Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 11:41 AM JST

PDB ID	:	6M2W
EMDB ID	:	EMD-30067
Title	:	Structure of RyR1 (Ca2+/Caffeine/ATP/CaM1234/CHL)
Authors	:	Ma, R.; Haji-Ghassemi, O.; Ma, D.; Lin, L.; Samurkas, A.; Van Petegem, F.; Yuchi, Z.
Deposited on	:	2020-03-01
Resolution	:	3.80 Å(reported)

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

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

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

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

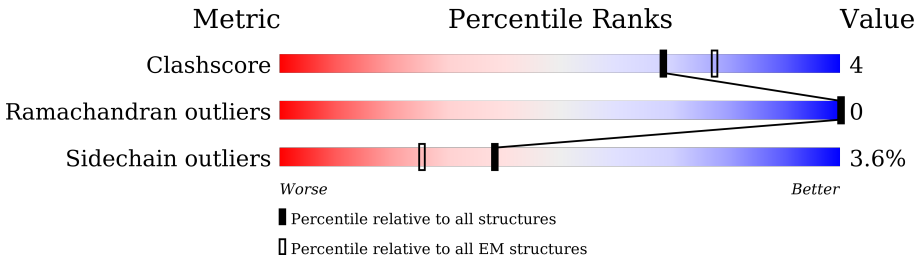
EMDB validation analysis	:	0.0.1.dev70
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (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 3.80 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	9% 70% 8% 22%
1	D	5037	9% 70% 7% 22%
1	G	5037	9% 70% 7% 22%
1	J	5037	9% 70% 7% 22%
2	B	107	88% 11%
2	E	107	87% 12%
2	H	107	88% 11%
2	K	107	88% 11%

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Mol	Chain	Length	Quality of chain
3	C	149	22% 73% 17% • 7%
3	F	149	26% 73% 17% • 7%
3	I	149	26% 72% 17% • 7%
3	L	149	24% 71% 19% • 7%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	ATP	A	5103	-	-	X	-
6	ATP	D	5103	-	-	X	-
6	ATP	G	5103	-	-	X	-
6	ATP	J	5103	-	-	X	-

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 120452 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,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1.

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

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

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

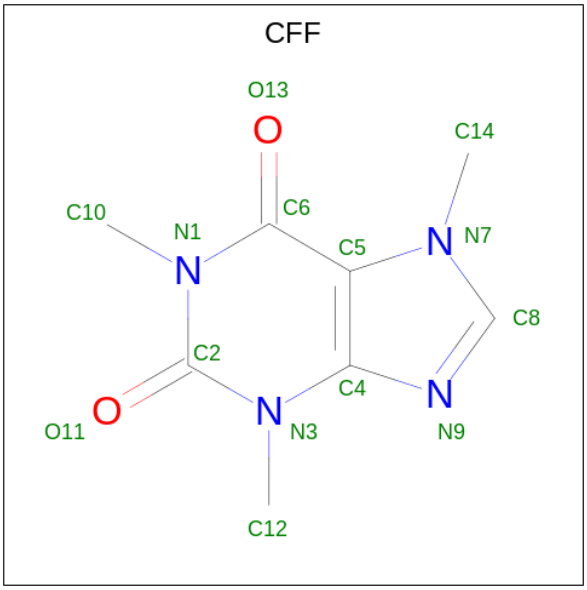
- Molecule 3 is a protein called Calmodulin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	139	Total	C	N	O	S	0	0
			1042	646	174	212	10		
3	F	139	Total	C	N	O	S	0	0
			1042	646	174	212	10		
3	I	139	Total	C	N	O	S	0	0
			1042	646	174	212	10		
3	L	139	Total	C	N	O	S	0	0
			1042	646	174	212	10		

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	32	ALA	GLU	engineered mutation	UNP P0DP23
C	68	ALA	GLU	engineered mutation	UNP P0DP23
C	105	ALA	GLU	engineered mutation	UNP P0DP23
C	141	ALA	GLU	engineered mutation	UNP P0DP23
F	32	ALA	GLU	engineered mutation	UNP P0DP23
F	68	ALA	GLU	engineered mutation	UNP P0DP23
F	105	ALA	GLU	engineered mutation	UNP P0DP23
F	141	ALA	GLU	engineered mutation	UNP P0DP23
I	32	ALA	GLU	engineered mutation	UNP P0DP23
I	68	ALA	GLU	engineered mutation	UNP P0DP23
I	105	ALA	GLU	engineered mutation	UNP P0DP23
I	141	ALA	GLU	engineered mutation	UNP P0DP23
L	32	ALA	GLU	engineered mutation	UNP P0DP23
L	68	ALA	GLU	engineered mutation	UNP P0DP23
L	105	ALA	GLU	engineered mutation	UNP P0DP23
L	141	ALA	GLU	engineered mutation	UNP P0DP23

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



Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total C N O 14 8 4 2	0
4	D	1	Total C N O 14 8 4 2	0
4	G	1	Total C N O 14 8 4 2	0

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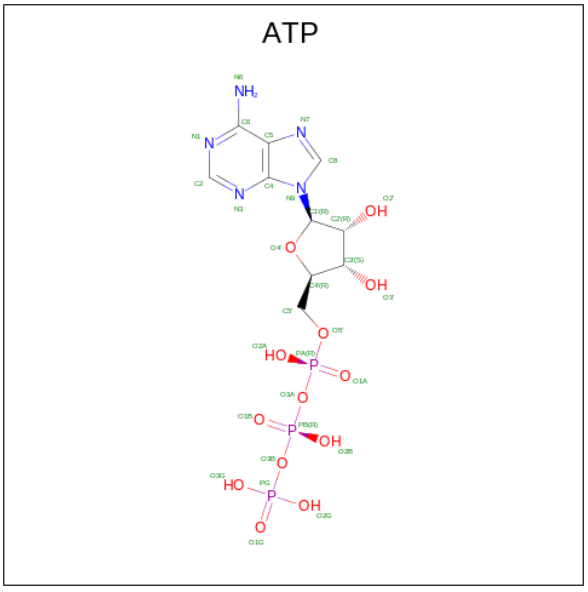
Mol	Chain	Residues	Atoms				AltConf
4	J	1	Total	C	N	O	0
			14	8	4	2	

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Ca	0
			1	1	
5	D	1	Total	Ca	0
			1	1	
5	G	1	Total	Ca	0
			1	1	
5	J	1	Total	Ca	0
			1	1	

- Molecule 6 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).

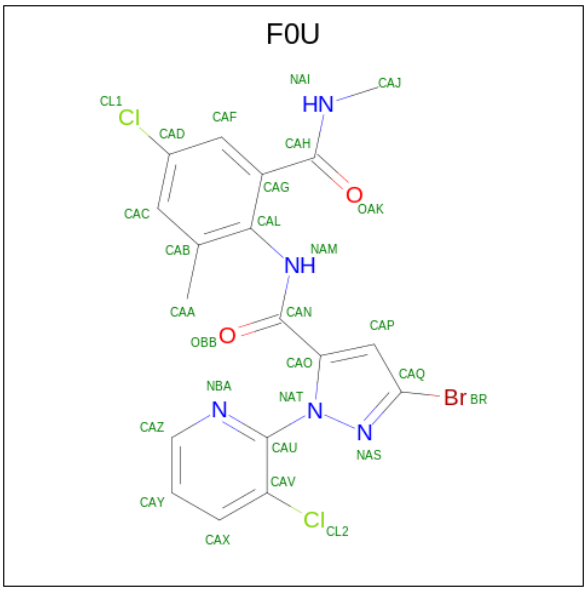


Mol	Chain	Residues	Atoms					AltConf
6	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	G	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	J	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 7 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
7	A	1	Total Zn 1 1	0
7	D	1	Total Zn 1 1	0
7	G	1	Total Zn 1 1	0
7	J	1	Total Zn 1 1	0

- Molecule 8 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).



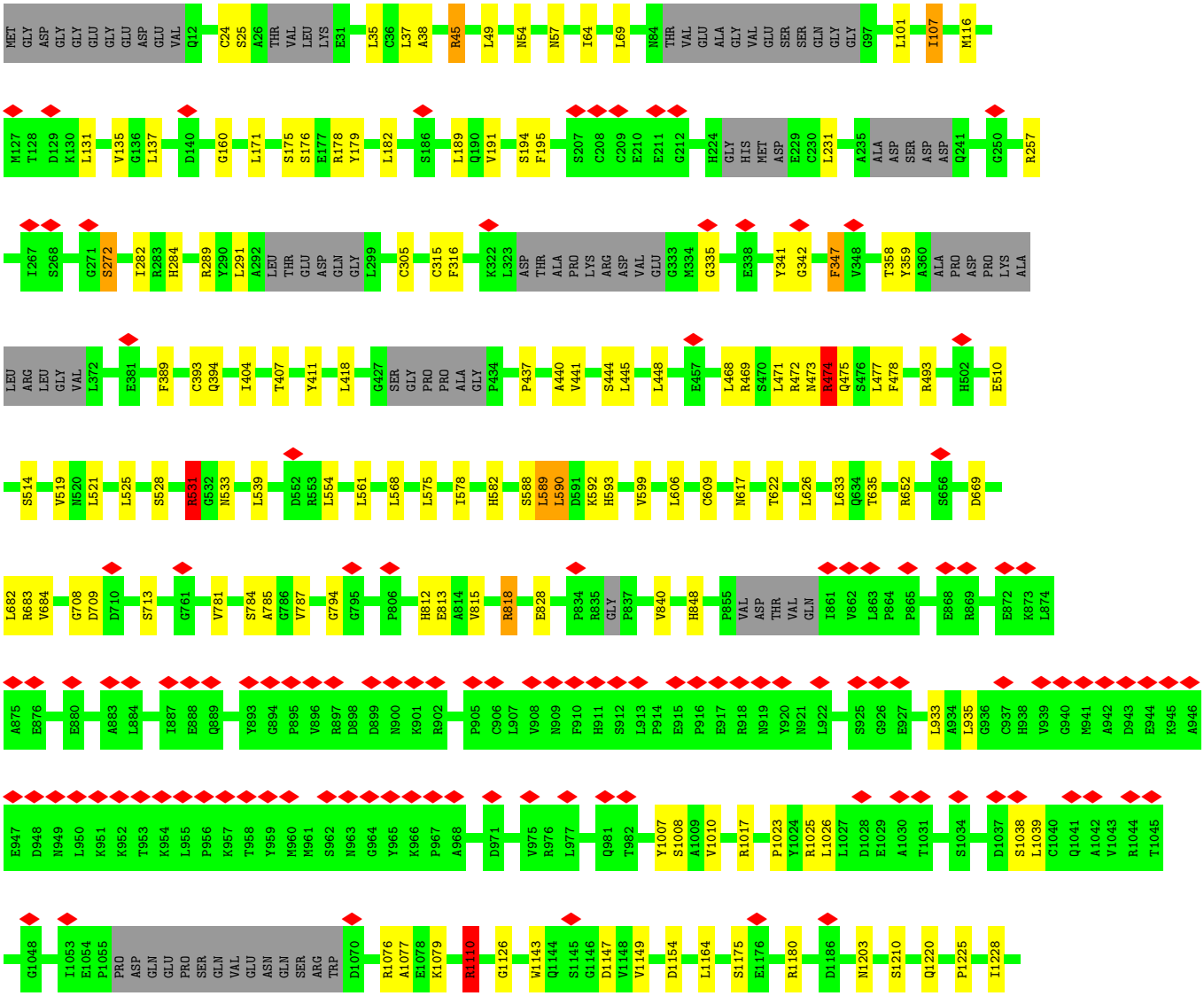
Mol	Chain	Residues	Atoms	AltConf
8	A	1	Total Br C Cl N O 28 1 18 2 5 2	0
8	D	1	Total Br C Cl N O 28 1 18 2 5 2	0
8	G	1	Total Br C Cl N O 28 1 18 2 5 2	0
8	J	1	Total Br C Cl N O 28 1 18 2 5 2	0

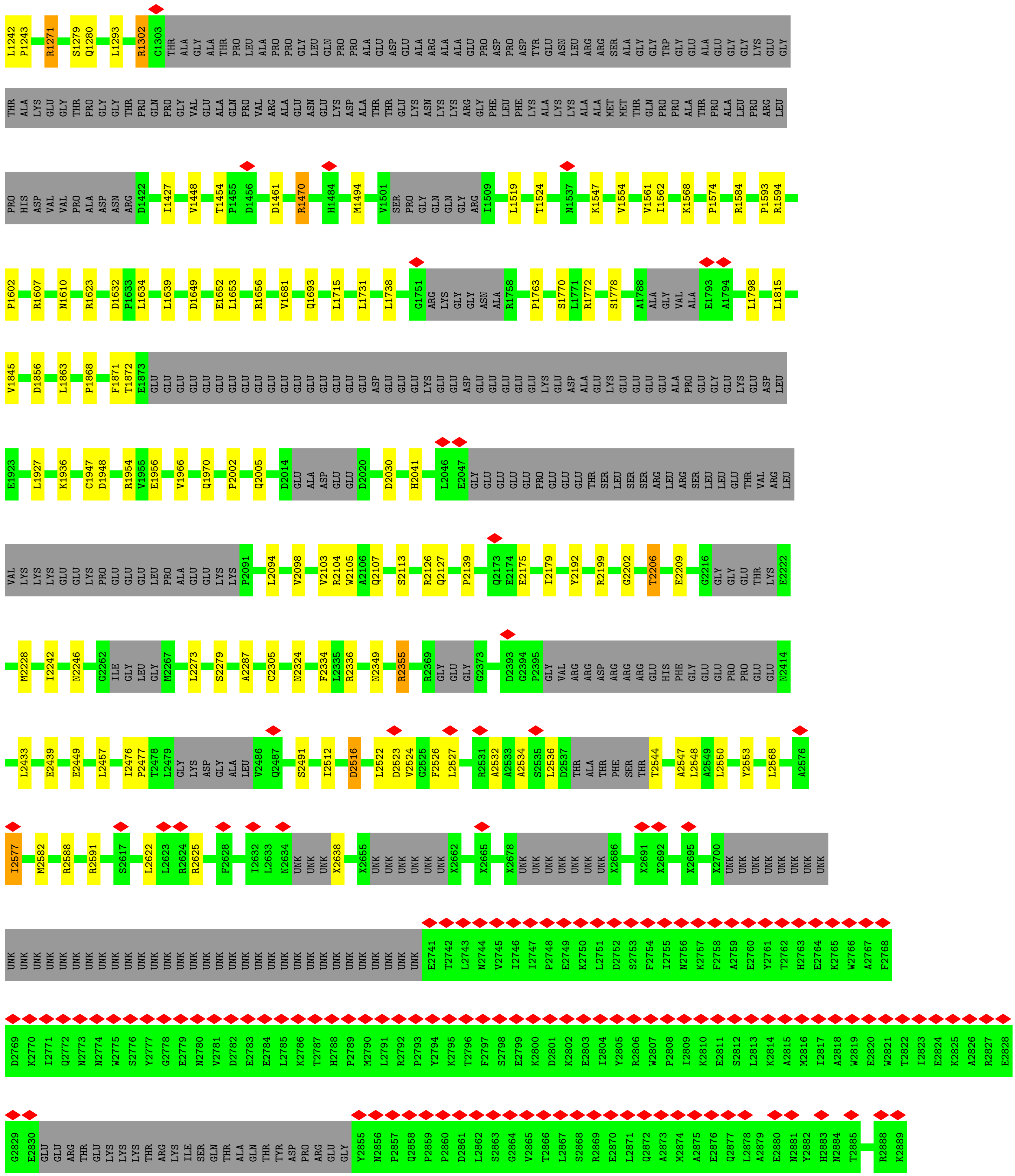
3 Residue-property plots (i)

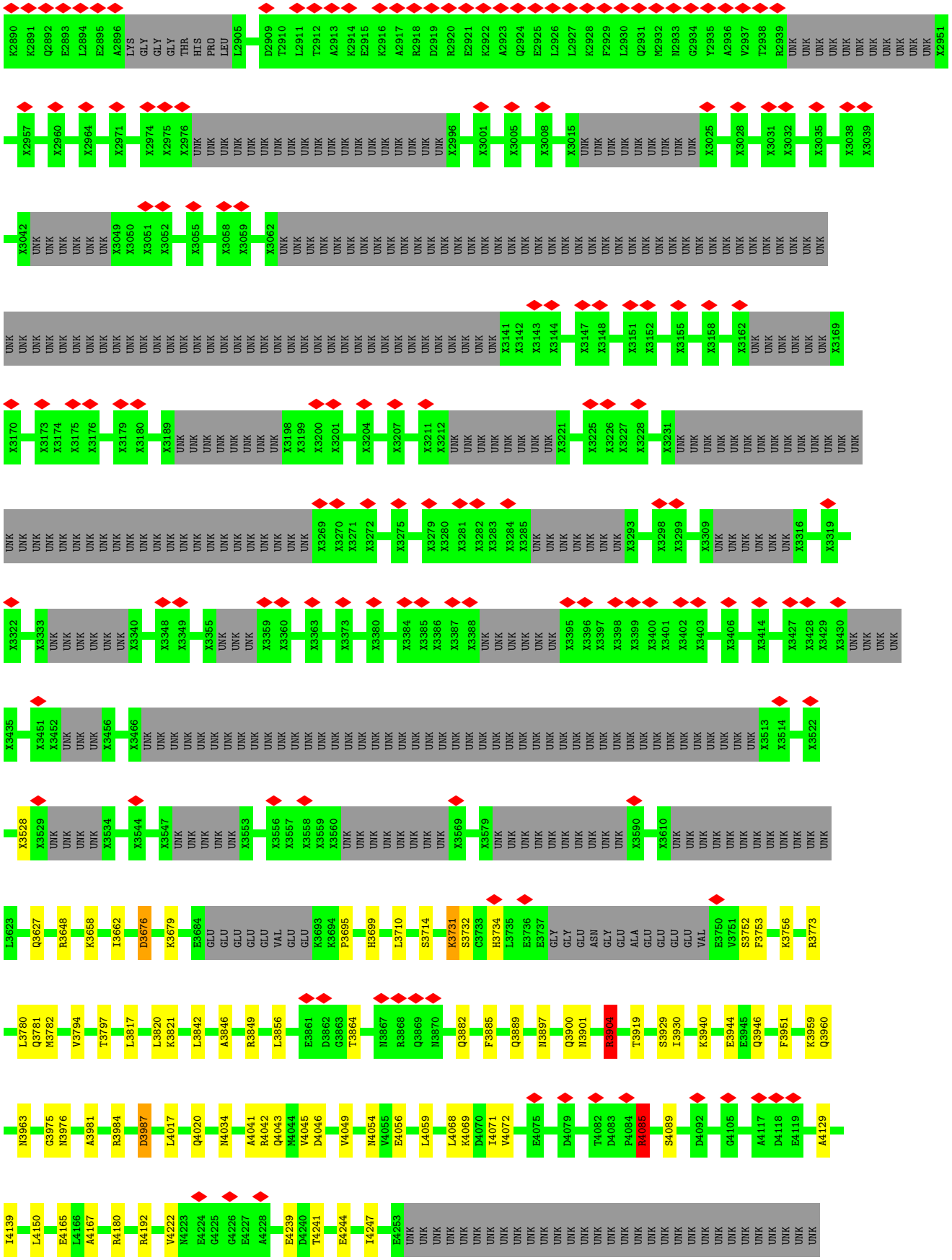
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

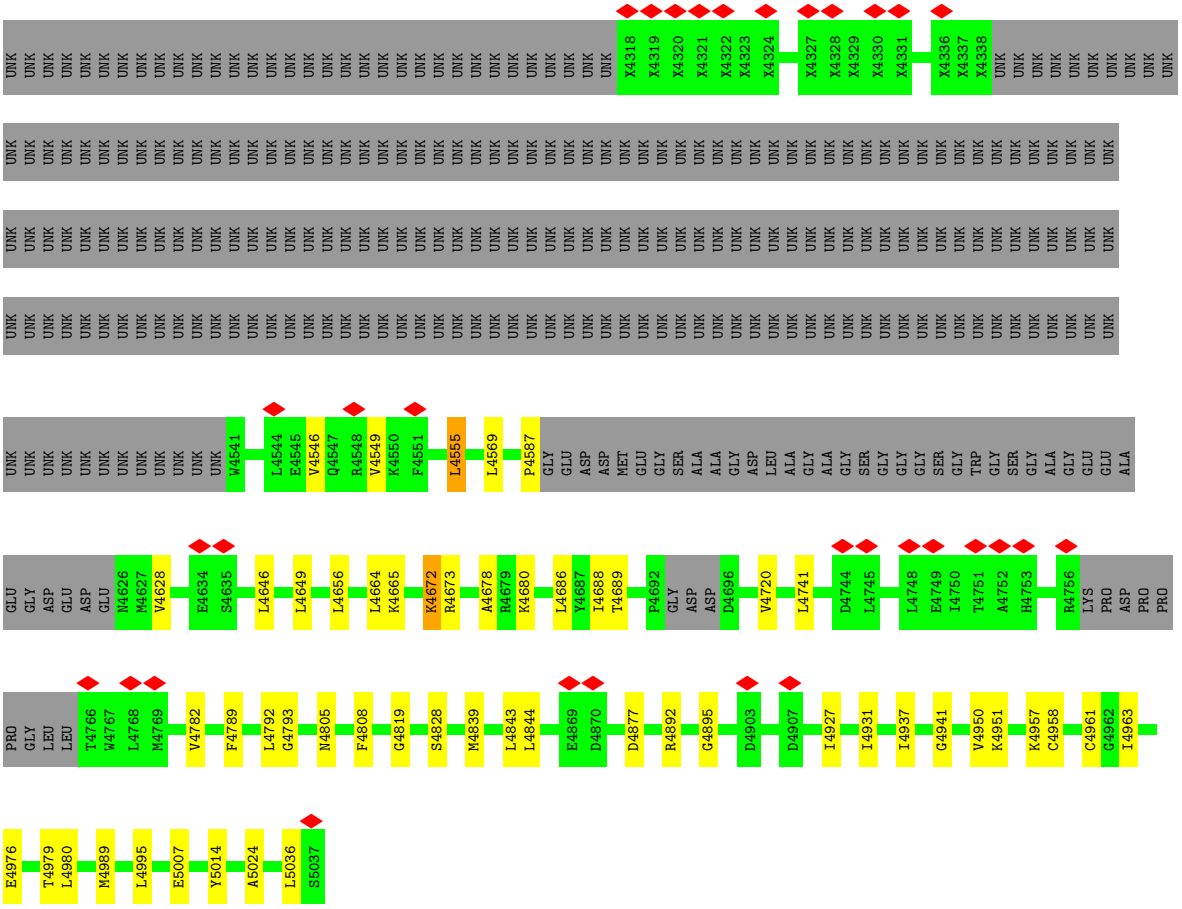
• Molecule 1: Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1

Chain A:



