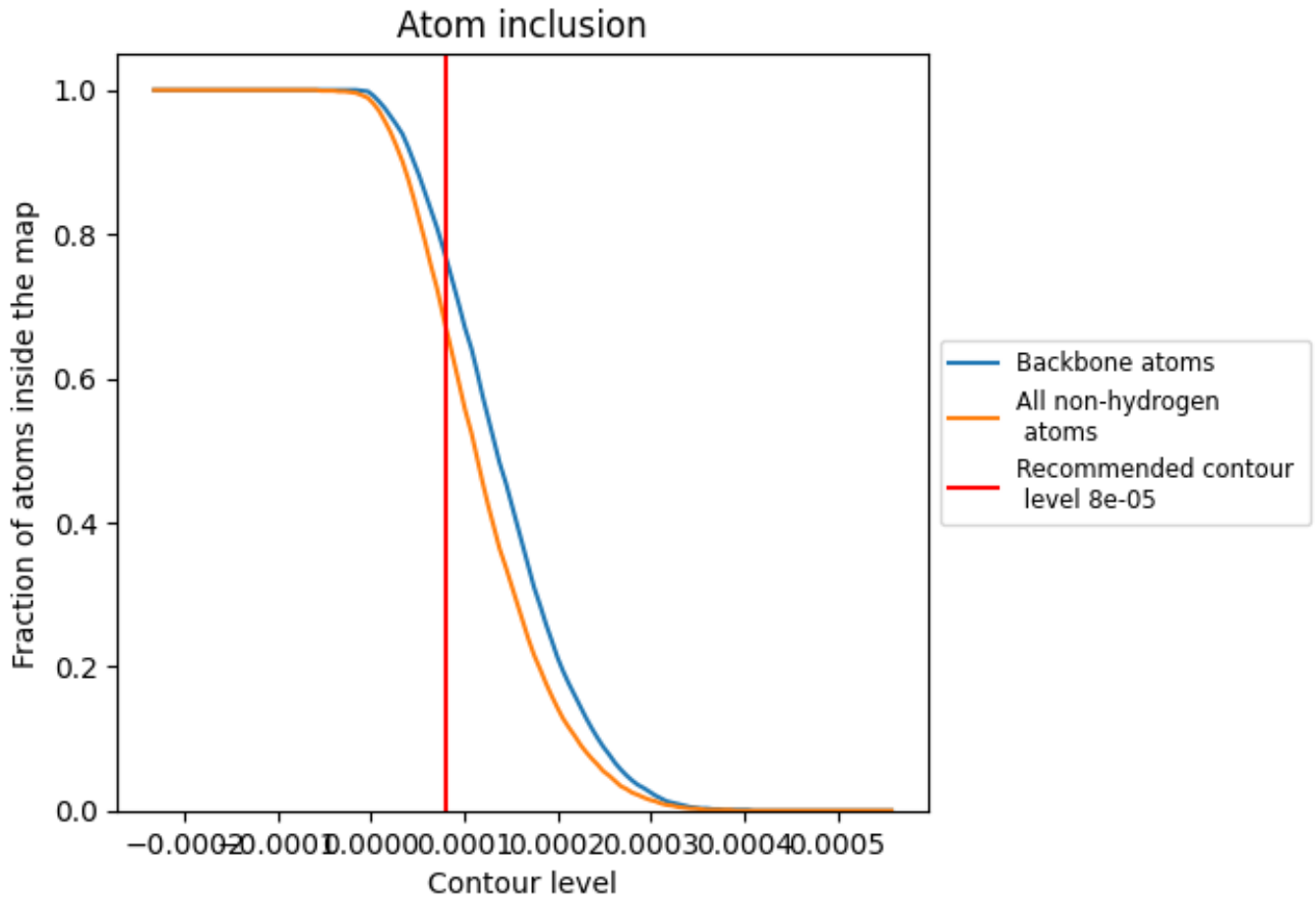
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (8e-05).

9.4 Atom inclusion (i)



At the recommended contour level, 77% of all backbone atoms, 67% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (8e-05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6730	0.2320
A	0.6710	0.2300
B	0.7610	0.2860
C	0.6710	0.2300
D	0.7710	0.2840
E	0.6710	0.2300
F	0.7650	0.2840
G	0.6710	0.2300
H	0.7650	0.2860