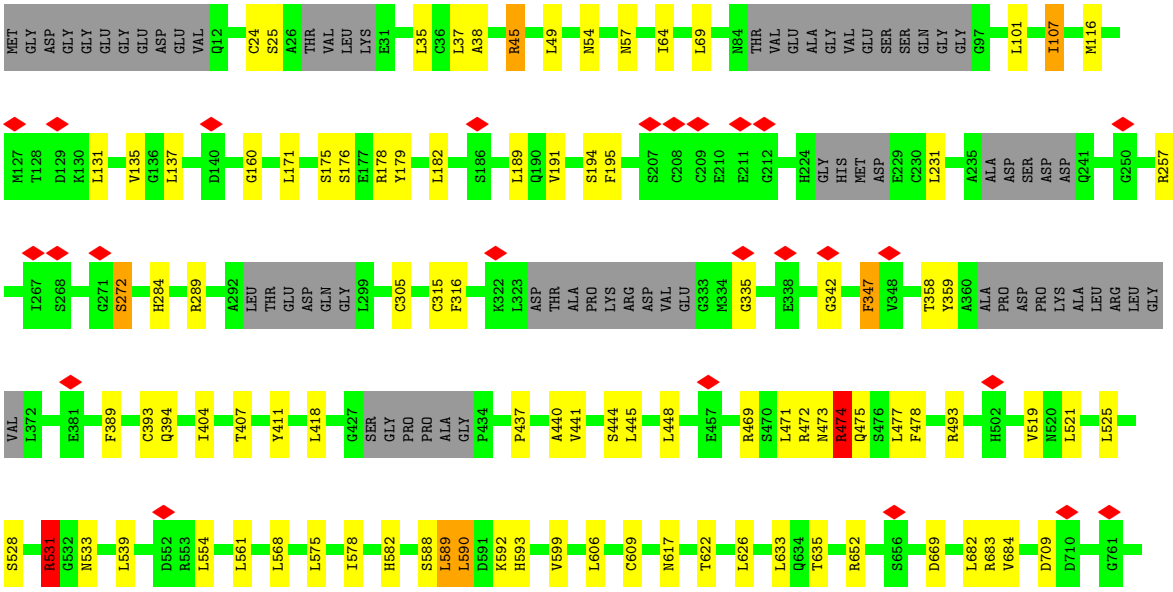

L1242 P1243 R1271 S1279 Q1280 L1293 R1302 C1303 THR ALA GLY ALA THR PRO LEU ALA PRO PRO GLY LEU GLN PRO PRO ALA GLU ASP GLU ALA ARG ALA ALA GLU PRO ASP PRO ASP TYR GLU ASN LEU ARG ARG SER ALA GLY GLY TRP GLY GLU ALA GLU GLY GLY LYS GLU GLY
THR ALA LYS GLU GLY THR PRO GLY GLY THR PRO GLN PRO GLY VAL GLU 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 PRO ARG LEU
PRO HIS ASP VAL VAL PRO ALA ASP ASN ARG D1422 I1427 V1448 T1454 P1455 D1456 D1461 R1470 H1484 M1494 V1501 SER PRO GLY GLN GLN GLY ARG I1509 L1519 T1524 N1537 K1547 V1554 V1561 I1562 K1568 P1574 R1584 P1593 R1594
P1602 R1607 N1610 R1623 D1632 P1633 L1634 L1639 D1649 E1652 L1653 R1656 V1681 Q1693 L1715 L1731 L1738 G1751 ARG LYS GLY GLY ASN ALA R1758 P1763 S1770 L1771 R1772 S1778 A1788 ALA GLY VAL ALA E1793 A1794 L1798 L1815
V1845 D1856 L1863 P1868 F1871 T1872 E1873 GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU ASP GLU GLU GLU LYS GLU GLU ASP GLU GLU GLU GLU GLU LYS GLU ASP ALA GLU LYS GLU GLU GLU GLU ALA PRO GLU GLY GLU LYS GLU ASP LEU
E1923 L1927 K1936 C1947 D1948 R1954 V1955 E1956 V1966 Q1970 P2002 Q2005 D2014 GLU ALA ASP GLU GLU D2020 D2030 H2041 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 V2098 V2103 R2104 W2105 A2106 Q2107 S2113 R2126 Q2127 P2139 Q2173 E2174 E2175 I2179 Y2192 R2199 G2202 T2206 E2209 G2216 GLY GLY GLU THR LYS E2222
M2228 I2242 N2246 G2262 ILE GLY LEU GLY M2267 L2273 S2279 A2287 C2305 N2324 F2334 L2335 R2336 N2349 R2355 R2369 GLY GLU GLY G2373 D2393 G2394 P2395 GLY VAL ARG ARG ASP ARG ARG ARG GLU HIS PHE GLY GLU GLU PRO PRO GLU GLU N2414
L2433 E2439 E2449 L2457 I2476 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 S2491 I2512 D2516 L2522 D2523 V2524 G2525 F2526 L2527 R2531 A2532 A2533 A2534 S2535 L2536 D2537 THR ALA THR PHE SER THR T2544 A2547 L2548 A2549 L2550 Y2553 L2568 A2576
I2577 M2582 R2588 R2591 S2617 L2622 L2623 R2624 R2625 F2628 I2632 L2633 N2634 UNK UNK UNK X2638 X2655 UNK UNK UNK UNK UNK UNK X2662 X2665 X2678 UNK UNK UNK UNK UNK UNK UNK X2686 X2691 X2692 X2695 X2700 UNK UNK UNK UNK UNK UNK UNK UNK
UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK 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 R2888 K2889

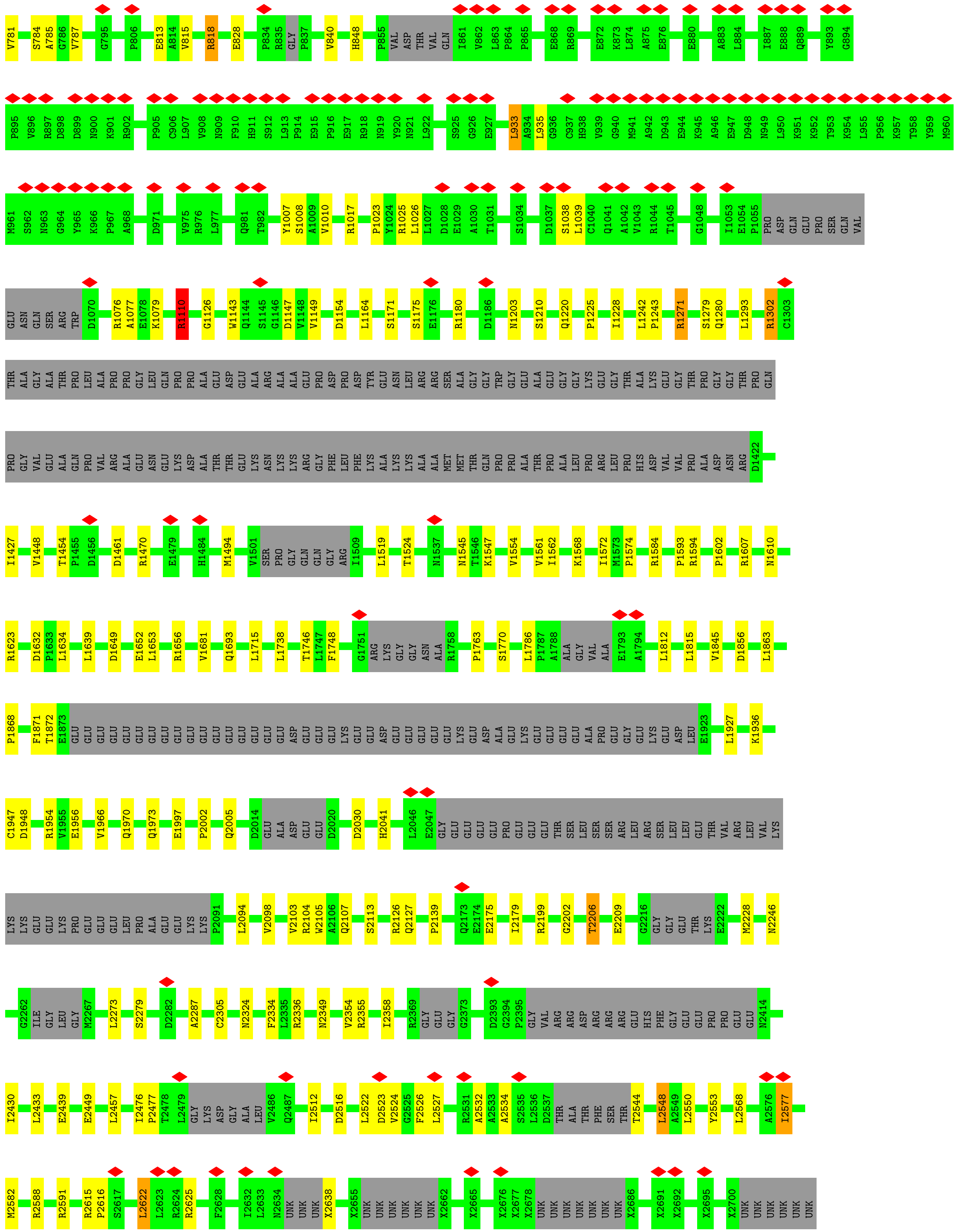


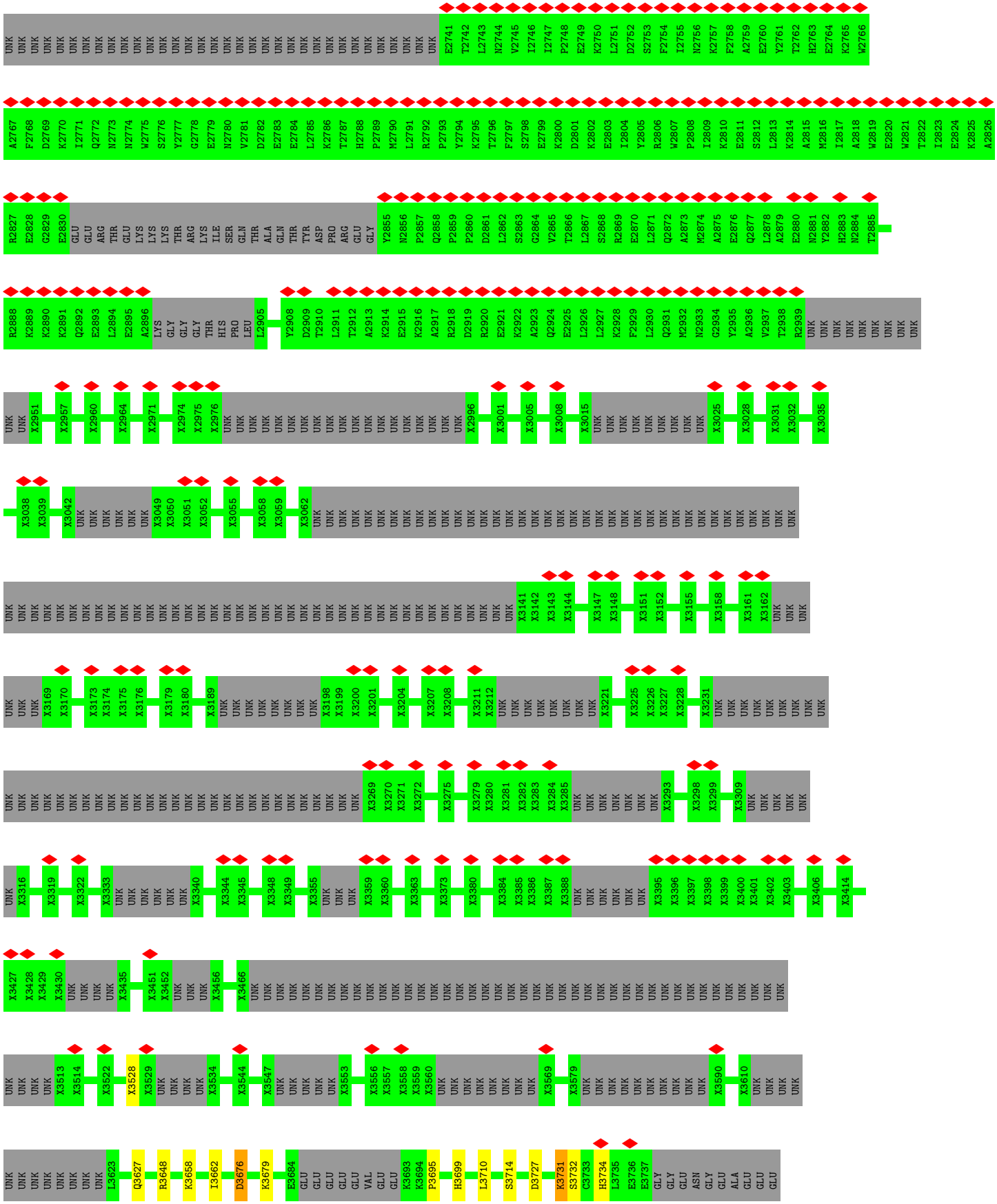


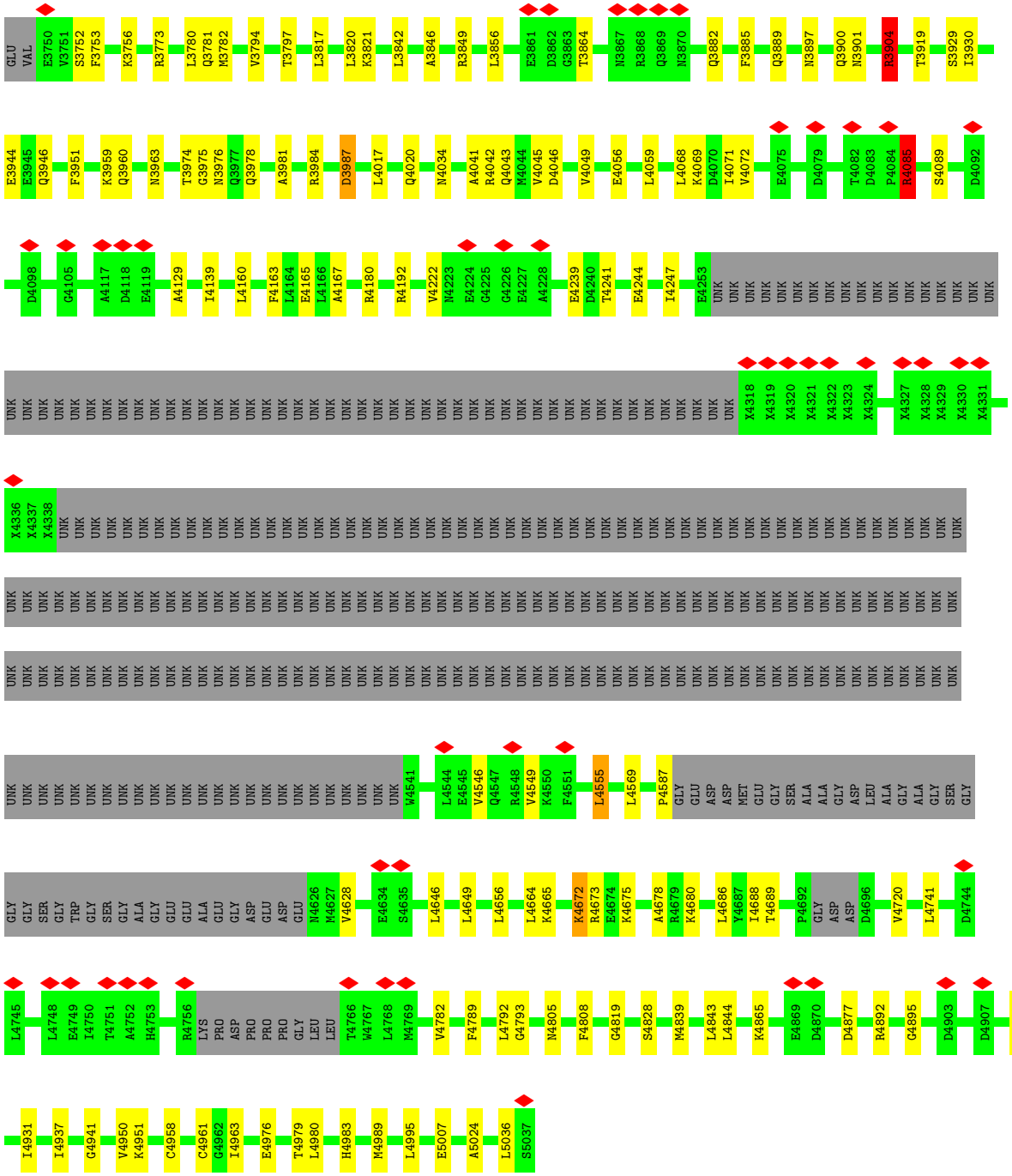
• Molecule 1: Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1

Chain D:



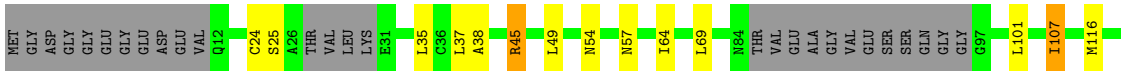

V781 S784 A785 G786 V787 G795 P806 E813 A814 V815 R818 E828 P834 R835 GLY P837 V840 H848 P855 VAL ASP THR VAL GLN I861 V862 L863 P864 P865 E868 R869 E872 K873 L874 A875 E876 E880 A883 L884 I887 E888 Q889 Y893 G894
P895 V896 R897 D898 D899 N900 K901 R902 P905 C906 L907 V908 N909 F910 H911 S912 L913 P914 E915 P916 E917 R918 N919 Y920 N921 L922 S925 G926 E927 L933 A934 L935 G936 C937 H938 V939 G940 M941 A942 D943 E944 K945 A946 E947 D948 N949 L950 K951 K952 T953 K954 L955 P956 K957 T958 Y959 M960
M961 S962 N963 G964 Y965 K966 P967 A968 D971 V975 R976 L977 Q981 T982 Y1007 S1008 A1009 V1010 R1017 P1023 Y1024 R1025 L1026 L1027 D1028 E1029 A1030 T1031 S1034 D1037 S1038 L1039 C1040 Q1041 A1042 V1043 R1044 T1045 G1048 I1053 E1054 P1055 PRO ASP GLN GLU PRO SER GLN VAL
GLU ASN GLN SER ARG TRP D1070 R1076 A1077 E1078 K1079 R1110 G1126 W1143 Q1144 S1145 G1146 D1147 V1148 V1149 D1154 L1164 S1171 S1175 E1176 R1180 D1186 N1203 S1210 Q1220 P1225 I1228 L1242 P1243 R1271 S1279 Q1280 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 PRO ARG LEU PRO HIS ASP VAL VAL PRO ALA ASP ASN ARG D1422
I1427 V1448 T1454 P1455 D1456 D1461 R1470 E1479 H1484 M1494 V1501 SER PRO GLY GLN GLN GLY ARG I1509 L1519 T1524 N1537 N1545 T1546 K1547 V1554 V1561 I1562 K1568 I1572 M1573 P1574 R1584 P1593 R1594 P1602 R1607 N1610
R1623 D1632 P1633 L1634 L1639 D1649 E1652 L1653 R1656 V1681 Q1693 L1715 L1738 T1746 L1747 F1748 G1751 ARG LYS GLY GLY ASN ALA R1758 P1763 S1770 L1786 P1787 A1788 ALA GLY VAL ALA E1793 A1794 L1812 L1815 V1845 D1856 L1863
P1868 F1871 T1872 E1873 GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU ASP GLU GLU GLU LYS GLU GLU ASP GLU GLU GLU GLU GLU LYS GLU ASP ALA GLU LYS GLU GLU GLU GLU ALA PRO GLU GLY GLU LYS GLU ASP LEU E1923 L1927 K1936
C1947 D1948 R1954 V1955 E1956 V1966 Q1970 Q1973 E1997 P2002 Q2005 D2014 GLU ALA ASP GLU GLU D2020 D2030 H2041 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 V2098 V2103 R2104 W2105 A2106 Q2107 S2113 R2126 Q2127 P2139 Q2173 E2174 E2175 I2179 R2199 G2202 T2206 E2209 G2216 GLY GLY GLU THR LYS E2222 M2228 N2246
G2262 ILE GLY LEU GLY M2267 L2273 S2279 D2282 A2287 C2305 N2324 F2334 L2335 R2336 N2349 V2354 R2355 I2358 R2369 GLY GLU GLY G2373 D2393 G2394 P2395 GLY VAL ARG ARG ASP ARG ARG ARG GLU HIS PHE GLY GLU GLU PRO PRO GLU GLU N2414
I2430 L2433 E2439 E2449 L2457 I2476 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 I2512 D2516 L2522 D2523 V2524 G2525 F2526 L2527 R2531 A2532 A2533 A2534 S2535 L2536 D2537 THR ALA THR PHE SER THR T2544 L2548 A2549 L2550 Y2553 L2568 A2576 I2577
M2582 R2588 R2591 R2615 P2616 S2617 L2622 L2623 R2624 R2625 F2628 I2632 L2633 N2634 UNK UNK UNK X2638 X2655 UNK UNK UNK UNK UNK UNK X2662 X2665 X2676 X2677 X2678 UNK UNK UNK UNK UNK UNK UNK X2686 X2691 X2692 X2695 X2700 UNK UNK UNK UNK UNK UNK

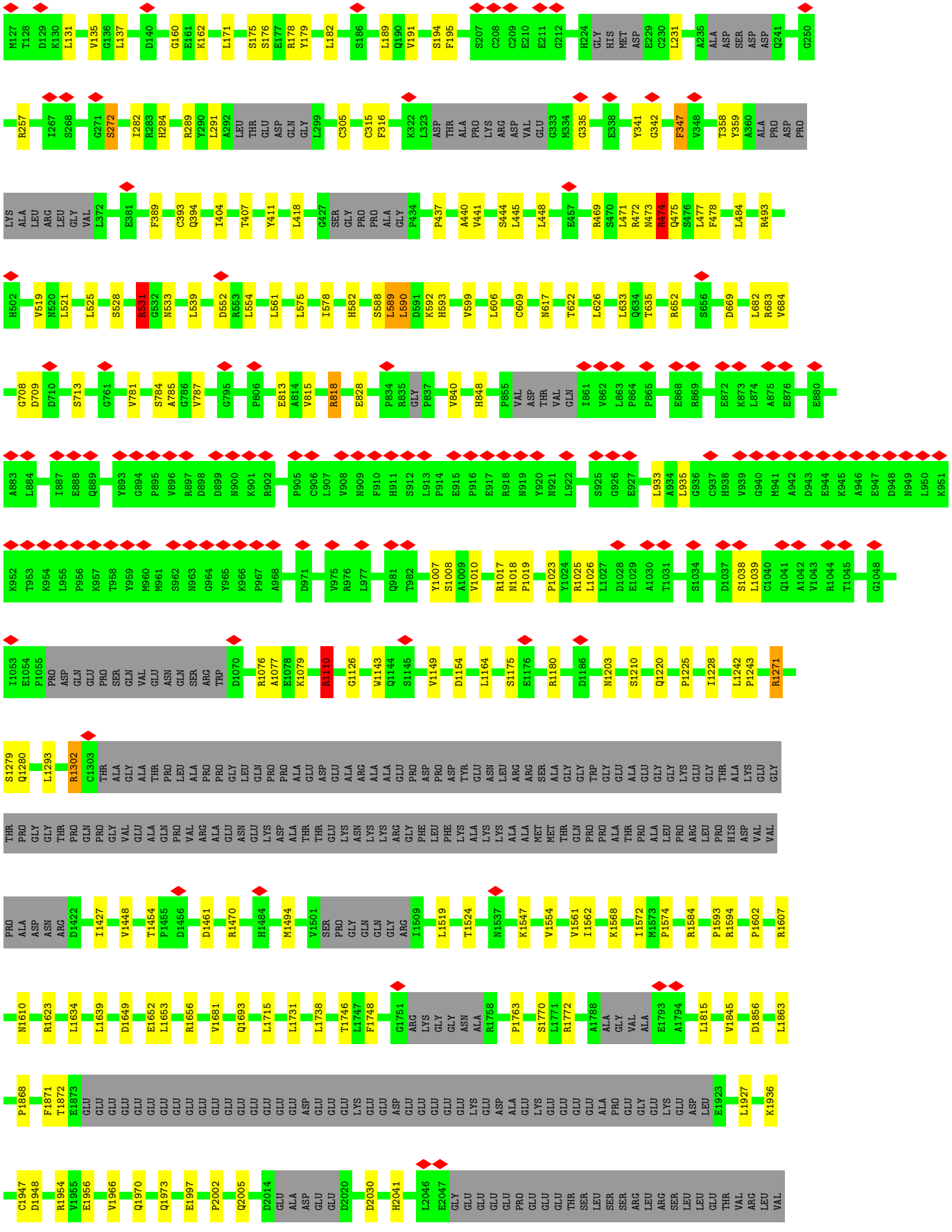




• Molecule 1: Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1

Chain G:

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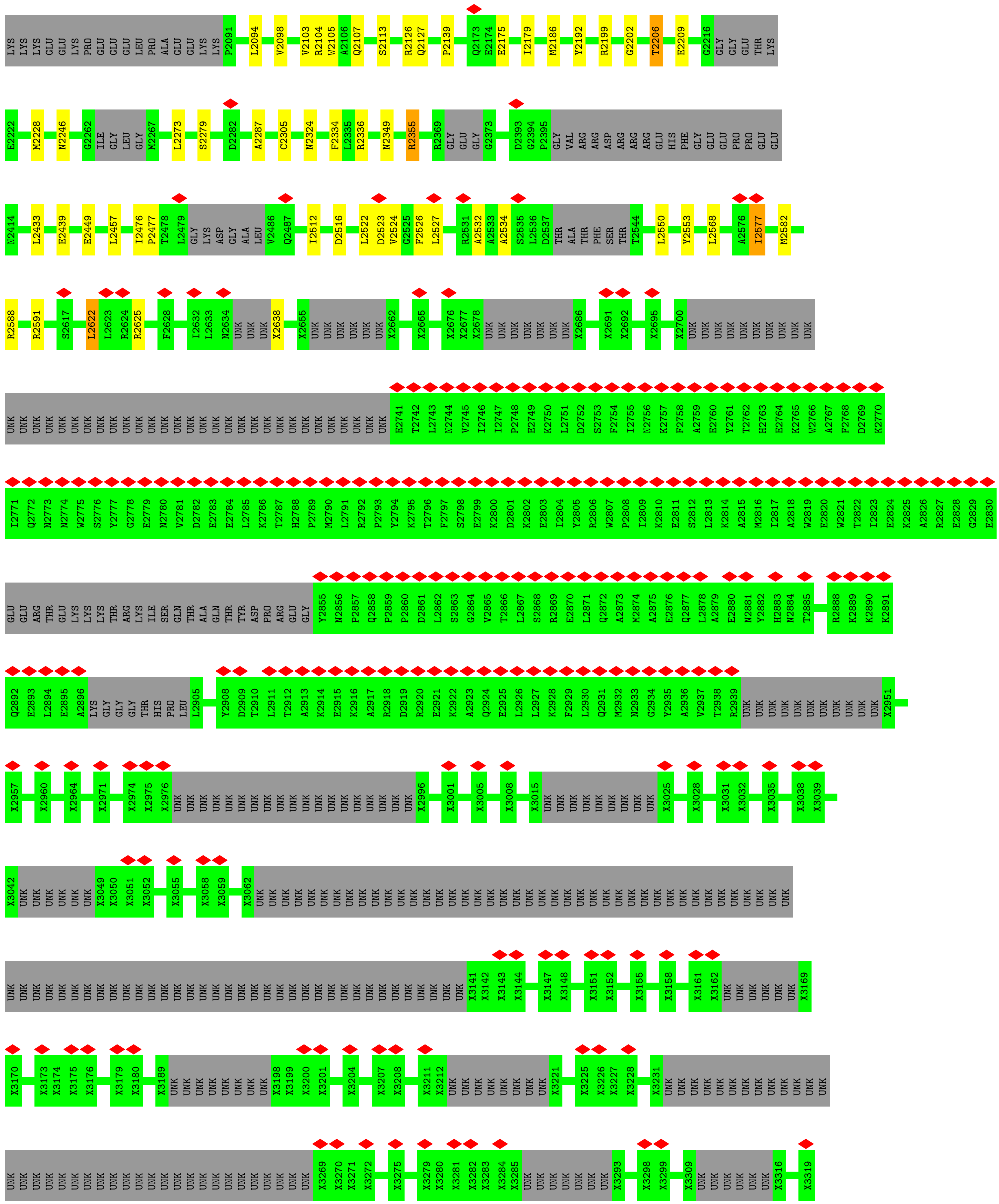
R257 I267 S268 G271 S272 I282 R283 H284 R289 Y290 L291 A292 LEU THR GLU ASP GLN GLY L299 C305 C315 F316 K322 L323 ASP THR ALA PRO LYS ARG ASP VAL GLU G333 M334 G335 E338 Y341 G342 F347 Y348 T358 Y359 A360 ALA PRO ASP PRO
LYS ALA LEU ARG LEU GLY VAL L372 E381 F389 C393 Q394 I404 T407 Y411 L418 G427 SER GLY PRO PRO ALA GLY P434 P437 A440 V441 S444 L445 L448 E457 R469 S470 L471 R472 N473 R474 Q475 S476 L477 F478 L484 R493
H502 V519 N520 L521 L525 S528 R531 G532 N533 L539 D552 R553 L554 L561 L575 I578 H582 S588 L589 L590 D591 K592 H593 V599 L606 C609 N617 T622 L626 L633 Q634 T635 R652 S656 D669 L682 R683 V684
G708 D709 D710 S713 G761 V781 S784 A785 G786 V787 G795 P806 E813 A814 V815 R818 E828 P834 R835 GLY P837 V840 H848 P855 VAL ASP THR VAL GLN I861 V862 L863 P864 P865 E868 R869 E872 K873 L874 A875 E876 E880
A883 L884 I887 E888 Q889 Y893 G894 P895 V896 R897 D898 D899 N900 K901 R902 P905 C906 L907 V908 N909 F910 H911 S912 L913 P914 E915 P916 E917 R918 N919 Y920 N921 L922 S925 G926 E927 L933 A934 L935 G936 C937 H938 V939 G940 N941 A942 D943 E944 K945 A946 E947 D948 N949 L950 K951
K952 T953 K954 L955 P956 K957 T958 Y959 M960 M961 S962 N963 G964 Y965 K966 P967 A968 D971 V975 R976 L977 Q981 T982 Y1007 S1008 A1009 V1010 R1017 N1018 P1019 P1023 Y1024 R1025 L1026 L1027 D1028 E1029 A1030 T1031 S1034 D1037 S1038 L1039 C1040 Q1041 A1042 V1043 R1044 T1045 G1048
I1053 E1054 P1055 PRO ASP GLN GLU PRO SER GLN VAL GLU ASN GLN SER ARG TRP D1070 R1076 A1077 E1078 K1079 R1110 G1126 W1143 Q1144 S1145 V1149 D1154 L1164 S1175 E1176 R1180 D1186 N1203 S1210 Q1220 P1225 I1228 L1242 P1243 R1271
S1279 Q1280 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 GLY 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 ALA GLU ASN GLU LYS ASP ALA ALA THR THR GLU LYS ASN LYS LYS ARG GLY PHE LEU PHE LYS ALA LYS LYS ALA ALA ALA MET MET THR THR GLN PRO PRO ALA THR PRO ALA LEU PRO PRO ARG LEU PRO HIS ASP VAL VAL
PRO ALA ASP ASN ARG D1422 I1427 V1448 T1454 P1455 D1456 D1461 R1470 H1484 M1494 V1501 SER PRO GLY GLN GLN GLY ARG I1509 L1519 T1524 N1537 K1547 V1554 V1561 I1562 K1568 I1572 M1573 P1574 R1584 P1593 R1594 P1602 R1607
N1610 R1623 L1634 L1639 D1649 E1652 L1653 R1656 V1681 Q1693 L1715 L1731 L1738 T1746 L1747 F1748 G1751 ARG LYS GLY GLY ASN ALA R1758 P1763 S1770 L1771 R1772 A1788 ALA GLY VAL ALA E1793 A1794 L1815 V1845 D1856 L1863
P1868 F1871 T1872 E1873 GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU GLU ASP GLU GLU GLU GLU GLU LYS GLU GLU ASP ALA GLU LYS GLU GLU GLU GLU ALA PRO GLU GLY GLU LYS GLU ASP LEU E1923 L1927 K1936
C1947 D1948 R1954 V1955 E1956 V1966 Q1970 Q1973 E1997 P2002 Q2005 D2014 GLU ALA ASP GLU GLU D2020 D2030 H2041 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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E2222 M2228 N2246 G2262 ILE GLY LEU GLY M2267 L2273 S2279 D2282 A2287 C2305 N2324 F2334 L2335 R2336 N2349 R2355 R2369 GLY GLU GLY G2373 D2393 G2394 P2395 GLY VAL ARG ARG ASP ARG ARG GLU HIS PHE GLY GLU GLU PRO PRO GLU GLU
N2414 L2433 E2439 E2449 L2457 I2476 P2477 T2478 L2479 GLY LYS ASP GLY ALA LEU V2486 Q2487 I2512 D2516 L2522 D2523 V2524 G2525 F2526 L2527 R2531 A2532 A2533 A2534 S2535 L2536 D2537 THR ALA THR PHE SER THR T2544 L2550 Y2553 L2568 A2576 I2577 M2582
R2588 R2591 S2617 L2622 L2623 R2624 R2625 F2628 I2632 L2633 N2634 UNK UNK UNK X2638 X2655 UNK UNK UNK UNK UNK UNK X2662 X2665 X2676 X2677 X2678 UNK UNK UNK UNK UNK UNK UNK X2686 X2691 X2692 X2695 X2700 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK
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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 S2859 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 R2888 K2889 K2890 K2891
Q2892 E2893 L2894 E2895 A2896 LYS GLY GLY GLY THR HIS PRO LEU L2905 Y2908 D2909 T2910 L2911 T2912 A2913 K2914 E2915 K2916 A2917 R2918 D2919 R2920 E2921 K2922 A2923 Q2924 E2925 L2926 K2927 K2928 F2929 L2930 Q2931 M2932 N2933 G2934 Y2935 A2936 V2937 T2938 R2939 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK X2951
X2957 X2960 X2964 X2971 X2974 X2975 X2976 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK X2996 X3001 X3005 X3008 X3015 UNK UNK UNK UNK UNK UNK UNK UNK UNK X3025 X3028 X3031 X3032 X3035 X3038 X3039
X3042 UNK UNK UNK UNK UNK UNK X3049 X3050 X3051 X3052 X3055 X3058 X3059 X3062 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK
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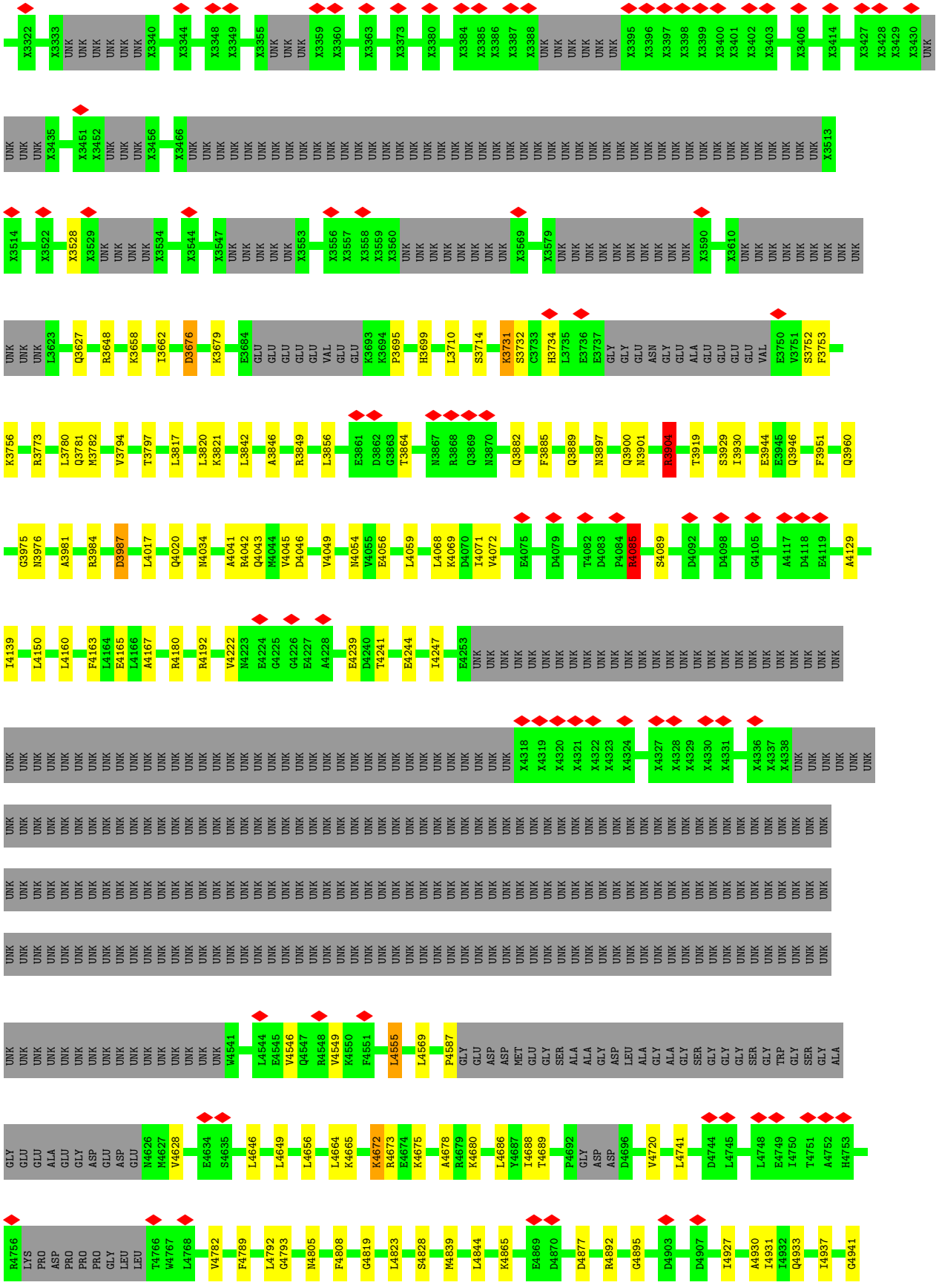
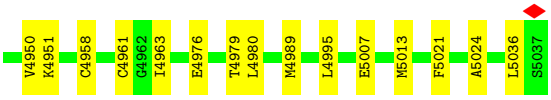
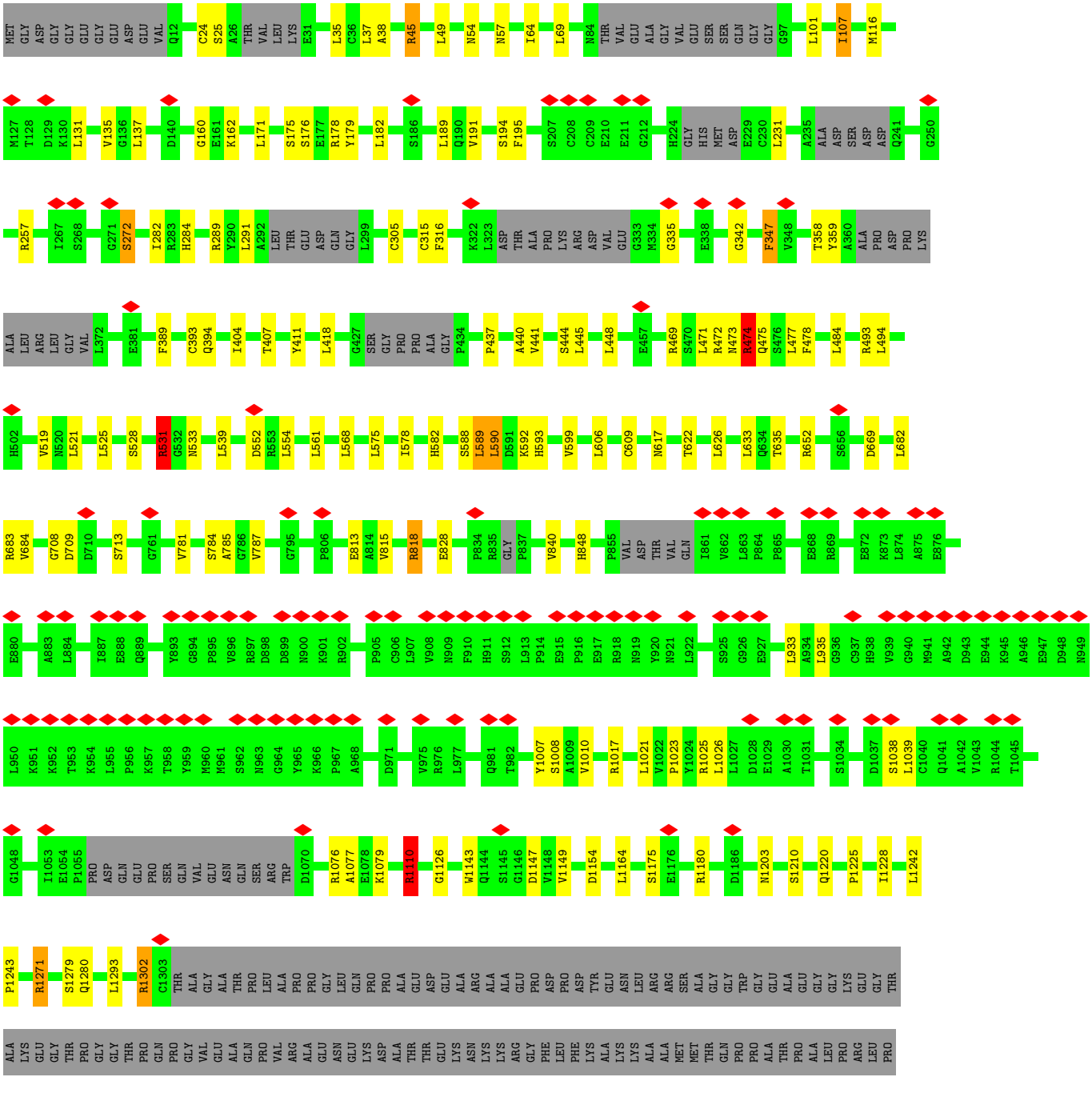
X3170 X3173 X3174 X3175 X3176 X3179 X3180 X3189 UNK UNK UNK UNK UNK UNK UNK UNK X3198 X3199 X3200 X3201 X3204 X3207 X3208 X3211 X3212 UNK UNK UNK UNK UNK UNK UNK UNK X3221 X3225 X3226 X3227 X3228 X3231 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK
UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK X3269 X3270 X3271 X3272 X3275 X3279 X3280 X3281 X3282 X3283 X3284 X3285 UNK UNK UNK UNK UNK UNK UNK X3293 X3298 X3299 X3309 UNK UNK UNK UNK UNK UNK X3316 X3319

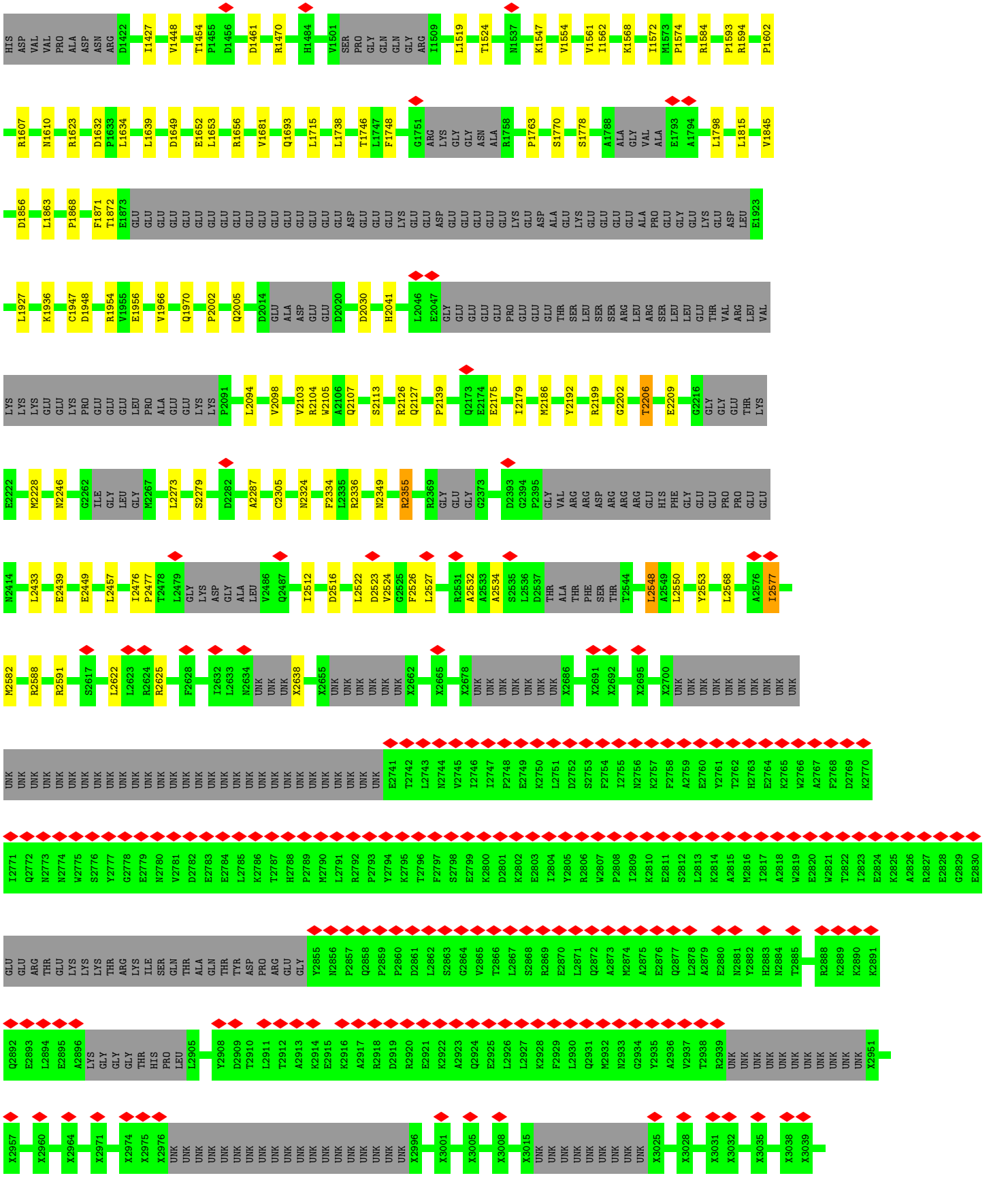


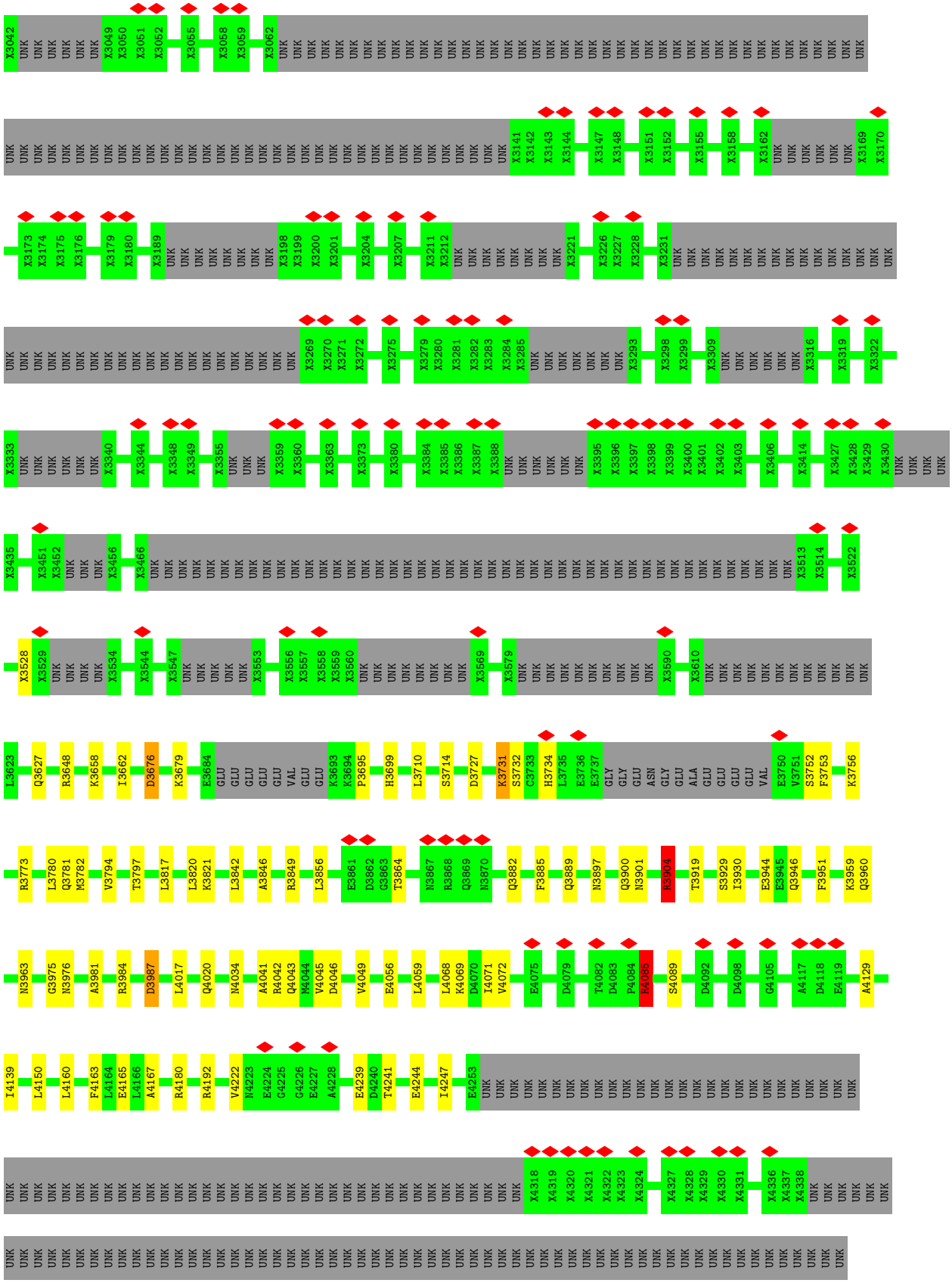


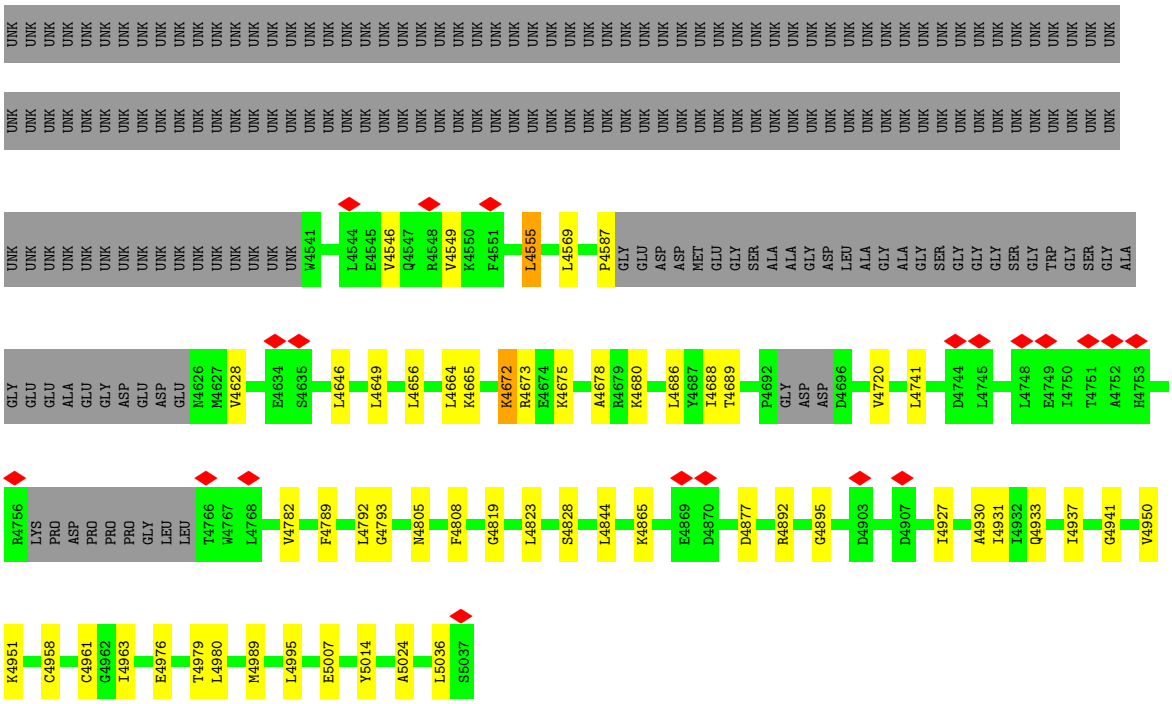
• Molecule 1: Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1,Ryanodine receptor 1

Chain J:



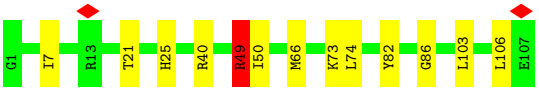






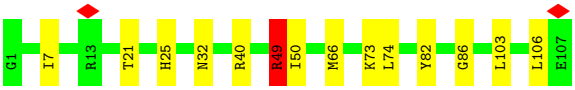
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B

Chain B:



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

Chain E:



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

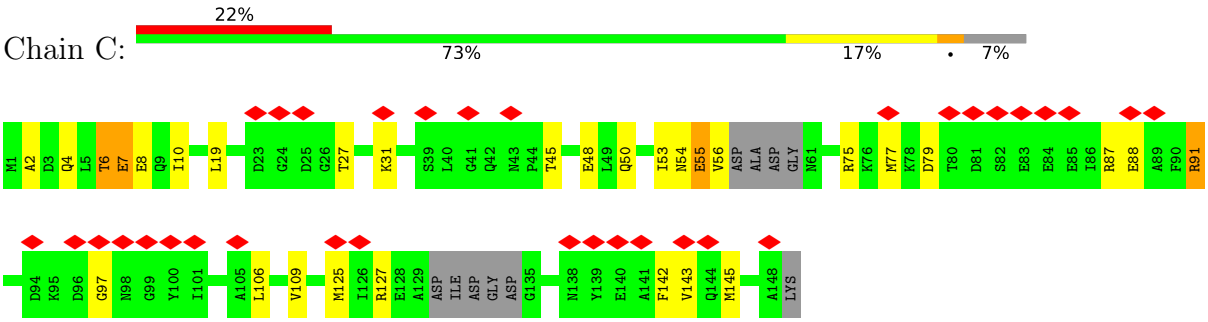
Chain H:

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

Chain K:

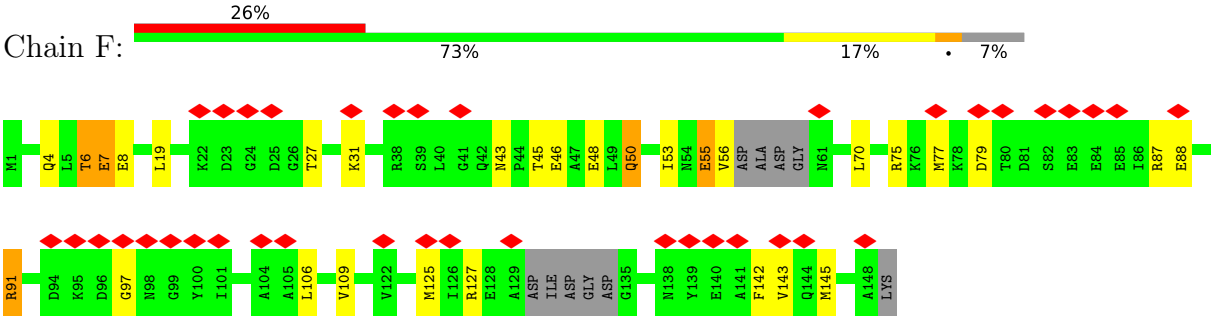
• Molecule 3: Calmodulin-1

Chain C:



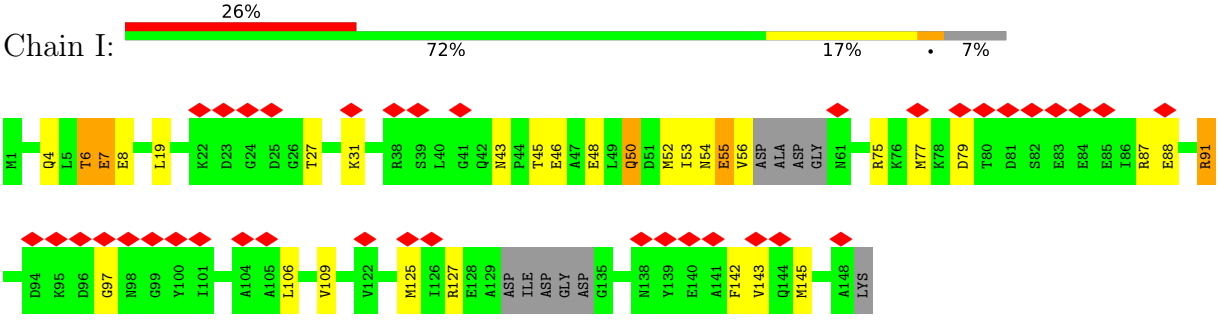
• Molecule 3: Calmodulin-1

Chain F:



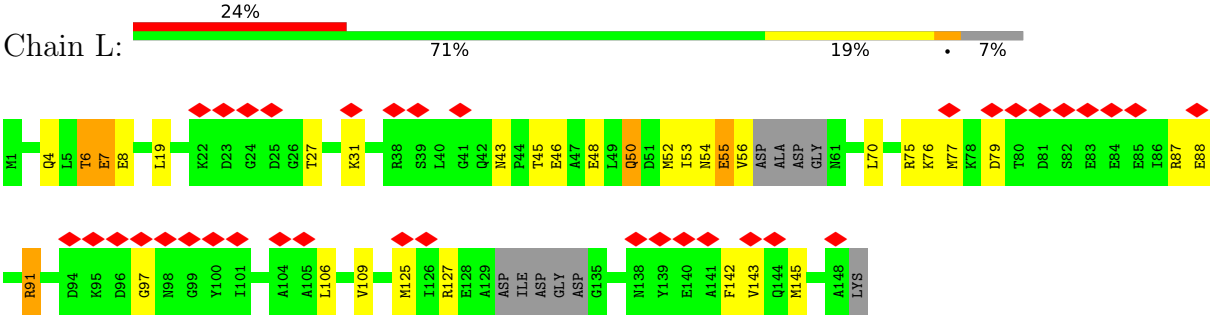
• Molecule 3: Calmodulin-1

Chain I:



• Molecule 3: Calmodulin-1

Chain L:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	84979	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	0.322	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.0302	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 (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.31	0/26486	0.65	42/36018 (0.1%)
1	D	0.31	0/26486	0.65	42/36018 (0.1%)
1	G	0.31	0/26486	0.65	42/36018 (0.1%)
1	J	0.31	0/26486	0.65	42/36018 (0.1%)
2	B	0.34	0/820	0.74	4/1105 (0.4%)
2	E	0.34	0/820	0.74	4/1105 (0.4%)
2	H	0.34	0/820	0.74	4/1105 (0.4%)
2	K	0.34	0/820	0.74	4/1105 (0.4%)
3	C	0.41	0/1052	0.84	4/1416 (0.3%)
3	F	0.41	0/1052	0.84	4/1416 (0.3%)
3	I	0.39	0/1052	0.82	3/1416 (0.2%)
3	L	0.39	0/1052	0.82	3/1416 (0.2%)
All	All	0.31	0/113432	0.66	198/154156 (0.1%)

There are no bond length outliers.

All (198) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	F	91	ARG	NE-CZ-NH1	10.87	125.73	120.30
1	A	45	ARG	NE-CZ-NH1	10.81	125.71	120.30
1	D	45	ARG	NE-CZ-NH1	10.81	125.71	120.30
1	G	45	ARG	NE-CZ-NH1	10.81	125.71	120.30
1	J	45	ARG	NE-CZ-NH1	10.81	125.71	120.30
3	C	91	ARG	NE-CZ-NH1	10.81	125.70	120.30
3	I	91	ARG	NE-CZ-NH1	10.79	125.69	120.30
3	L	91	ARG	NE-CZ-NH1	10.79	125.69	120.30
1	A	4085	ARG	CG-CD-NE	10.28	133.38	111.80
1	D	4085	ARG	CG-CD-NE	10.28	133.38	111.80
1	G	4085	ARG	CG-CD-NE	10.28	133.38	111.80
1	J	4085	ARG	CG-CD-NE	10.28	133.38	111.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	474	ARG	CG-CD-NE	10.11	133.04	111.80
1	D	474	ARG	CG-CD-NE	10.11	133.04	111.80
1	G	474	ARG	CG-CD-NE	10.11	133.04	111.80
1	J	474	ARG	CG-CD-NE	10.11	133.04	111.80
1	A	4085	ARG	NE-CZ-NH1	9.64	125.12	120.30
1	D	4085	ARG	NE-CZ-NH1	9.64	125.12	120.30
1	G	4085	ARG	NE-CZ-NH1	9.64	125.12	120.30
1	J	4085	ARG	NE-CZ-NH1	9.64	125.12	120.30
2	E	49	ARG	NE-CZ-NH1	9.42	125.01	120.30
2	H	49	ARG	NE-CZ-NH1	9.41	125.00	120.30
2	K	49	ARG	NE-CZ-NH1	9.40	125.00	120.30
1	A	1110	ARG	NE-CZ-NH1	9.32	124.96	120.30
1	D	1110	ARG	NE-CZ-NH1	9.32	124.96	120.30
1	G	1110	ARG	NE-CZ-NH1	9.32	124.96	120.30
1	J	1110	ARG	NE-CZ-NH1	9.32	124.96	120.30
2	B	49	ARG	NE-CZ-NH1	9.32	124.96	120.30
1	A	531	ARG	CG-CD-NE	9.07	130.84	111.80
1	D	531	ARG	CG-CD-NE	9.07	130.84	111.80
1	G	531	ARG	CG-CD-NE	9.07	130.84	111.80
1	J	531	ARG	CG-CD-NE	9.07	130.84	111.80
1	A	3904	ARG	NE-CZ-NH2	8.62	124.61	120.30
1	D	3904	ARG	NE-CZ-NH2	8.62	124.61	120.30
1	G	3904	ARG	NE-CZ-NH2	8.62	124.61	120.30
1	J	3904	ARG	NE-CZ-NH2	8.62	124.61	120.30
1	A	1110	ARG	CG-CD-NE	8.50	129.65	111.80
1	D	1110	ARG	CG-CD-NE	8.50	129.65	111.80
1	G	1110	ARG	CG-CD-NE	8.50	129.65	111.80
1	J	1110	ARG	CG-CD-NE	8.50	129.65	111.80
1	A	474	ARG	NE-CZ-NH2	-8.20	116.20	120.30
1	D	474	ARG	NE-CZ-NH2	-8.20	116.20	120.30
1	G	474	ARG	NE-CZ-NH2	-8.20	116.20	120.30
1	J	474	ARG	NE-CZ-NH2	-8.20	116.20	120.30
1	A	4672	LYS	CD-CE-NZ	8.00	130.10	111.70
1	D	4672	LYS	CD-CE-NZ	8.00	130.10	111.70
1	G	4672	LYS	CD-CE-NZ	8.00	130.10	111.70
1	J	4672	LYS	CD-CE-NZ	8.00	130.10	111.70
1	A	554	LEU	CA-CB-CG	7.89	133.45	115.30
1	D	554	LEU	CA-CB-CG	7.89	133.45	115.30
1	G	554	LEU	CA-CB-CG	7.89	133.45	115.30
1	J	554	LEU	CA-CB-CG	7.89	133.45	115.30
1	A	474	ARG	NE-CZ-NH1	7.57	124.08	120.30
1	D	474	ARG	NE-CZ-NH1	7.57	124.08	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	474	ARG	NE-CZ-NH1	7.57	124.08	120.30
1	J	474	ARG	NE-CZ-NH1	7.57	124.08	120.30
1	A	3904	ARG	CG-CD-NE	7.17	126.85	111.80
1	D	3904	ARG	CG-CD-NE	7.17	126.85	111.80
1	G	3904	ARG	CG-CD-NE	7.17	126.85	111.80
1	J	3904	ARG	CG-CD-NE	7.17	126.85	111.80
1	A	474	ARG	CD-NE-CZ	7.13	133.58	123.60
1	D	474	ARG	CD-NE-CZ	7.13	133.58	123.60
1	G	474	ARG	CD-NE-CZ	7.13	133.58	123.60
1	J	474	ARG	CD-NE-CZ	7.13	133.58	123.60
1	A	4085	ARG	CD-NE-CZ	6.95	133.33	123.60
1	D	4085	ARG	CD-NE-CZ	6.95	133.33	123.60
1	G	4085	ARG	CD-NE-CZ	6.95	133.33	123.60
1	J	4085	ARG	CD-NE-CZ	6.95	133.33	123.60
1	A	1110	ARG	CD-NE-CZ	6.51	132.71	123.60
1	D	1110	ARG	CD-NE-CZ	6.51	132.71	123.60
1	G	1110	ARG	CD-NE-CZ	6.51	132.71	123.60
1	J	1110	ARG	CD-NE-CZ	6.51	132.71	123.60
1	A	474	ARG	CB-CG-CD	6.51	128.52	111.60
1	D	474	ARG	CB-CG-CD	6.51	128.52	111.60
1	G	474	ARG	CB-CG-CD	6.51	128.52	111.60
1	J	474	ARG	CB-CG-CD	6.51	128.52	111.60
1	A	45	ARG	NE-CZ-NH2	-6.49	117.06	120.30
1	D	45	ARG	NE-CZ-NH2	-6.49	117.06	120.30
1	G	45	ARG	NE-CZ-NH2	-6.49	117.06	120.30
1	J	45	ARG	NE-CZ-NH2	-6.49	117.06	120.30
1	A	531	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	D	531	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	G	531	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	J	531	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	A	1110	ARG	NE-CZ-NH2	-6.12	117.24	120.30
1	D	1110	ARG	NE-CZ-NH2	-6.12	117.24	120.30
1	G	1110	ARG	NE-CZ-NH2	-6.12	117.24	120.30
1	J	1110	ARG	NE-CZ-NH2	-6.12	117.24	120.30
3	C	55	GLU	CA-CB-CG	6.11	126.85	113.40
3	F	55	GLU	CA-CB-CG	6.11	126.84	113.40
1	A	3904	ARG	CD-NE-CZ	6.08	132.11	123.60
1	D	3904	ARG	CD-NE-CZ	6.08	132.11	123.60
1	G	3904	ARG	CD-NE-CZ	6.08	132.11	123.60
1	J	3904	ARG	CD-NE-CZ	6.08	132.11	123.60
1	A	4085	ARG	NE-CZ-NH2	-6.07	117.27	120.30
1	D	4085	ARG	NE-CZ-NH2	-6.07	117.27	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	4085	ARG	NE-CZ-NH2	-6.07	117.27	120.30
1	J	4085	ARG	NE-CZ-NH2	-6.07	117.27	120.30
3	F	91	ARG	NE-CZ-NH2	-6.04	117.28	120.30
3	I	91	ARG	NE-CZ-NH2	-6.02	117.29	120.30
3	L	91	ARG	NE-CZ-NH2	-6.01	117.30	120.30
3	C	91	ARG	NE-CZ-NH2	-5.99	117.31	120.30
1	A	45	ARG	CD-NE-CZ	5.96	131.95	123.60
1	D	45	ARG	CD-NE-CZ	5.96	131.95	123.60
1	G	45	ARG	CD-NE-CZ	5.96	131.95	123.60
1	J	45	ARG	CD-NE-CZ	5.96	131.95	123.60
1	A	45	ARG	CG-CD-NE	5.83	124.05	111.80
1	D	45	ARG	CG-CD-NE	5.83	124.05	111.80
1	G	45	ARG	CG-CD-NE	5.83	124.05	111.80
1	J	45	ARG	CG-CD-NE	5.83	124.05	111.80
1	A	4085	ARG	CB-CG-CD	5.77	126.60	111.60
1	D	4085	ARG	CB-CG-CD	5.77	126.60	111.60
1	G	4085	ARG	CB-CG-CD	5.77	126.60	111.60
1	J	4085	ARG	CB-CG-CD	5.77	126.60	111.60
1	A	2568	LEU	CA-CB-CG	5.76	128.55	115.30
1	D	2568	LEU	CA-CB-CG	5.76	128.55	115.30
1	G	2568	LEU	CA-CB-CG	5.76	128.55	115.30
1	J	2568	LEU	CA-CB-CG	5.76	128.55	115.30
1	A	589	LEU	CA-CB-CG	5.75	128.52	115.30
1	D	589	LEU	CA-CB-CG	5.75	128.52	115.30
1	G	589	LEU	CA-CB-CG	5.75	128.52	115.30
1	J	589	LEU	CA-CB-CG	5.75	128.52	115.30
3	C	91	ARG	CD-NE-CZ	5.69	131.56	123.60
3	I	91	ARG	CD-NE-CZ	5.67	131.53	123.60
1	A	4555	LEU	CA-CB-CG	5.66	128.33	115.30
1	D	4555	LEU	CA-CB-CG	5.66	128.33	115.30
1	G	4555	LEU	CA-CB-CG	5.66	128.33	115.30
1	J	4555	LEU	CA-CB-CG	5.66	128.33	115.30
1	A	590	LEU	CA-CB-CG	5.64	128.28	115.30
1	D	590	LEU	CA-CB-CG	5.64	128.28	115.30
3	F	91	ARG	CD-NE-CZ	5.64	131.50	123.60
1	G	590	LEU	CA-CB-CG	5.64	128.28	115.30
1	J	590	LEU	CA-CB-CG	5.64	128.28	115.30
3	L	91	ARG	CD-NE-CZ	5.64	131.50	123.60
2	K	49	ARG	NE-CZ-NH2	-5.60	117.50	120.30
2	H	49	ARG	NE-CZ-NH2	-5.58	117.51	120.30
1	A	531	ARG	CD-NE-CZ	5.58	131.42	123.60
1	D	531	ARG	CD-NE-CZ	5.58	131.42	123.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	49	ARG	NE-CZ-NH2	-5.58	117.51	120.30
1	G	531	ARG	CD-NE-CZ	5.58	131.42	123.60
1	J	531	ARG	CD-NE-CZ	5.58	131.42	123.60
1	A	1039	LEU	CA-CB-CG	5.57	128.11	115.30
1	D	1039	LEU	CA-CB-CG	5.57	128.11	115.30
1	G	1039	LEU	CA-CB-CG	5.57	128.11	115.30
1	J	1039	LEU	CA-CB-CG	5.57	128.11	115.30
1	A	3904	ARG	NE-CZ-NH1	-5.55	117.53	120.30
1	D	3904	ARG	NE-CZ-NH1	-5.55	117.53	120.30
1	G	3904	ARG	NE-CZ-NH1	-5.55	117.53	120.30
1	J	3904	ARG	NE-CZ-NH1	-5.55	117.53	120.30
2	B	49	ARG	CD-NE-CZ	5.53	131.35	123.60
1	A	1242	LEU	CA-CB-CG	5.52	127.99	115.30
1	D	1242	LEU	CA-CB-CG	5.52	127.99	115.30
1	G	1242	LEU	CA-CB-CG	5.52	127.99	115.30
1	J	1242	LEU	CA-CB-CG	5.52	127.99	115.30
2	B	49	ARG	NE-CZ-NH2	-5.51	117.54	120.30
2	H	49	ARG	CD-NE-CZ	5.51	131.31	123.60
2	E	49	ARG	CD-NE-CZ	5.50	131.31	123.60
2	K	49	ARG	CD-NE-CZ	5.47	131.26	123.60
1	A	4844	LEU	CA-CB-CG	5.44	127.80	115.30
1	D	4844	LEU	CA-CB-CG	5.44	127.80	115.30
1	G	4844	LEU	CA-CB-CG	5.44	127.80	115.30
1	J	4844	LEU	CA-CB-CG	5.44	127.80	115.30
1	A	1271	ARG	CG-CD-NE	5.40	123.14	111.80
1	D	1271	ARG	CG-CD-NE	5.40	123.14	111.80
1	G	1271	ARG	CG-CD-NE	5.40	123.14	111.80
1	J	1271	ARG	CG-CD-NE	5.40	123.14	111.80
2	K	49	ARG	CG-CD-NE	5.33	122.99	111.80
2	H	49	ARG	CG-CD-NE	5.32	122.96	111.80
1	A	531	ARG	CB-CG-CD	5.31	125.41	111.60
1	D	531	ARG	CB-CG-CD	5.31	125.41	111.60
1	G	531	ARG	CB-CG-CD	5.31	125.41	111.60
1	J	531	ARG	CB-CG-CD	5.31	125.41	111.60
2	E	49	ARG	CG-CD-NE	5.30	122.92	111.80
2	B	49	ARG	CG-CD-NE	5.29	122.90	111.80
1	A	5036	LEU	CA-CB-CG	5.28	127.45	115.30
1	D	5036	LEU	CA-CB-CG	5.28	127.45	115.30
1	G	5036	LEU	CA-CB-CG	5.28	127.45	115.30
1	J	5036	LEU	CA-CB-CG	5.28	127.45	115.30
1	A	1154	ASP	CB-CG-OD2	5.11	122.90	118.30
1	D	1154	ASP	CB-CG-OD2	5.11	122.90	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	1154	ASP	CB-CG-OD2	5.11	122.90	118.30
1	J	1154	ASP	CB-CG-OD2	5.11	122.90	118.30
1	A	3676	ASP	CB-CG-OD2	5.09	122.88	118.30
1	D	3676	ASP	CB-CG-OD2	5.09	122.88	118.30
1	G	3676	ASP	CB-CG-OD2	5.09	122.88	118.30
1	J	3676	ASP	CB-CG-OD2	5.09	122.88	118.30
1	A	289	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	D	289	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	G	289	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	J	289	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	A	477	LEU	CA-CB-CG	5.02	126.85	115.30
1	D	477	LEU	CA-CB-CG	5.02	126.85	115.30
1	G	477	LEU	CA-CB-CG	5.02	126.85	115.30
1	J	477	LEU	CA-CB-CG	5.02	126.85	115.30
1	A	471	LEU	CA-CB-CG	5.02	126.84	115.30
1	D	471	LEU	CA-CB-CG	5.02	126.84	115.30
1	G	471	LEU	CA-CB-CG	5.02	126.84	115.30
1	J	471	LEU	CA-CB-CG	5.02	126.84	115.30

There are no chirality outliers.

There are no planarity outliers.

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	24931	211	0
1	D	28192	0	24931	207	0
1	G	28192	0	24931	207	0
1	J	28192	0	24931	207	0
2	B	804	0	812	4	0
2	E	804	0	812	5	0
2	H	804	0	812	4	0
2	K	804	0	812	4	0
3	C	1042	0	972	10	0
3	F	1042	0	972	9	0
3	I	1042	0	972	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	L	1042	0	972	12	0
4	A	14	0	10	1	0
4	D	14	0	10	1	0
4	G	14	0	10	1	0
4	J	14	0	10	1	0
5	A	1	0	0	0	0
5	D	1	0	0	0	0
5	G	1	0	0	0	0
5	J	1	0	0	0	0
6	A	31	0	12	9	0
6	D	31	0	12	10	0
6	G	31	0	12	9	0
6	J	31	0	12	9	0
7	A	1	0	0	0	0
7	D	1	0	0	0	0
7	G	1	0	0	0	0
7	J	1	0	0	0	0
8	A	28	0	0	2	0
8	D	28	0	0	2	0
8	G	28	0	0	2	0
8	J	28	0	0	2	0
All	All	120452	0	106948	870	0

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

All (870) 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:D:4958:CYS:HA	6:D:5103:ATP:H2	1.09	1.16
1:G:4958:CYS:HA	6:G:5103:ATP:H2	1.09	1.14
1:J:4958:CYS:HA	6:J:5103:ATP:H2	1.09	1.12
1:A:4958:CYS:HA	6:A:5103:ATP:H2	1.09	1.12
1:G:4958:CYS:CA	6:G:5103:ATP:H2	1.80	0.94
1:A:4958:CYS:CA	6:A:5103:ATP:H2	1.80	0.93
1:J:4958:CYS:CA	6:J:5103:ATP:H2	1.80	0.93
1:D:4958:CYS:CA	6:D:5103:ATP:H2	1.80	0.93
1:G:4958:CYS:HA	6:G:5103:ATP:C2	2.05	0.91
1:J:4958:CYS:HA	6:J:5103:ATP:C2	2.05	0.91
1:D:4958:CYS:HA	6:D:5103:ATP:C2	2.05	0.91
1:A:4958:CYS:HA	6:A:5103:ATP:C2	2.05	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:4958:CYS:O	6:J:5103:ATP:N1	2.07	0.87
1:D:4958:CYS:O	6:D:5103:ATP:N1	2.07	0.87
1:G:4958:CYS:O	6:G:5103:ATP:N1	2.07	0.87
1:A:4958:CYS:O	6:A:5103:ATP:N1	2.07	0.86
3:L:50:GLN:NE2	3:L:50:GLN:HA	1.95	0.80
1:J:2548:LEU:HD12	1:J:2548:LEU:O	1.87	0.75
1:A:2536:LEU:HD13	1:A:2547:ALA:HB2	1.66	0.74
1:D:4958:CYS:C	6:D:5103:ATP:C2	2.65	0.70
1:J:4958:CYS:C	6:J:5103:ATP:C2	2.65	0.70
1:A:4958:CYS:C	6:A:5103:ATP:C2	2.65	0.70
1:G:4958:CYS:C	6:G:5103:ATP:C2	2.65	0.69
1:G:1008:SER:HB3	1:G:1017:ARG:HE	1.58	0.69
1:A:1008:SER:HB3	1:A:1017:ARG:HE	1.58	0.69
2:K:21:THR:HG22	2:K:49:ARG:HD3	1.75	0.69
1:D:1008:SER:HB3	1:D:1017:ARG:HE	1.58	0.68
1:J:1008:SER:HB3	1:J:1017:ARG:HE	1.58	0.67
2:B:21:THR:HG22	2:B:49:ARG:HD3	1.75	0.67
3:F:50:GLN:OE1	3:F:50:GLN:HA	1.94	0.67
2:E:21:THR:HG22	2:E:49:ARG:HD3	1.75	0.67
1:G:4085:ARG:HH11	1:G:4085:ARG:HB3	1.59	0.67
1:A:3900:GLN:HB3	1:A:3976:ASN:HD21	1.59	0.66
1:J:4085:ARG:HH11	1:J:4085:ARG:HB3	1.59	0.66
1:G:3900:GLN:HB3	1:G:3976:ASN:HD21	1.59	0.66
1:A:4085:ARG:HH11	1:A:4085:ARG:HB3	1.59	0.66
1:J:3900:GLN:HB3	1:J:3976:ASN:HD21	1.59	0.66
3:I:50:GLN:HA	3:I:50:GLN:OE1	1.95	0.66
1:G:2523:ASP:HA	1:G:2527:LEU:HD12	1.78	0.65
2:H:21:THR:HG22	2:H:49:ARG:HD3	1.75	0.65
1:D:3900:GLN:HB3	1:D:3976:ASN:HD21	1.59	0.65
1:J:4958:CYS:CA	6:J:5103:ATP:C2	2.75	0.65
1:D:2523:ASP:HA	1:D:2527:LEU:HD12	1.78	0.65
1:A:2523:ASP:HA	1:A:2527:LEU:HD12	1.78	0.65
1:J:2523:ASP:HA	1:J:2527:LEU:HD12	1.78	0.65
1:G:474:ARG:HH11	1:G:474:ARG:HB2	1.62	0.65
1:D:4085:ARG:HB3	1:D:4085:ARG:HH11	1.59	0.65
1:J:474:ARG:HH11	1:J:474:ARG:HB2	1.62	0.64
2:B:82:TYR:HB3	2:B:86:GLY:HA2	1.80	0.64
3:L:6:THR:OG1	3:L:7:GLU:N	2.30	0.64
1:J:2548:LEU:HD12	1:J:2548:LEU:C	2.17	0.64
2:K:82:TYR:HB3	2:K:86:GLY:HA2	1.80	0.64
2:H:82:TYR:HB3	2:H:86:GLY:HA2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:82:TYR:HB3	2:E:86:GLY:HA2	1.80	0.64
3:I:6:THR:OG1	3:I:7:GLU:N	2.30	0.64
3:F:6:THR:OG1	3:F:7:GLU:N	2.30	0.63
3:C:6:THR:OG1	3:C:7:GLU:N	2.30	0.63
3:C:50:GLN:OE1	3:C:50:GLN:HA	1.99	0.63
1:J:4958:CYS:O	6:J:5103:ATP:C2	2.52	0.63
1:G:1293:LEU:HD11	1:G:1594:ARG:HG2	1.81	0.63
1:J:1293:LEU:HD11	1:J:1594:ARG:HG2	1.81	0.62
1:A:4958:CYS:CA	6:A:5103:ATP:C2	2.75	0.62
1:D:4958:CYS:CA	6:D:5103:ATP:C2	2.75	0.62
1:J:4241:THR:OG1	1:J:4989:MET:SD	2.57	0.62
1:A:1293:LEU:HD11	1:A:1594:ARG:HG2	1.81	0.62
1:D:474:ARG:HH11	1:D:474:ARG:HB2	1.62	0.62
1:D:1293:LEU:HD11	1:D:1594:ARG:HG2	1.81	0.62
1:A:474:ARG:HH11	1:A:474:ARG:HB2	1.62	0.62
1:D:4958:CYS:O	6:D:5103:ATP:C2	2.52	0.62
1:A:4958:CYS:O	6:A:5103:ATP:C2	2.52	0.62
1:A:411:TYR:HH	1:A:444:SER:HG	1.48	0.62
1:D:2544:THR:O	1:D:2548:LEU:HG	1.99	0.61
1:G:4958:CYS:O	6:G:5103:ATP:C2	2.52	0.61
1:A:393:CYS:SG	1:A:394:GLN:N	2.74	0.61
1:A:3889:GLN:OE1	1:A:3960:GLN:NE2	2.34	0.61
1:J:393:CYS:SG	1:J:394:GLN:N	2.74	0.61
1:D:411:TYR:HH	1:D:444:SER:HG	1.49	0.60
1:D:2273:LEU:HD21	1:D:2334:PHE:HB2	1.83	0.60
1:J:2305:CYS:HB2	1:J:2324:ASN:HB3	1.84	0.60
1:D:4958:CYS:C	6:D:5103:ATP:H2	2.04	0.60
1:G:393:CYS:SG	1:G:394:GLN:N	2.74	0.60
1:A:2305:CYS:HB2	1:A:2324:ASN:HB3	1.84	0.60
1:G:54:ASN:HB3	1:G:57:ASN:HD21	1.67	0.60
1:D:69:LEU:HB3	1:D:107:ILE:HD11	1.84	0.60
1:D:1607:ARG:HH11	1:D:1610:ASN:HD21	1.50	0.60
1:D:2305:CYS:HB2	1:D:2324:ASN:HB3	1.84	0.60
1:A:2273:LEU:HD21	1:A:2334:PHE:HB2	1.83	0.59
1:D:54:ASN:HB3	1:D:57:ASN:HD21	1.67	0.59
1:G:3889:GLN:OE1	1:G:3960:GLN:NE2	2.34	0.59
1:A:4046:ASP:HA	1:A:4049:VAL:HG22	1.85	0.59
1:D:4241:THR:OG1	1:D:4989:MET:SD	2.57	0.59
1:G:1607:ARG:HH11	1:G:1610:ASN:HD21	1.50	0.59
1:G:2273:LEU:HD21	1:G:2334:PHE:HB2	1.83	0.59
1:G:2305:CYS:HB2	1:G:2324:ASN:HB3	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:ASN:HB3	1:A:57:ASN:HD21	1.67	0.59
1:A:69:LEU:HB3	1:A:107:ILE:HD11	1.84	0.59
1:A:4958:CYS:C	6:A:5103:ATP:H2	2.04	0.59
1:G:4046:ASP:HA	1:G:4049:VAL:HG22	1.85	0.59
1:J:69:LEU:HB3	1:J:107:ILE:HD11	1.84	0.59
1:A:828:GLU:HG3	1:A:840:VAL:HG21	1.84	0.59
1:D:3981:ALA:HB1	1:D:4043:GLN:HE22	1.67	0.59
1:D:4020:GLN:HE21	1:D:4139:ILE:HG12	1.68	0.59
1:J:54:ASN:HB3	1:J:57:ASN:HD21	1.67	0.59
3:L:50:GLN:HA	3:L:50:GLN:HE21	1.64	0.59
1:A:4020:GLN:HE21	1:A:4139:ILE:HG12	1.68	0.59
1:D:393:CYS:SG	1:D:394:GLN:N	2.74	0.59
1:G:4958:CYS:CA	6:G:5103:ATP:C2	2.75	0.59
1:J:4958:CYS:C	6:J:5103:ATP:H2	2.04	0.59
1:J:1607:ARG:HH11	1:J:1610:ASN:HD21	1.50	0.59
1:D:4046:ASP:HA	1:D:4049:VAL:HG22	1.85	0.59
1:G:828:GLU:HG3	1:G:840:VAL:HG21	1.84	0.59
1:A:1607:ARG:HH11	1:A:1610:ASN:HD21	1.50	0.59
1:G:4958:CYS:C	6:G:5103:ATP:H2	2.04	0.59
1:J:4046:ASP:HA	1:J:4049:VAL:HG22	1.85	0.59
1:A:1243:PRO:HB3	1:A:1602:PRO:HA	1.85	0.58
1:A:2242:ILE:HA	3:C:2:ALA:HB3	1.85	0.58
1:D:828:GLU:HG3	1:D:840:VAL:HG21	1.84	0.58
1:D:3889:GLN:OE1	1:D:3960:GLN:NE2	2.34	0.58
1:G:4020:GLN:HE21	1:G:4139:ILE:HG12	1.68	0.58
1:J:4020:GLN:HE21	1:J:4139:ILE:HG12	1.68	0.58
1:G:69:LEU:HB3	1:G:107:ILE:HD11	1.84	0.58
3:C:87:ARG:NH2	3:C:97:GLY:O	2.37	0.58
1:J:828:GLU:HG3	1:J:840:VAL:HG21	1.84	0.58
3:F:87:ARG:NH2	3:F:97:GLY:O	2.37	0.58
1:G:3981:ALA:HB1	1:G:4043:GLN:HE22	1.67	0.58
3:I:87:ARG:NH2	3:I:97:GLY:O	2.37	0.58
1:J:2273:LEU:HD21	1:J:2334:PHE:HB2	1.83	0.58
1:J:3889:GLN:OE1	1:J:3960:GLN:NE2	2.34	0.58
1:J:3981:ALA:HB1	1:J:4043:GLN:HE22	1.67	0.58
1:D:1243:PRO:HB3	1:D:1602:PRO:HA	1.85	0.58
1:A:3981:ALA:HB1	1:A:4043:GLN:HE22	1.67	0.58
1:J:1243:PRO:HB3	1:J:1602:PRO:HA	1.85	0.58
1:A:4241:THR:OG1	1:A:4989:MET:SD	2.57	0.57
3:L:87:ARG:NH2	3:L:97:GLY:O	2.37	0.57
1:D:2103:VAL:HG12	1:D:2107:GLN:HE21	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:2103:VAL:HG12	1:J:2107:GLN:HE21	1.69	0.57
1:D:182:LEU:HD21	1:D:189:LEU:HD13	1.86	0.57
1:D:445:LEU:HD23	1:D:521:LEU:HB2	1.87	0.57
1:A:4688:ILE:HG13	1:A:4689:THR:HG23	1.87	0.57
1:G:1243:PRO:HB3	1:G:1602:PRO:HA	1.85	0.57
1:A:445:LEU:HD23	1:A:521:LEU:HB2	1.87	0.57
1:D:315:CYS:SG	1:D:316:PHE:N	2.78	0.57
1:D:3897:ASN:O	1:D:3901:ASN:ND2	2.38	0.57
1:G:445:LEU:HD23	1:G:521:LEU:HB2	1.87	0.57
1:J:3897:ASN:O	1:J:3901:ASN:ND2	2.38	0.57
1:J:4688:ILE:HG13	1:J:4689:THR:HG23	1.87	0.57
1:A:3897:ASN:O	1:A:3901:ASN:ND2	2.38	0.56
1:D:4688:ILE:HG13	1:D:4689:THR:HG23	1.87	0.56
1:G:3897:ASN:O	1:G:3901:ASN:ND2	2.38	0.56
1:A:182:LEU:HD21	1:A:189:LEU:HD13	1.86	0.56
1:G:315:CYS:SG	1:G:316:PHE:N	2.78	0.56
1:J:1948:ASP:OD1	1:J:2126:ARG:NH2	2.38	0.56
1:G:24:CYS:SG	1:G:25:SER:N	2.79	0.56
1:G:182:LEU:HD21	1:G:189:LEU:HD13	1.86	0.56
1:G:2103:VAL:HG12	1:G:2107:GLN:HE21	1.69	0.56
1:G:2179:ILE:HD11	1:G:2228:MET:HA	1.87	0.56
1:A:315:CYS:SG	1:A:316:PHE:N	2.78	0.56
1:D:1948:ASP:OD1	1:D:2126:ARG:NH2	2.38	0.56
1:G:1948:ASP:OD1	1:G:2126:ARG:NH2	2.38	0.56
1:J:315:CYS:SG	1:J:316:PHE:N	2.78	0.56
1:J:445:LEU:HD23	1:J:521:LEU:HB2	1.87	0.56
1:A:24:CYS:SG	1:A:25:SER:N	2.79	0.56
1:A:2179:ILE:HD11	1:A:2228:MET:HA	1.87	0.56
1:G:342:GLY:HA2	1:G:389:PHE:HB2	1.88	0.56
1:G:1076:ARG:NH2	1:G:1077:ALA:O	2.39	0.56
1:J:652:ARG:O	1:J:848:HIS:NE2	2.38	0.56
1:A:1948:ASP:OD1	1:A:2126:ARG:NH2	2.38	0.56
1:D:2179:ILE:HD11	1:D:2228:MET:HA	1.87	0.56
1:G:4241:THR:OG1	1:G:4989:MET:SD	2.57	0.56
1:A:2103:VAL:HG12	1:A:2107:GLN:HE21	1.69	0.56
1:D:24:CYS:SG	1:D:25:SER:N	2.79	0.56
1:G:4688:ILE:HG13	1:G:4689:THR:HG23	1.87	0.56
1:A:1076:ARG:NH2	1:A:1077:ALA:O	2.39	0.56
1:J:24:CYS:SG	1:J:25:SER:N	2.79	0.56
1:J:1076:ARG:NH2	1:J:1077:ALA:O	2.39	0.56
1:J:2179:ILE:HD11	1:J:2228:MET:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1076:ARG:NH2	1:D:1077:ALA:O	2.39	0.55
1:G:4241:THR:HA	1:G:4244:GLU:HG2	1.88	0.55
1:G:4895:GLY:O	1:J:4892:ARG:NH2	2.37	0.55
1:A:342:GLY:HA2	1:A:389:PHE:HB2	1.88	0.55
1:J:3731:LYS:HA	1:J:3734:HIS:HB2	1.89	0.55
1:A:4241:THR:HA	1:A:4244:GLU:HG2	1.88	0.55
1:A:4892:ARG:NH2	1:J:4895:GLY:O	2.37	0.55
1:G:2199:ARG:NH1	1:G:2246:ASN:OD1	2.40	0.55
1:G:3731:LYS:HA	1:G:3734:HIS:HB2	1.89	0.55
1:J:182:LEU:HD21	1:J:189:LEU:HD13	1.86	0.55
1:J:2199:ARG:NH1	1:J:2246:ASN:OD1	2.40	0.55
1:A:3731:LYS:HA	1:A:3734:HIS:HB2	1.89	0.55
1:D:2199:ARG:NH1	1:D:2246:ASN:OD1	2.40	0.55
1:A:1561:VAL:HG12	1:A:1562:ILE:HG23	1.89	0.55
1:A:2199:ARG:NH1	1:A:2246:ASN:OD1	2.40	0.55
1:D:342:GLY:HA2	1:D:389:PHE:HB2	1.88	0.55
1:J:342:GLY:HA2	1:J:389:PHE:HB2	1.88	0.55
1:D:3731:LYS:HA	1:D:3734:HIS:HB2	1.89	0.55
1:D:1561:VAL:HG12	1:D:1562:ILE:HG23	1.89	0.55
1:D:2002:PRO:HA	1:D:2005:GLN:HG3	1.88	0.55
1:J:1561:VAL:HG12	1:J:1562:ILE:HG23	1.89	0.55
1:J:2287:ALA:O	1:J:2349:ASN:ND2	2.37	0.55
1:J:4241:THR:HA	1:J:4244:GLU:HG2	1.88	0.55
1:J:2002:PRO:HA	1:J:2005:GLN:HG3	1.88	0.54
1:D:4241:THR:HA	1:D:4244:GLU:HG2	1.88	0.54
1:D:469:ARG:O	1:D:473:ASN:ND2	2.41	0.54
1:G:4017:LEU:HD22	1:G:4139:ILE:HG21	1.90	0.54
1:G:4569:LEU:HD11	1:G:4646:LEU:HD22	1.89	0.54
1:A:588:SER:O	1:A:592:LYS:NZ	2.38	0.54
1:A:4569:LEU:HD11	1:A:4646:LEU:HD22	1.89	0.54
1:A:4895:GLY:O	1:D:4892:ARG:NH2	2.37	0.54
1:G:469:ARG:O	1:G:473:ASN:ND2	2.41	0.54
1:G:1561:VAL:HG12	1:G:1562:ILE:HG23	1.89	0.54
1:J:4017:LEU:HD22	1:J:4139:ILE:HG21	1.90	0.54
1:G:4054:ASN:OD1	1:G:4054:ASN:N	2.37	0.54
1:J:411:TYR:HH	1:J:444:SER:HG	1.53	0.54
1:A:469:ARG:O	1:A:473:ASN:ND2	2.41	0.54
1:A:2002:PRO:HA	1:A:2005:GLN:HG3	1.88	0.54
1:G:3780:LEU:HD23	1:G:3820:LEU:HD21	1.90	0.54
1:G:652:ARG:O	1:G:848:HIS:NE2	2.38	0.54
1:D:4569:LEU:HD11	1:D:4646:LEU:HD22	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2287:ALA:O	1:A:2349:ASN:ND2	2.37	0.53
1:A:3780:LEU:HD23	1:A:3820:LEU:HD21	1.90	0.53
1:G:2002:PRO:HA	1:G:2005:GLN:HG3	1.88	0.53
1:D:437:PRO:HB2	1:D:440:ALA:HB3	1.91	0.53
1:D:588:SER:O	1:D:592:LYS:NZ	2.38	0.53
1:D:4680:LYS:HD2	1:D:4686:LEU:HD22	1.90	0.53
1:A:3752:SER:OG	1:A:3753:PHE:N	2.42	0.53
1:J:4569:LEU:HD11	1:J:4646:LEU:HD22	1.89	0.53
1:D:652:ARG:O	1:D:848:HIS:NE2	2.38	0.53
1:D:3710:LEU:HD21	1:D:3781:GLN:HG2	1.91	0.53
1:D:4017:LEU:HD22	1:D:4139:ILE:HG21	1.90	0.53
1:D:4895:GLY:O	1:G:4892:ARG:NH2	2.37	0.53
1:G:1653:LEU:HA	1:G:1656:ARG:HB2	1.91	0.53
1:G:3710:LEU:HD21	1:G:3781:GLN:HG2	1.91	0.53
1:J:469:ARG:O	1:J:473:ASN:ND2	2.41	0.53
1:A:437:PRO:HB2	1:A:440:ALA:HB3	1.91	0.53
1:A:4017:LEU:HD22	1:A:4139:ILE:HG21	1.90	0.53
1:G:3752:SER:OG	1:G:3753:PHE:N	2.42	0.53
1:J:3752:SER:OG	1:J:3753:PHE:N	2.42	0.53
1:A:633:LEU:HD13	1:A:1639:LEU:HD13	1.91	0.53
1:G:437:PRO:HB2	1:G:440:ALA:HB3	1.91	0.53
1:J:3780:LEU:HD23	1:J:3820:LEU:HD21	1.90	0.53
1:D:4664:LEU:HG	1:D:4665:LYS:HD3	1.91	0.53
1:J:633:LEU:HD13	1:J:1639:LEU:HD13	1.91	0.53
1:J:1023:PRO:HG2	1:J:1026:LEU:HD13	1.91	0.53
1:J:4664:LEU:HG	1:J:4665:LYS:HD3	1.91	0.53
1:D:3780:LEU:HD23	1:D:3820:LEU:HD21	1.90	0.52
1:D:1653:LEU:HA	1:D:1656:ARG:HB2	1.91	0.52
1:J:437:PRO:HB2	1:J:440:ALA:HB3	1.91	0.52
1:J:4680:LYS:HD2	1:J:4686:LEU:HD22	1.90	0.52
1:A:1653:LEU:HA	1:A:1656:ARG:HB2	1.91	0.52
1:A:4664:LEU:HG	1:A:4665:LYS:HD3	1.91	0.52
1:D:682:LEU:HD13	1:D:787:VAL:HG11	1.91	0.52
1:G:4680:LYS:HD2	1:G:4686:LEU:HD22	1.90	0.52
1:A:652:ARG:O	1:A:848:HIS:NE2	2.38	0.52
1:D:1023:PRO:HG2	1:D:1026:LEU:HD13	1.91	0.52
1:G:682:LEU:HD13	1:G:787:VAL:HG11	1.91	0.52
1:A:3710:LEU:HD21	1:A:3781:GLN:HG2	1.91	0.52
1:A:4680:LYS:HD2	1:A:4686:LEU:HD22	1.90	0.52
2:E:7:ILE:HD11	2:E:73:LYS:HB2	1.92	0.52
1:J:682:LEU:HD13	1:J:787:VAL:HG11	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2534:ALA:HB1	1:A:2588:ARG:HD2	1.91	0.52
1:A:2548:LEU:HD11	3:C:50:GLN:HG2	1.91	0.52
1:G:4664:LEU:HG	1:G:4665:LYS:HD3	1.91	0.52
1:J:1653:LEU:HA	1:J:1656:ARG:HB2	1.91	0.52
1:D:3846:ALA:HA	1:D:3849:ARG:HD2	1.93	0.51
1:G:633:LEU:HD13	1:G:1639:LEU:HD13	1.91	0.51
1:G:2534:ALA:HB1	1:G:2588:ARG:HD2	1.91	0.51
1:G:3846:ALA:HA	1:G:3849:ARG:HD2	1.93	0.51
1:A:1023:PRO:HG2	1:A:1026:LEU:HD13	1.91	0.51
2:B:7:ILE:HD11	2:B:73:LYS:HB2	1.92	0.51
1:G:1023:PRO:HG2	1:G:1026:LEU:HD13	1.91	0.51
1:A:682:LEU:HD13	1:A:787:VAL:HG11	1.91	0.51
1:D:2534:ALA:HB1	1:D:2588:ARG:HD2	1.91	0.51
1:D:633:LEU:HD13	1:D:1639:LEU:HD13	1.91	0.51
1:J:3710:LEU:HD21	1:J:3781:GLN:HG2	1.91	0.51
1:A:257:ARG:O	1:A:284:HIS:NE2	2.35	0.51
1:J:2534:ALA:HB1	1:J:2588:ARG:HD2	1.91	0.51
1:D:3752:SER:OG	1:D:3753:PHE:N	2.42	0.51
2:H:7:ILE:HD11	2:H:73:LYS:HB2	1.92	0.51
1:D:3885:PHE:HE1	1:D:3919:THR:HG23	1.76	0.51
1:G:683:ARG:NH1	1:G:709:ASP:OD1	2.41	0.51
3:I:142:PHE:HA	3:I:145:MET:HG2	1.93	0.51
1:J:575:LEU:O	1:J:617:ASN:ND2	2.44	0.51
1:J:683:ARG:NH1	1:J:709:ASP:OD1	2.41	0.51
1:G:3885:PHE:HE1	1:G:3919:THR:HG23	1.76	0.51
1:J:1008:SER:OG	1:J:1010:VAL:O	2.29	0.51
1:D:3695:PRO:HB3	1:D:3699:HIS:HD2	1.76	0.51
1:D:3944:GLU:HG2	1:D:3946:GLN:H	1.76	0.51
1:G:3695:PRO:HB3	1:G:3699:HIS:HD2	1.76	0.51
1:J:3846:ALA:HA	1:J:3849:ARG:HD2	1.93	0.51
1:J:4673:ARG:HE	1:J:4782:VAL:HG21	1.76	0.51
1:A:4239:GLU:HB3	4:A:5101:CFF:H141	1.94	0.50
1:D:4673:ARG:HE	1:D:4782:VAL:HG21	1.76	0.50
1:D:1008:SER:OG	1:D:1010:VAL:O	2.29	0.50
1:G:1966:VAL:O	1:G:1970:GLN:NE2	2.43	0.50
1:J:3627:GLN:HB3	1:J:3856:LEU:HD22	1.94	0.50
1:G:3627:GLN:HB3	1:G:3856:LEU:HD22	1.94	0.50
1:J:4239:GLU:HB3	4:J:5101:CFF:H141	1.94	0.50
1:A:575:LEU:O	1:A:617:ASN:ND2	2.44	0.50
1:A:3846:ALA:HA	1:A:3849:ARG:HD2	1.93	0.50
1:D:578:ILE:HD12	1:D:606:LEU:HD11	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:813:GLU:HB3	1:D:1008:SER:HB2	1.93	0.50
1:D:4239:GLU:HB3	4:D:5101:CFF:H141	1.94	0.50
1:G:411:TYR:OH	1:G:444:SER:OG	2.29	0.50
1:G:4673:ARG:HE	1:G:4782:VAL:HG21	1.76	0.50
1:J:3944:GLU:HG2	1:J:3946:GLN:H	1.76	0.50
2:K:7:ILE:HD11	2:K:73:LYS:HB2	1.92	0.50
1:A:3944:GLU:HG2	1:A:3946:GLN:H	1.76	0.50
1:A:4555:LEU:HD11	1:A:4656:LEU:HB3	1.94	0.50
3:F:142:PHE:HA	3:F:145:MET:HG2	1.93	0.50
1:G:818:ARG:NH2	1:G:1025:ARG:O	2.45	0.50
1:G:1008:SER:OG	1:G:1010:VAL:O	2.29	0.50
1:J:4555:LEU:HD11	1:J:4656:LEU:HB3	1.94	0.50
1:A:1008:SER:OG	1:A:1010:VAL:O	2.29	0.50
1:A:3885:PHE:HE1	1:A:3919:THR:HG23	1.76	0.50
1:D:575:LEU:O	1:D:617:ASN:ND2	2.44	0.50
1:G:1927:LEU:O	1:G:2104:ARG:NH2	2.45	0.50
3:L:142:PHE:HA	3:L:145:MET:HG2	1.93	0.50
1:A:3695:PRO:HB3	1:A:3699:HIS:HD2	1.76	0.50
1:J:257:ARG:O	1:J:284:HIS:NE2	2.35	0.50
1:J:3885:PHE:HE1	1:J:3919:THR:HG23	1.76	0.50
1:A:578:ILE:HD12	1:A:606:LEU:HD11	1.94	0.50
1:A:684:VAL:HG22	1:A:781:VAL:HG23	1.94	0.50
1:A:3627:GLN:HB3	1:A:3856:LEU:HD22	1.94	0.50
1:D:3627:GLN:HB3	1:D:3856:LEU:HD22	1.94	0.50
1:G:2591:ARG:NH2	1:G:2638:UNK:O	2.45	0.50
1:J:684:VAL:HG22	1:J:781:VAL:HG23	1.94	0.50
1:J:818:ARG:NH2	1:J:1025:ARG:O	2.45	0.50
1:J:1225:PRO:HG2	1:J:1228:ILE:HB	1.94	0.50
1:A:575:LEU:HD22	1:A:609:CYS:HB3	1.94	0.49
1:A:4673:ARG:HE	1:A:4782:VAL:HG21	1.76	0.49
1:D:2591:ARG:NH2	1:D:2638:UNK:O	2.45	0.49
1:D:4678:ALA:HB1	1:D:4720:VAL:HG21	1.94	0.49
1:G:4239:GLU:HB3	4:G:5101:CFF:H141	1.94	0.49
1:A:1856:ASP:N	1:A:1856:ASP:OD1	2.45	0.49
1:G:3944:GLU:HG2	1:G:3946:GLN:H	1.76	0.49
1:J:3695:PRO:HB3	1:J:3699:HIS:HD2	1.76	0.49
1:A:813:GLU:HB3	1:A:1008:SER:HB2	1.93	0.49
1:A:4069:LYS:HA	1:A:4072:VAL:HG12	1.94	0.49
1:D:1856:ASP:OD1	1:D:1856:ASP:N	2.45	0.49
1:D:4069:LYS:HA	1:D:4072:VAL:HG12	1.94	0.49
1:G:575:LEU:O	1:G:617:ASN:ND2	2.44	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:1225:PRO:HG2	1:G:1228:ILE:HB	1.94	0.49
1:D:683:ARG:NH1	1:D:709:ASP:OD1	2.41	0.49
1:D:1927:LEU:O	1:D:2104:ARG:NH2	2.45	0.49
1:G:684:VAL:HG22	1:G:781:VAL:HG23	1.94	0.49
1:G:4034:ASN:HD21	1:G:4041:ALA:HB2	1.78	0.49
1:J:813:GLU:HB3	1:J:1008:SER:HB2	1.93	0.49
1:A:131:LEU:HG	1:A:178:ARG:HH11	1.78	0.49
1:D:575:LEU:HD22	1:D:609:CYS:HB3	1.94	0.49
1:D:818:ARG:NH2	1:D:1025:ARG:O	2.45	0.49
1:G:131:LEU:HG	1:G:178:ARG:HH11	1.78	0.49
1:G:578:ILE:HD12	1:G:606:LEU:HD11	1.94	0.49
1:G:1856:ASP:OD1	1:G:1856:ASP:N	2.45	0.49
1:J:588:SER:O	1:J:592:LYS:NZ	2.38	0.49
1:A:1225:PRO:HG2	1:A:1228:ILE:HB	1.94	0.49
1:D:131:LEU:HG	1:D:178:ARG:HH11	1.78	0.49
1:D:4034:ASN:HD21	1:D:4041:ALA:HB2	1.78	0.49
1:A:418:LEU:HD23	1:A:493:ARG:HB3	1.94	0.49
1:D:4555:LEU:HD11	1:D:4656:LEU:HB3	1.94	0.49
1:G:418:LEU:HD23	1:G:493:ARG:HB3	1.94	0.49
1:J:131:LEU:HG	1:J:178:ARG:HH11	1.78	0.49
1:J:4678:ALA:HB1	1:J:4720:VAL:HG21	1.94	0.49
1:A:3753:PHE:HA	1:A:3756:LYS:HE2	1.94	0.49
3:C:142:PHE:HA	3:C:145:MET:HG2	1.93	0.49
1:J:1856:ASP:N	1:J:1856:ASP:OD1	2.45	0.49
1:J:1966:VAL:O	1:J:1970:GLN:NE2	2.43	0.49
1:A:4034:ASN:HD21	1:A:4041:ALA:HB2	1.78	0.49
1:G:4555:LEU:HD11	1:G:4656:LEU:HB3	1.94	0.49
1:J:1927:LEU:O	1:J:2104:ARG:NH2	2.45	0.49
1:J:4034:ASN:HD21	1:J:4041:ALA:HB2	1.78	0.49
1:J:4069:LYS:HA	1:J:4072:VAL:HG12	1.94	0.49
1:A:2591:ARG:NH2	1:A:2638:UNK:O	2.45	0.49
1:A:4085:ARG:HB3	1:A:4085:ARG:NH1	2.27	0.49
1:G:813:GLU:HB3	1:G:1008:SER:HB2	1.93	0.49
1:G:3753:PHE:HA	1:G:3756:LYS:HE2	1.94	0.49
1:D:418:LEU:HD23	1:D:493:ARG:HB3	1.94	0.48
1:D:684:VAL:HG22	1:D:781:VAL:HG23	1.94	0.48
1:D:2577:ILE:H	1:D:2577:ILE:HG12	1.45	0.48
1:G:4069:LYS:HA	1:G:4072:VAL:HG12	1.94	0.48
1:A:818:ARG:NH2	1:A:1025:ARG:O	2.45	0.48
1:A:1954:ARG:HH11	1:A:2041:HIS:HD2	1.61	0.48
1:A:4244:GLU:HA	1:A:4247:ILE:HG22	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1927:LEU:O	1:A:2104:ARG:NH2	2.45	0.48
1:A:4678:ALA:HB1	1:A:4720:VAL:HG21	1.94	0.48
1:D:2202:GLY:O	1:D:2206:THR:OG1	2.31	0.48
3:I:53:ILE:HA	3:I:56:VAL:HG22	1.95	0.48
1:J:578:ILE:HD12	1:J:606:LEU:HD11	1.94	0.48
1:J:2202:GLY:O	1:J:2206:THR:OG1	2.31	0.48
1:J:2591:ARG:NH2	1:J:2638:UNK:O	2.45	0.48
1:J:4244:GLU:HA	1:J:4247:ILE:HG22	1.95	0.48
1:D:1225:PRO:HG2	1:D:1228:ILE:HB	1.94	0.48
1:D:1954:ARG:HH11	1:D:2041:HIS:HD2	1.61	0.48
1:G:2287:ALA:O	1:G:2349:ASN:ND2	2.37	0.48
1:G:3676:ASP:HA	1:G:3679:LYS:HG2	1.95	0.48
1:J:575:LEU:HD22	1:J:609:CYS:HB3	1.94	0.48
1:J:3753:PHE:HA	1:J:3756:LYS:HE2	1.94	0.48
3:C:53:ILE:HA	3:C:56:VAL:HG22	1.95	0.48
1:G:575:LEU:HD22	1:G:609:CYS:HB3	1.94	0.48
1:J:1954:ARG:HH11	1:J:2041:HIS:HD2	1.61	0.48
1:A:3987:ASP:OD1	1:A:3987:ASP:N	2.46	0.48
1:D:4244:GLU:HA	1:D:4247:ILE:HG22	1.95	0.48
1:D:2287:ALA:O	1:D:2349:ASN:ND2	2.37	0.48
1:J:418:LEU:HD23	1:J:493:ARG:HB3	1.94	0.48
1:J:3987:ASP:OD1	1:J:3987:ASP:N	2.46	0.48
1:J:4085:ARG:HB3	1:J:4085:ARG:NH1	2.27	0.48
1:D:1966:VAL:O	1:D:1970:GLN:NE2	2.43	0.48
1:G:2202:GLY:O	1:G:2206:THR:OG1	2.31	0.48
1:J:2139:PRO:HG3	1:J:3658:LYS:HE2	1.96	0.48
1:J:4937:ILE:O	1:J:4941:GLY:N	2.47	0.48
1:G:4678:ALA:HB1	1:G:4720:VAL:HG21	1.94	0.48
1:G:588:SER:O	1:G:592:LYS:NZ	2.38	0.48
1:G:3987:ASP:OD1	1:G:3987:ASP:N	2.46	0.48
1:J:3676:ASP:HA	1:J:3679:LYS:HG2	1.95	0.48
1:A:2202:GLY:O	1:A:2206:THR:OG1	2.31	0.47
1:D:2139:PRO:HG3	1:D:3658:LYS:HE2	1.96	0.47
3:F:53:ILE:HA	3:F:56:VAL:HG22	1.95	0.47
1:G:1954:ARG:HH11	1:G:2041:HIS:HD2	1.61	0.47
1:D:3676:ASP:HA	1:D:3679:LYS:HG2	1.95	0.47
1:G:2355:ARG:HE	1:G:2355:ARG:HB2	1.46	0.47
1:D:3753:PHE:HA	1:D:3756:LYS:HE2	1.94	0.47
1:D:4085:ARG:HB3	1:D:4085:ARG:NH1	2.27	0.47
1:D:4937:ILE:O	1:D:4941:GLY:N	2.47	0.47
1:G:2139:PRO:HG3	1:G:3658:LYS:HE2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:46:GLU:O	3:L:50:GLN:HB2	2.15	0.47
1:A:2139:PRO:HG3	1:A:3658:LYS:HE2	1.96	0.47
1:D:622:THR:HG23	1:D:626:LEU:HD12	1.97	0.47
1:D:1770:SER:OG	1:D:1956:GLU:OE2	2.31	0.47
1:G:257:ARG:O	1:G:284:HIS:NE2	2.35	0.47
1:G:4244:GLU:HA	1:G:4247:ILE:HG22	1.95	0.47
1:A:4819:GLY:HA3	8:A:5105:F0U:BR	2.70	0.47
1:D:4222:VAL:HG23	1:D:4950:VAL:HG22	1.97	0.47
1:G:1461:ASP:N	1:G:1461:ASP:OD1	2.48	0.47
1:G:4085:ARG:HB3	1:G:4085:ARG:NH1	2.27	0.47
1:G:4819:GLY:HA3	8:G:5105:F0U:BR	2.70	0.47
3:L:53:ILE:HA	3:L:56:VAL:HG22	1.95	0.47
1:D:4819:GLY:HA3	8:D:5105:F0U:BR	2.70	0.47
1:J:4819:GLY:HA3	8:J:5105:F0U:BR	2.70	0.47
1:A:2548:LEU:CD1	3:C:50:GLN:HG2	2.45	0.47
1:A:3676:ASP:HA	1:A:3679:LYS:HG2	1.95	0.47
1:D:3987:ASP:OD1	1:D:3987:ASP:N	2.46	0.47
1:G:4937:ILE:O	1:G:4941:GLY:N	2.47	0.47
1:A:622:THR:HG23	1:A:626:LEU:HD12	1.97	0.46
1:G:101:LEU:HD13	1:G:107:ILE:HD13	1.97	0.46
1:A:1966:VAL:O	1:A:1970:GLN:NE2	2.43	0.46
1:A:4961:CYS:HA	1:A:5024:ALA:HA	1.97	0.46
1:D:475:GLN:HE21	1:D:533:ASN:HB2	1.81	0.46
1:D:1494:MET:HB2	1:D:1494:MET:HE3	1.73	0.46
1:D:4961:CYS:HA	1:D:5024:ALA:HA	1.97	0.46
1:J:784:SER:OG	1:J:785:ALA:N	2.48	0.46
1:G:194:SER:OG	1:G:195:PHE:N	2.49	0.46
1:G:4069:LYS:HD2	1:G:4129:ALA:HB1	1.97	0.46
1:A:1868:PRO:O	1:A:1872:THR:OG1	2.31	0.46
1:G:4961:CYS:HA	1:G:5024:ALA:HA	1.97	0.46
1:A:1461:ASP:OD1	1:A:1461:ASP:N	2.48	0.46
1:D:101:LEU:HD13	1:D:107:ILE:HD13	1.97	0.46
1:D:194:SER:OG	1:D:195:PHE:N	2.49	0.46
1:G:4222:VAL:HG23	1:G:4950:VAL:HG22	1.97	0.46
1:A:475:GLN:HE21	1:A:533:ASN:HB2	1.81	0.46
3:F:79:ASP:OD1	3:F:79:ASP:N	2.48	0.46
1:G:1494:MET:HB2	1:G:1494:MET:HE3	1.72	0.46
1:A:194:SER:OG	1:A:195:PHE:N	2.49	0.46
1:A:358:THR:OG1	1:A:359:TYR:N	2.49	0.46
1:A:635:THR:OG1	1:A:1693:GLN:NE2	2.46	0.46
1:A:1770:SER:OG	1:A:1956:GLU:OE2	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:176:SER:OG	1:D:178:ARG:NH2	2.49	0.46
1:J:475:GLN:HE21	1:J:533:ASN:HB2	1.81	0.46
1:J:622:THR:HG23	1:J:626:LEU:HD12	1.97	0.46
1:J:4069:LYS:HD2	1:J:4129:ALA:HB1	1.97	0.46
1:A:176:SER:OG	1:A:178:ARG:NH2	2.49	0.46
1:D:622:THR:HG21	1:D:1681:VAL:HG23	1.98	0.46
3:L:52:MET:O	3:L:55:GLU:HB3	2.16	0.46
1:A:4069:LYS:HD2	1:A:4129:ALA:HB1	1.97	0.46
1:D:4979:THR:HG21	6:D:5103:ATP:H2'	1.98	0.46
1:G:622:THR:HG21	1:G:1681:VAL:HG23	1.98	0.46
3:I:52:MET:O	3:I:55:GLU:HB3	2.16	0.46
1:J:358:THR:OG1	1:J:359:TYR:N	2.49	0.46
1:J:4961:CYS:HA	1:J:5024:ALA:HA	1.97	0.46
1:A:4239:GLU:OE2	1:A:5014:TYR:OH	2.30	0.45
1:D:407:THR:HG21	1:D:448:LEU:HD11	1.98	0.45
1:G:407:THR:HG21	1:G:448:LEU:HD11	1.98	0.45
1:G:475:GLN:HE21	1:G:533:ASN:HB2	1.81	0.45
3:I:46:GLU:O	3:I:50:GLN:HB2	2.16	0.45
1:J:407:THR:HG21	1:J:448:LEU:HD11	1.98	0.45
1:J:708:GLY:N	1:J:713:SER:OG	2.36	0.45
1:J:815:VAL:O	1:J:1007:TYR:OH	2.28	0.45
1:J:1279:SER:OG	1:J:1280:GLN:N	2.49	0.45
1:J:3817:LEU:HG	1:J:3821:LYS:HD2	1.98	0.45
1:A:407:THR:HG21	1:A:448:LEU:HD11	1.98	0.45
1:G:622:THR:HG23	1:G:626:LEU:HD12	1.97	0.45
1:G:1279:SER:OG	1:G:1280:GLN:N	2.49	0.45
1:G:4995:LEU:HD21	1:G:5007:GLU:HB3	1.98	0.45
3:I:79:ASP:N	3:I:79:ASP:OD1	2.48	0.45
1:J:194:SER:OG	1:J:195:PHE:N	2.49	0.45
1:J:1461:ASP:OD1	1:J:1461:ASP:N	2.48	0.45
1:J:4222:VAL:HG23	1:J:4950:VAL:HG22	1.97	0.45
1:J:4789:PHE:O	1:J:4793:GLY:N	2.46	0.45
1:A:4937:ILE:O	1:A:4941:GLY:N	2.47	0.45
3:C:79:ASP:OD1	3:C:79:ASP:N	2.48	0.45
1:D:257:ARG:O	1:D:284:HIS:NE2	2.35	0.45
1:D:2476:ILE:HD12	1:D:2477:PRO:HD2	1.98	0.45
1:G:411:TYR:HH	1:G:444:SER:HG	1.61	0.45
1:G:2577:ILE:H	1:G:2577:ILE:HG12	1.45	0.45
1:G:3699:HIS:HB2	1:G:3773:ARG:HG3	1.99	0.45
1:J:38:ALA:HB1	1:J:64:ILE:HG13	1.98	0.45
1:J:2476:ILE:HD12	1:J:2477:PRO:HD2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:4979:THR:HG21	6:J:5103:ATP:H2'	1.98	0.45
1:J:4995:LEU:HD21	1:J:5007:GLU:HB3	1.98	0.45
1:A:4979:THR:HG21	6:A:5103:ATP:H2'	1.98	0.45
1:D:784:SER:OG	1:D:785:ALA:N	2.48	0.45
1:D:4069:LYS:HD2	1:D:4129:ALA:HB1	1.97	0.45
1:G:38:ALA:HB1	1:G:64:ILE:HG13	1.98	0.45
1:J:4239:GLU:OE2	1:J:5014:TYR:OH	2.30	0.45
1:A:1149:VAL:HG22	1:A:1164:LEU:HD13	1.99	0.45
1:A:2577:ILE:H	1:A:2577:ILE:HG12	1.45	0.45
1:D:358:THR:OG1	1:D:359:TYR:N	2.49	0.45
1:D:3699:HIS:HB2	1:D:3773:ARG:HG3	1.99	0.45
1:J:1947:CYS:SG	1:J:2127:GLN:NE2	2.90	0.45
1:A:622:THR:HG21	1:A:1681:VAL:HG23	1.98	0.45
1:A:784:SER:OG	1:A:785:ALA:N	2.48	0.45
1:J:3699:HIS:HB2	1:J:3773:ARG:HG3	1.99	0.45
1:A:101:LEU:HD13	1:A:107:ILE:HD13	1.97	0.45
1:A:683:ARG:NH1	1:A:709:ASP:OD1	2.41	0.45
1:A:3699:HIS:HB2	1:A:3773:ARG:HG3	1.99	0.45
1:A:3817:LEU:HG	1:A:3821:LYS:HD2	1.98	0.45
1:D:1149:VAL:HG22	1:D:1164:LEU:HD13	1.99	0.45
1:G:176:SER:OG	1:G:178:ARG:NH2	2.49	0.45
1:G:3817:LEU:HG	1:G:3821:LYS:HD2	1.98	0.45
1:J:552:ASP:OD2	1:J:552:ASP:N	2.45	0.45
1:G:404:ILE:HD11	1:G:478:PHE:HA	1.99	0.45
1:G:2098:VAL:HG11	1:G:2127:GLN:HE21	1.82	0.45
1:G:2476:ILE:HD12	1:G:2477:PRO:HD2	1.98	0.45
1:G:4979:THR:HG21	6:G:5103:ATP:H2'	1.98	0.45
1:J:622:THR:HG21	1:J:1681:VAL:HG23	1.98	0.45
1:A:669:ASP:OD1	1:A:669:ASP:N	2.50	0.45
1:A:815:VAL:O	1:A:1007:TYR:OH	2.28	0.45
1:D:3817:LEU:HG	1:D:3821:LYS:HD2	1.98	0.45
1:J:2355:ARG:HE	1:J:2355:ARG:HB2	1.46	0.45
1:D:635:THR:OG1	1:D:1693:GLN:NE2	2.46	0.44
1:G:1149:VAL:HG22	1:G:1164:LEU:HD13	1.99	0.44
1:G:1947:CYS:SG	1:G:2127:GLN:NE2	2.90	0.44
1:J:590:LEU:HB2	1:J:599:VAL:HG11	1.99	0.44
1:J:1076:ARG:HH22	1:J:1079:LYS:HG3	1.82	0.44
1:J:3658:LYS:HA	1:J:3662:ILE:HD12	2.00	0.44
1:A:590:LEU:HB2	1:A:599:VAL:HG11	1.99	0.44
1:A:1076:ARG:HH22	1:A:1079:LYS:HG3	1.82	0.44
1:A:3904:ARG:HE	1:A:3975:GLY:HA3	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1868:PRO:O	1:D:1872:THR:OG1	2.31	0.44
1:D:4675:LYS:HB3	1:D:4675:LYS:HE3	1.80	0.44
1:G:1770:SER:OG	1:G:1956:GLU:OE2	2.31	0.44
1:J:101:LEU:HD13	1:J:107:ILE:HD13	1.97	0.44
1:J:2577:ILE:H	1:J:2577:ILE:HG12	1.45	0.44
1:A:2476:ILE:HD12	1:A:2477:PRO:HD2	1.98	0.44
1:D:404:ILE:HD11	1:D:478:PHE:HA	1.99	0.44
1:D:528:SER:HA	1:D:531:ARG:HH12	1.83	0.44
1:D:1076:ARG:HH22	1:D:1079:LYS:HG3	1.82	0.44
1:D:1947:CYS:SG	1:D:2127:GLN:NE2	2.90	0.44
3:F:46:GLU:O	3:F:50:GLN:HB2	2.17	0.44
1:G:1110:ARG:HH11	1:G:1110:ARG:HB3	1.83	0.44
1:A:4222:VAL:HG23	1:A:4950:VAL:HG22	1.97	0.44
1:D:38:ALA:HB1	1:D:64:ILE:HG13	1.98	0.44
1:D:474:ARG:HH11	1:D:474:ARG:CB	2.30	0.44
1:G:1076:ARG:HH22	1:G:1079:LYS:HG3	1.82	0.44
1:D:4995:LEU:HD21	1:D:5007:GLU:HB3	1.98	0.44
1:G:528:SER:HA	1:G:531:ARG:HH12	1.83	0.44
1:G:669:ASP:N	1:G:669:ASP:OD1	2.50	0.44
1:J:528:SER:HA	1:J:531:ARG:HH12	1.83	0.44
1:J:1149:VAL:HG22	1:J:1164:LEU:HD13	1.99	0.44
1:J:1649:ASP:HB3	1:J:1652:GLU:HG3	1.99	0.44
1:A:404:ILE:HD11	1:A:478:PHE:HA	1.99	0.44
1:A:578:ILE:HG23	1:A:582:HIS:HB2	1.99	0.44
1:A:2098:VAL:HG11	1:A:2127:GLN:HE21	1.82	0.44
1:A:3984:ARG:NH1	1:J:160:GLY:O	2.51	0.44
1:D:815:VAL:O	1:D:1007:TYR:OH	2.28	0.44
1:D:4059:LEU:HD13	1:D:4167:ALA:HB2	1.99	0.44
1:G:561:LEU:HD13	1:G:589:LEU:HD21	1.99	0.44
1:G:3658:LYS:HA	1:G:3662:ILE:HD12	2.00	0.44
1:G:3904:ARG:HE	1:G:3975:GLY:HA3	1.83	0.44
1:J:561:LEU:HD13	1:J:589:LEU:HD21	1.99	0.44
1:A:38:ALA:HB1	1:A:64:ILE:HG13	1.98	0.44
1:A:1147:ASP:OD1	1:A:1147:ASP:N	2.49	0.44
1:G:35:LEU:HB3	1:G:49:LEU:HB3	2.00	0.44
1:J:176:SER:OG	1:J:178:ARG:NH2	2.49	0.44
1:J:578:ILE:HG23	1:J:582:HIS:HB2	1.99	0.44
1:J:4059:LEU:HD13	1:J:4167:ALA:HB2	1.99	0.44
1:A:1203:ASN:ND2	1:A:1210:SER:OG	2.51	0.44
1:A:1649:ASP:HB3	1:A:1652:GLU:HG3	1.99	0.44
1:A:4995:LEU:HD21	1:A:5007:GLU:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:35:LEU:HB3	1:D:49:LEU:HB3	2.00	0.44
1:D:1461:ASP:N	1:D:1461:ASP:OD1	2.48	0.44
1:G:5013:MET:HE2	1:G:5021:PHE:HD1	1.83	0.44
1:J:1147:ASP:OD1	1:J:1147:ASP:N	2.49	0.44
1:J:2098:VAL:HG11	1:J:2127:GLN:HE21	1.82	0.44
1:A:1947:CYS:SG	1:A:2127:GLN:NE2	2.90	0.44
1:A:2544:THR:HB	1:A:2547:ALA:HB3	1.99	0.44
1:D:347:PHE:H	1:D:347:PHE:HD2	1.66	0.44
1:D:1110:ARG:HH11	1:D:1110:ARG:HB3	1.83	0.44
1:G:358:THR:OG1	1:G:359:TYR:N	2.49	0.44
1:G:815:VAL:O	1:G:1007:TYR:OH	2.28	0.44
1:J:3904:ARG:HE	1:J:3975:GLY:HA3	1.83	0.44
1:D:561:LEU:HD13	1:D:589:LEU:HD21	1.99	0.43
1:D:2098:VAL:HG11	1:D:2127:GLN:HE21	1.82	0.43
1:G:160:GLY:O	1:J:3984:ARG:NH1	2.51	0.43
1:G:708:GLY:N	1:G:713:SER:OG	2.36	0.43
1:J:1203:ASN:ND2	1:J:1210:SER:OG	2.51	0.43
1:J:1868:PRO:O	1:J:1872:THR:OG1	2.31	0.43
1:J:4792:LEU:HG	8:J:5105:F0U:CL1	2.55	0.43
1:J:4805:ASN:HB3	1:J:4808:PHE:HD2	1.84	0.43
1:A:528:SER:HA	1:A:531:ARG:HH12	1.83	0.43
1:A:3658:LYS:HA	1:A:3662:ILE:HD12	2.00	0.43
1:D:590:LEU:HB2	1:D:599:VAL:HG11	1.99	0.43
1:D:1746:THR:OG1	1:D:1748:PHE:O	2.36	0.43
1:J:404:ILE:HD11	1:J:478:PHE:HA	1.99	0.43
1:J:1126:GLY:HA3	1:J:1143:TRP:CE2	2.54	0.43
1:A:4587:PRO:HD3	1:A:4628:VAL:HG21	2.00	0.43
1:D:160:GLY:O	1:G:3984:ARG:NH1	2.51	0.43
1:D:1649:ASP:HB3	1:D:1652:GLU:HG3	1.99	0.43
1:D:4792:LEU:HG	8:D:5105:F0U:CL1	2.55	0.43
1:D:4865:LYS:HB3	1:D:4865:LYS:HE3	1.84	0.43
1:G:347:PHE:H	1:G:347:PHE:HD2	1.66	0.43
1:G:1126:GLY:HA3	1:G:1143:TRP:CE2	2.54	0.43
1:G:4789:PHE:O	1:G:4793:GLY:N	2.46	0.43
1:G:4792:LEU:HG	8:G:5105:F0U:CL1	2.55	0.43
1:J:35:LEU:HB3	1:J:49:LEU:HB3	2.00	0.43
1:A:35:LEU:HB3	1:A:49:LEU:HB3	2.00	0.43
1:A:160:GLY:O	1:D:3984:ARG:NH1	2.51	0.43
1:A:347:PHE:H	1:A:347:PHE:HD2	1.66	0.43
1:A:1279:SER:OG	1:A:1280:GLN:N	2.49	0.43
1:A:2030:ASP:OD1	1:A:2030:ASP:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1815:LEU:HD22	1:D:1845:VAL:HG21	2.00	0.43
1:D:1973:GLN:NE2	1:D:1997:GLU:OE1	2.49	0.43
1:G:578:ILE:HG23	1:G:582:HIS:HB2	1.99	0.43
3:L:70:LEU:HD12	3:L:70:LEU:HA	1.88	0.43
1:A:2548:LEU:HA	1:A:2548:LEU:HD23	1.75	0.43
1:D:578:ILE:HG23	1:D:582:HIS:HB2	1.99	0.43
1:D:2476:ILE:HD13	1:D:2532:ALA:HB1	2.01	0.43
1:G:474:ARG:H	1:G:474:ARG:HG3	1.67	0.43
1:G:784:SER:OG	1:G:785:ALA:N	2.48	0.43
1:G:1649:ASP:HB3	1:G:1652:GLU:HG3	1.99	0.43
1:G:1815:LEU:HD22	1:G:1845:VAL:HG21	2.00	0.43
1:J:411:TYR:OH	1:J:444:SER:OG	2.29	0.43
1:J:2550:LEU:HA	1:J:2553:TYR:HB3	2.00	0.43
3:L:79:ASP:OD1	3:L:79:ASP:N	2.48	0.43
1:A:1110:ARG:HB3	1:A:1110:ARG:HH11	1.83	0.43
1:A:1126:GLY:HA3	1:A:1143:TRP:CE2	2.54	0.43
1:A:4927:ILE:O	1:A:4931:ILE:N	2.52	0.43
1:D:2550:LEU:HA	1:D:2553:TYR:HB3	2.00	0.43
1:D:3794:VAL:HA	1:D:3797:THR:HG22	2.00	0.43
1:G:590:LEU:HB2	1:G:599:VAL:HG11	1.99	0.43
1:G:2550:LEU:HA	1:G:2553:TYR:HB3	2.00	0.43
1:G:3882:GLN:HG3	1:G:3960:GLN:HG2	2.01	0.43
1:G:4805:ASN:HB3	1:G:4808:PHE:HD2	1.84	0.43
1:J:635:THR:OG1	1:J:1693:GLN:NE2	2.46	0.43
1:A:4976:GLU:HG2	1:A:4980:LEU:HD23	2.01	0.43
1:D:1279:SER:OG	1:D:1280:GLN:N	2.49	0.43
1:G:4059:LEU:HD13	1:G:4167:ALA:HB2	1.99	0.43
1:J:669:ASP:OD1	1:J:669:ASP:N	2.50	0.43
1:A:1815:LEU:HD22	1:A:1845:VAL:HG21	2.00	0.43
1:A:3794:VAL:HA	1:A:3797:THR:HG22	2.00	0.43
1:D:4587:PRO:HD3	1:D:4628:VAL:HG21	2.00	0.43
1:J:1770:SER:OG	1:J:1956:GLU:OE2	2.31	0.43
1:J:3882:GLN:HG3	1:J:3960:GLN:HG2	2.01	0.43
1:J:4976:GLU:HG2	1:J:4980:LEU:HD23	2.01	0.43
1:A:37:LEU:HD13	1:A:191:VAL:HG11	2.01	0.43
1:A:2355:ARG:HE	1:A:2355:ARG:HB2	1.46	0.43
1:A:4059:LEU:HD13	1:A:4167:ALA:HB2	1.99	0.43
1:D:37:LEU:HD13	1:D:191:VAL:HG11	2.01	0.43
1:D:3658:LYS:HA	1:D:3662:ILE:HD12	2.00	0.43
1:A:4805:ASN:HB3	1:A:4808:PHE:HD2	1.84	0.43
1:D:1126:GLY:HA3	1:D:1143:TRP:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:3882:GLN:HG3	1:D:3960:GLN:HG2	2.01	0.43
1:D:3904:ARG:HE	1:D:3975:GLY:HA3	1.83	0.43
1:G:272:SER:HB3	1:G:335:GLY:H	1.84	0.43
1:G:474:ARG:HH11	1:G:474:ARG:CB	2.30	0.43
1:G:593:HIS:HD2	1:G:1593:PRO:HD2	1.84	0.43
2:H:25:HIS:CE1	2:H:40:ARG:HG2	2.54	0.43
1:J:272:SER:HB3	1:J:335:GLY:H	1.84	0.43
1:J:1110:ARG:HH11	1:J:1110:ARG:HB3	1.83	0.43
1:A:593:HIS:HD2	1:A:1593:PRO:HD2	1.84	0.42
1:A:2550:LEU:HA	1:A:2553:TYR:HB3	2.00	0.42
1:A:3882:GLN:HG3	1:A:3960:GLN:HG2	2.01	0.42
1:J:593:HIS:HD2	1:J:1593:PRO:HD2	1.84	0.42
2:E:25:HIS:CE1	2:E:40:ARG:HG2	2.54	0.42
1:G:552:ASP:OD2	1:G:552:ASP:N	2.45	0.42
1:G:3794:VAL:HA	1:G:3797:THR:HG22	2.00	0.42
1:J:4587:PRO:HD3	1:J:4628:VAL:HG21	2.00	0.42
1:J:4927:ILE:O	1:J:4931:ILE:N	2.52	0.42
2:K:25:HIS:CE1	2:K:40:ARG:HG2	2.54	0.42
1:A:708:GLY:N	1:A:713:SER:OG	2.36	0.42
1:A:1763:PRO:HG3	1:A:2094:LEU:HD22	2.02	0.42
1:A:2175:GLU:HG3	1:A:2228:MET:HB2	2.01	0.42
1:A:2433:LEU:HD22	1:A:2457:LEU:HD22	2.02	0.42
1:A:4792:LEU:HG	8:A:5105:F0U:CL1	2.55	0.42
1:D:593:HIS:HD2	1:D:1593:PRO:HD2	1.84	0.42
1:D:1545:ASN:HD21	2:E:32:ASN:HA	1.85	0.42
1:D:2433:LEU:HD22	1:D:2457:LEU:HD22	2.02	0.42
1:G:484:LEU:HD12	1:G:484:LEU:HA	1.84	0.42
1:G:4675:LYS:HB3	1:G:4675:LYS:HE3	1.80	0.42
1:G:4976:GLU:HG2	1:G:4980:LEU:HD23	2.01	0.42
1:J:1863:LEU:HB3	1:J:1871:PHE:CG	2.55	0.42
1:J:2175:GLU:HG3	1:J:2228:MET:HB2	2.01	0.42
1:J:3794:VAL:HA	1:J:3797:THR:HG22	2.00	0.42
1:A:1448:VAL:HG22	1:A:1554:VAL:HG23	2.02	0.42
1:D:1203:ASN:ND2	1:D:1210:SER:OG	2.51	0.42
1:D:4042:ARG:HA	1:D:4045:VAL:HG12	2.01	0.42
1:D:4805:ASN:HB3	1:D:4808:PHE:HD2	1.84	0.42
1:J:2186:MET:O	1:J:2192:TYR:OH	2.28	0.42
1:A:272:SER:HB3	1:A:335:GLY:H	1.84	0.42
1:A:561:LEU:HD13	1:A:589:LEU:HD21	1.99	0.42
1:A:606:LEU:HD12	1:A:606:LEU:HA	1.90	0.42
1:A:1302:ARG:HH21	1:A:1524:THR:HG23	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2476:ILE:HD13	1:A:2532:ALA:HB1	2.01	0.42
1:D:1147:ASP:OD1	1:D:1147:ASP:N	2.49	0.42
1:D:2175:GLU:HG3	1:D:2228:MET:HB2	2.01	0.42
1:G:1973:GLN:NE2	1:G:1997:GLU:OE1	2.49	0.42
1:G:4587:PRO:HD3	1:G:4628:VAL:HG21	2.00	0.42
1:J:2476:ILE:HD13	1:J:2532:ALA:HB1	2.01	0.42
1:A:116:MET:HG3	1:A:137:LEU:HD23	2.01	0.42
1:A:1863:LEU:HB3	1:A:1871:PHE:CG	2.55	0.42
1:D:272:SER:HB3	1:D:335:GLY:H	1.84	0.42
1:G:1746:THR:OG1	1:G:1748:PHE:O	2.36	0.42
1:G:1863:LEU:HB3	1:G:1871:PHE:CG	2.55	0.42
1:G:2175:GLU:HG3	1:G:2228:MET:HB2	2.01	0.42
1:J:1815:LEU:HD22	1:J:1845:VAL:HG21	2.00	0.42
2:B:25:HIS:CE1	2:B:40:ARG:HG2	2.54	0.42
1:D:116:MET:HG3	1:D:137:LEU:HD23	2.01	0.42
1:D:1812:LEU:HD23	1:D:1812:LEU:HA	1.92	0.42
1:D:4976:GLU:HG2	1:D:4980:LEU:HD23	2.01	0.42
1:G:1203:ASN:ND2	1:G:1210:SER:OG	2.51	0.42
1:G:1763:PRO:HG3	1:G:2094:LEU:HD22	2.02	0.42
1:G:2433:LEU:HD22	1:G:2457:LEU:HD22	2.02	0.42
1:J:282:ILE:HB	1:J:291:LEU:HB3	2.02	0.42
1:J:1763:PRO:HG3	1:J:2094:LEU:HD22	2.02	0.42
1:A:1220:GLN:HE21	1:D:3528:UNK:HA	1.85	0.42
1:A:4042:ARG:HA	1:A:4045:VAL:HG12	2.01	0.42
1:G:2476:ILE:HD13	1:G:2532:ALA:HB1	2.01	0.42
1:D:606:LEU:HD12	1:D:606:LEU:HA	1.90	0.42
1:J:1632:ASP:OD2	1:J:1632:ASP:N	2.53	0.42
1:A:3528:UNK:HA	1:J:1220:GLN:HE21	1.85	0.42
1:G:1448:VAL:HG22	1:G:1554:VAL:HG23	2.02	0.42
1:G:2186:MET:O	1:G:2192:TYR:OH	2.28	0.42
1:J:484:LEU:HD12	1:J:484:LEU:HA	1.84	0.42
1:J:2433:LEU:HD22	1:J:2457:LEU:HD22	2.02	0.42
1:D:1175:SER:HB2	1:D:1180:ARG:HH12	1.85	0.41
1:D:1863:LEU:HB3	1:D:1871:PHE:CG	2.55	0.41
1:D:4068:LEU:HA	1:D:4071:ILE:HB	2.02	0.41
1:G:37:LEU:HD13	1:G:191:VAL:HG11	2.01	0.41
1:G:116:MET:HG3	1:G:137:LEU:HD23	2.01	0.41
1:G:1175:SER:HB2	1:G:1180:ARG:HH12	1.85	0.41
1:J:37:LEU:HD13	1:J:191:VAL:HG11	2.01	0.41
1:A:2192:TYR:HB2	3:C:10:ILE:HG21	2.01	0.41
1:D:669:ASP:N	1:D:669:ASP:OD1	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:933:LEU:H	1:D:933:LEU:HG	1.75	0.41
1:D:4927:ILE:O	1:D:4931:ILE:N	2.52	0.41
1:G:1868:PRO:O	1:G:1872:THR:OG1	2.31	0.41
1:G:3842:LEU:O	1:G:3929:SER:OG	2.39	0.41
1:G:4042:ARG:HA	1:G:4045:VAL:HG12	2.01	0.41
1:G:4865:LYS:HB3	1:G:4865:LYS:HE3	1.84	0.41
1:J:1746:THR:OG1	1:J:1748:PHE:O	2.36	0.41
1:J:4180:ARG:HD3	1:J:4192:ARG:HH11	1.85	0.41
1:A:1470:ARG:HH11	1:A:1470:ARG:HD2	1.71	0.41
1:D:1448:VAL:HG22	1:D:1554:VAL:HG23	2.02	0.41
1:D:1763:PRO:HG3	1:D:2094:LEU:HD22	2.02	0.41
1:G:2030:ASP:N	1:G:2030:ASP:OD1	2.52	0.41
1:G:4927:ILE:O	1:G:4931:ILE:N	2.52	0.41
1:J:347:PHE:H	1:J:347:PHE:HD2	1.66	0.41
1:J:4042:ARG:HA	1:J:4045:VAL:HG12	2.01	0.41
1:D:1519:LEU:HD21	1:D:1572:ILE:HD12	2.02	0.41
1:J:1302:ARG:HH21	1:J:1524:THR:HG23	1.85	0.41
1:J:1448:VAL:HG22	1:J:1554:VAL:HG23	2.02	0.41
1:J:4150:LEU:HD12	1:J:4150:LEU:HA	1.89	0.41
1:J:4675:LYS:HE3	1:J:4675:LYS:HB3	1.80	0.41
1:A:1568:LYS:HB3	1:A:1574:PRO:HD3	2.03	0.41
1:D:1302:ARG:HH21	1:D:1524:THR:HG23	1.85	0.41
1:D:1568:LYS:HB3	1:D:1574:PRO:HD3	2.03	0.41
1:D:2522:LEU:HA	1:D:2526:PHE:HD1	1.86	0.41
1:D:3842:LEU:O	1:D:3929:SER:OG	2.39	0.41
1:G:4546:VAL:HA	1:G:4549:VAL:HG22	2.03	0.41
1:A:1494:MET:HE3	1:A:1494:MET:HB2	1.72	0.41
1:D:1220:GLN:HE21	1:G:3528:UNK:HA	1.85	0.41
1:G:162:LYS:HB2	1:G:162:LYS:HE3	1.90	0.41
1:G:1302:ARG:HH21	1:G:1524:THR:HG23	1.85	0.41
1:G:4068:LEU:HA	1:G:4071:ILE:HB	2.02	0.41
1:J:116:MET:HG3	1:J:137:LEU:HD23	2.01	0.41
1:J:2030:ASP:N	1:J:2030:ASP:OD1	2.52	0.41
1:D:4180:ARG:HD3	1:D:4192:ARG:HH11	1.85	0.41
1:G:282:ILE:HB	1:G:291:LEU:HB3	2.02	0.41
1:J:1021:LEU:HD23	1:J:1021:LEU:HA	1.91	0.41
1:J:3727:ASP:O	1:J:3731:LYS:NZ	2.54	0.41
1:J:3842:LEU:O	1:J:3929:SER:OG	2.39	0.41
1:J:4546:VAL:HA	1:J:4549:VAL:HG22	2.03	0.41
1:A:282:ILE:HB	1:A:291:LEU:HB3	2.02	0.41
1:A:4546:VAL:HA	1:A:4549:VAL:HG22	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4789:PHE:O	1:A:4793:GLY:N	2.46	0.41
1:D:4546:VAL:HA	1:D:4549:VAL:HG22	2.03	0.41
1:D:4839:MET:HB3	1:G:4823:LEU:HD21	2.03	0.41
1:G:341:TYR:HD1	1:G:341:TYR:HA	1.79	0.41
1:G:1220:GLN:HE21	1:J:3528:UNK:HA	1.85	0.41
1:J:474:ARG:HH11	1:J:474:ARG:CB	2.30	0.41
1:J:1175:SER:HB2	1:J:1180:ARG:HH12	1.85	0.41
1:J:1519:LEU:HD21	1:J:1572:ILE:HD12	2.02	0.41
3:L:76:LYS:HE2	3:L:76:LYS:HB2	1.98	0.41
1:A:568:LEU:HD13	1:A:606:LEU:HD13	2.03	0.41
1:A:794:GLY:HA3	1:A:812:HIS:HB3	2.03	0.41
1:A:1519:LEU:HD23	1:A:1519:LEU:HA	1.88	0.41
1:A:1936:LYS:HD3	1:A:2105:TRP:CD2	2.56	0.41
1:A:3959:LYS:O	1:A:3963:ASN:ND2	2.54	0.41
1:A:4054:ASN:N	1:A:4054:ASN:OD1	2.37	0.41
1:D:2030:ASP:OD1	1:D:2030:ASP:N	2.52	0.41
1:D:2615:ARG:HA	1:D:2616:PRO:HD3	1.97	0.41
1:D:3727:ASP:O	1:D:3731:LYS:NZ	2.54	0.41
1:G:4930:ALA:HA	1:G:4933:GLN:HG2	2.03	0.41
3:I:43:ASN:OD1	3:I:43:ASN:N	2.54	0.41
1:J:162:LYS:HE3	1:J:162:LYS:HB2	1.90	0.41
1:J:1568:LYS:HB3	1:J:1574:PRO:HD3	2.03	0.41
1:J:4865:LYS:HB3	1:J:4865:LYS:HE3	1.84	0.41
1:A:1175:SER:HB2	1:A:1180:ARG:HH12	1.85	0.41
1:A:4180:ARG:HD3	1:A:4192:ARG:HH11	1.85	0.41
1:D:1786:LEU:HD23	1:D:1786:LEU:HA	1.96	0.41
1:D:1936:LYS:HD3	1:D:2105:TRP:CD2	2.56	0.41
1:D:3959:LYS:O	1:D:3963:ASN:ND2	2.54	0.41
1:D:4789:PHE:O	1:D:4793:GLY:N	2.46	0.41
1:G:1936:LYS:HD3	1:G:2105:TRP:CD2	2.56	0.41
1:G:2522:LEU:HA	1:G:2526:PHE:HD1	1.86	0.41
1:J:4068:LEU:HA	1:J:4071:ILE:HB	2.02	0.41
1:A:2516:ASP:OD1	1:A:2516:ASP:N	2.50	0.40
1:A:3842:LEU:O	1:A:3929:SER:OG	2.39	0.40
1:D:2622:LEU:HD13	1:D:2622:LEU:HA	1.77	0.40
1:G:606:LEU:HD12	1:G:606:LEU:HA	1.90	0.40
1:G:4839:MET:HB3	1:J:4823:LEU:HD21	2.03	0.40
1:A:510:GLU:O	1:A:514:SER:OG	2.35	0.40
1:A:1632:ASP:OD2	1:A:1632:ASP:N	2.53	0.40
1:A:2491:SER:O	1:A:2491:SER:OG	2.40	0.40
1:A:4839:MET:O	1:A:4843:LEU:N	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4957:LYS:HE3	1:A:4957:LYS:HB3	1.87	0.40
1:D:3974:THR:O	1:D:3978:GLN:HG2	2.21	0.40
3:F:43:ASN:OD1	3:F:43:ASN:N	2.54	0.40
1:G:635:THR:OG1	1:G:1693:GLN:NE2	2.46	0.40
1:G:1018:ASN:HA	1:G:1019:PRO:HD3	1.92	0.40
1:G:1568:LYS:HB3	1:G:1574:PRO:HD3	2.03	0.40
1:G:2622:LEU:HD13	1:G:2622:LEU:HA	1.77	0.40
1:G:4150:LEU:HA	1:G:4150:LEU:HD12	1.89	0.40
3:L:43:ASN:OD1	3:L:43:ASN:N	2.54	0.40
1:A:341:TYR:HD1	1:A:341:TYR:HA	1.79	0.40
1:A:3940:LYS:HE2	1:A:3940:LYS:HB3	1.88	0.40
1:D:1171:SER:HG	1:D:1175:SER:HG	1.68	0.40
1:D:4839:MET:O	1:D:4843:LEU:N	2.53	0.40
3:F:70:LEU:HD12	3:F:70:LEU:HA	1.88	0.40
1:G:1519:LEU:HD21	1:G:1572:ILE:HD12	2.02	0.40
1:G:4180:ARG:HD3	1:G:4192:ARG:HH11	1.85	0.40
1:J:1778:SER:HB3	1:J:1798:LEU:HB2	2.03	0.40
1:J:1936:LYS:HD3	1:J:2105:TRP:CD2	2.56	0.40
1:A:1731:LEU:HD23	1:A:1772:ARG:HH21	1.86	0.40
1:A:4150:LEU:HA	1:A:4150:LEU:HD12	1.89	0.40
1:G:1731:LEU:HD23	1:G:1772:ARG:HE	1.87	0.40
1:J:494:LEU:HD23	1:J:494:LEU:HA	1.96	0.40
1:J:568:LEU:HD13	1:J:606:LEU:HD13	2.03	0.40
1:J:3959:LYS:O	1:J:3963:ASN:ND2	2.54	0.40
1:J:4160:LEU:HD23	1:J:4163:PHE:HD2	1.86	0.40
1:A:468:LEU:HD23	1:A:468:LEU:HA	1.93	0.40
1:A:1778:SER:HB3	1:A:1798:LEU:HB2	2.03	0.40
1:A:2522:LEU:HA	1:A:2526:PHE:HD1	1.86	0.40
1:A:4068:LEU:HA	1:A:4071:ILE:HB	2.02	0.40
1:D:568:LEU:HD13	1:D:606:LEU:HD13	2.03	0.40
1:D:1632:ASP:N	1:D:1632:ASP:OD2	2.53	0.40
1:D:2354:VAL:O	1:D:2358:ILE:HG12	2.22	0.40
1:D:2430:ILE:HD13	1:D:2430:ILE:HA	1.97	0.40
1:D:4160:LEU:HD23	1:D:4163:PHE:HD2	1.86	0.40
1:D:4983:HIS:O	6:D:5103:ATP:N6	2.55	0.40
1:G:4160:LEU:HD23	1:G:4163:PHE:HD2	1.86	0.40
1:J:2522:LEU:HA	1:J:2526:PHE:HD1	1.86	0.40
1:J:4930:ALA:HA	1:J:4933:GLN:HG2	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	3427/5037 (68%)	3321 (97%)	106 (3%)	0	100	100
1	D	3427/5037 (68%)	3321 (97%)	106 (3%)	0	100	100
1	G	3427/5037 (68%)	3321 (97%)	106 (3%)	0	100	100
1	J	3427/5037 (68%)	3321 (97%)	106 (3%)	0	100	100
2	B	105/107 (98%)	98 (93%)	7 (7%)	0	100	100
2	E	105/107 (98%)	98 (93%)	7 (7%)	0	100	100
2	H	105/107 (98%)	98 (93%)	7 (7%)	0	100	100
2	K	105/107 (98%)	98 (93%)	7 (7%)	0	100	100
3	C	133/149 (89%)	133 (100%)	0	0	100	100
3	F	133/149 (89%)	133 (100%)	0	0	100	100
3	I	133/149 (89%)	133 (100%)	0	0	100	100
3	L	133/149 (89%)	133 (100%)	0	0	100	100
All	All	14660/21172 (69%)	14208 (97%)	452 (3%)	0	100	100

There are no Ramachandran outliers to report.

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%)	2426 (97%)	69 (3%)	43	68
1	D	2495/3416 (73%)	2425 (97%)	70 (3%)	43	68

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	G	2495/3416 (73%)	2426 (97%)	69 (3%)	43 68
1	J	2495/3416 (73%)	2425 (97%)	70 (3%)	43 68
2	B	84/88 (96%)	78 (93%)	6 (7%)	14 45
2	E	84/88 (96%)	78 (93%)	6 (7%)	14 45
2	H	84/88 (96%)	78 (93%)	6 (7%)	14 45
2	K	84/88 (96%)	78 (93%)	6 (7%)	14 45
3	C	104/123 (85%)	84 (81%)	20 (19%)	1 10
3	F	104/123 (85%)	84 (81%)	20 (19%)	1 10
3	I	104/123 (85%)	83 (80%)	21 (20%)	1 9
3	L	104/123 (85%)	83 (80%)	21 (20%)	1 9
All	All	10732/14508 (74%)	10348 (96%)	384 (4%)	38 63

All (384) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	45	ARG
1	A	107	ILE
1	A	135	VAL
1	A	171	LEU
1	A	175	SER
1	A	179	TYR
1	A	231	LEU
1	A	272	SER
1	A	305	CYS
1	A	347	PHE
1	A	441	VAL
1	A	472	ARG
1	A	474	ARG
1	A	519	VAL
1	A	525	LEU
1	A	531	ARG
1	A	539	LEU
1	A	818	ARG
1	A	933	LEU
1	A	935	LEU
1	A	1038	SER
1	A	1110	ARG
1	A	1271	ARG

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Mol	Chain	Res	Type
1	A	1302	ARG
1	A	1427	ILE
1	A	1454	THR
1	A	1470	ARG
1	A	1547	LYS
1	A	1584	ARG
1	A	1623	ARG
1	A	1634	LEU
1	A	1715	LEU
1	A	1738	LEU
1	A	2113	SER
1	A	2206	THR
1	A	2209	GLU
1	A	2279	SER
1	A	2336	ARG
1	A	2355	ARG
1	A	2439	GLU
1	A	2449	GLU
1	A	2512	ILE
1	A	2516	ASP
1	A	2524	VAL
1	A	2577	ILE
1	A	2582	MET
1	A	2622	LEU
1	A	2625	ARG
1	A	3648	ARG
1	A	3714	SER
1	A	3731	LYS
1	A	3732	SER
1	A	3782	MET
1	A	3864	THR
1	A	3904	ARG
1	A	3930	ILE
1	A	3951	PHE
1	A	3987	ASP
1	A	4056	GLU
1	A	4085	ARG
1	A	4089	SER
1	A	4165	GLU
1	A	4649	LEU
1	A	4672	LYS
1	A	4741	LEU

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Mol	Chain	Res	Type
1	A	4828	SER
1	A	4877	ASP
1	A	4951	LYS
1	A	4963	ILE
2	B	49	ARG
2	B	50	ILE
2	B	66	MET
2	B	74	LEU
2	B	103	LEU
2	B	106	LEU
3	C	4	GLN
3	C	6	THR
3	C	7	GLU
3	C	8	GLU
3	C	19	LEU
3	C	27	THR
3	C	31	LYS
3	C	45	THR
3	C	48	GLU
3	C	54	ASN
3	C	55	GLU
3	C	75	ARG
3	C	77	MET
3	C	88	GLU
3	C	91	ARG
3	C	106	LEU
3	C	109	VAL
3	C	125	MET
3	C	127	ARG
3	C	143	VAL
1	D	45	ARG
1	D	107	ILE
1	D	135	VAL
1	D	171	LEU
1	D	175	SER
1	D	179	TYR
1	D	231	LEU
1	D	272	SER
1	D	305	CYS
1	D	347	PHE
1	D	441	VAL
1	D	472	ARG

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Mol	Chain	Res	Type
1	D	474	ARG
1	D	519	VAL
1	D	525	LEU
1	D	531	ARG
1	D	539	LEU
1	D	818	ARG
1	D	933	LEU
1	D	935	LEU
1	D	1038	SER
1	D	1110	ARG
1	D	1271	ARG
1	D	1302	ARG
1	D	1427	ILE
1	D	1454	THR
1	D	1470	ARG
1	D	1547	LYS
1	D	1584	ARG
1	D	1623	ARG
1	D	1634	LEU
1	D	1715	LEU
1	D	1738	LEU
1	D	2113	SER
1	D	2206	THR
1	D	2209	GLU
1	D	2279	SER
1	D	2336	ARG
1	D	2355	ARG
1	D	2439	GLU
1	D	2449	GLU
1	D	2512	ILE
1	D	2516	ASP
1	D	2524	VAL
1	D	2548	LEU
1	D	2577	ILE
1	D	2582	MET
1	D	2622	LEU
1	D	2625	ARG
1	D	3648	ARG
1	D	3714	SER
1	D	3731	LYS
1	D	3732	SER
1	D	3782	MET

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Mol	Chain	Res	Type
1	D	3864	THR
1	D	3904	ARG
1	D	3930	ILE
1	D	3951	PHE
1	D	3987	ASP
1	D	4056	GLU
1	D	4085	ARG
1	D	4089	SER
1	D	4165	GLU
1	D	4649	LEU
1	D	4672	LYS
1	D	4741	LEU
1	D	4828	SER
1	D	4877	ASP
1	D	4951	LYS
1	D	4963	ILE
2	E	49	ARG
2	E	50	ILE
2	E	66	MET
2	E	74	LEU
2	E	103	LEU
2	E	106	LEU
3	F	4	GLN
3	F	6	THR
3	F	7	GLU
3	F	8	GLU
3	F	19	LEU
3	F	27	THR
3	F	31	LYS
3	F	45	THR
3	F	48	GLU
3	F	50	GLN
3	F	55	GLU
3	F	75	ARG
3	F	77	MET
3	F	88	GLU
3	F	91	ARG
3	F	106	LEU
3	F	109	VAL
3	F	125	MET
3	F	127	ARG
3	F	143	VAL

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Mol	Chain	Res	Type
1	G	45	ARG
1	G	107	ILE
1	G	135	VAL
1	G	171	LEU
1	G	175	SER
1	G	179	TYR
1	G	231	LEU
1	G	272	SER
1	G	305	CYS
1	G	347	PHE
1	G	441	VAL
1	G	472	ARG
1	G	474	ARG
1	G	519	VAL
1	G	525	LEU
1	G	531	ARG
1	G	539	LEU
1	G	818	ARG
1	G	933	LEU
1	G	935	LEU
1	G	1038	SER
1	G	1110	ARG
1	G	1271	ARG
1	G	1302	ARG
1	G	1427	ILE
1	G	1454	THR
1	G	1470	ARG
1	G	1547	LYS
1	G	1584	ARG
1	G	1623	ARG
1	G	1634	LEU
1	G	1715	LEU
1	G	1738	LEU
1	G	2113	SER
1	G	2206	THR
1	G	2209	GLU
1	G	2279	SER
1	G	2336	ARG
1	G	2355	ARG
1	G	2439	GLU
1	G	2449	GLU
1	G	2512	ILE

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Mol	Chain	Res	Type
1	G	2516	ASP
1	G	2524	VAL
1	G	2577	ILE
1	G	2582	MET
1	G	2622	LEU
1	G	2625	ARG
1	G	3648	ARG
1	G	3714	SER
1	G	3731	LYS
1	G	3732	SER
1	G	3782	MET
1	G	3864	THR
1	G	3904	ARG
1	G	3930	ILE
1	G	3951	PHE
1	G	3987	ASP
1	G	4056	GLU
1	G	4085	ARG
1	G	4089	SER
1	G	4165	GLU
1	G	4649	LEU
1	G	4672	LYS
1	G	4741	LEU
1	G	4828	SER
1	G	4877	ASP
1	G	4951	LYS
1	G	4963	ILE
2	H	49	ARG
2	H	50	ILE
2	H	66	MET
2	H	74	LEU
2	H	103	LEU
2	H	106	LEU
3	I	4	GLN
3	I	6	THR
3	I	7	GLU
3	I	8	GLU
3	I	19	LEU
3	I	27	THR
3	I	31	LYS
3	I	45	THR
3	I	48	GLU

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Mol	Chain	Res	Type
3	I	50	GLN
3	I	54	ASN
3	I	55	GLU
3	I	75	ARG
3	I	77	MET
3	I	88	GLU
3	I	91	ARG
3	I	106	LEU
3	I	109	VAL
3	I	125	MET
3	I	127	ARG
3	I	143	VAL
1	J	45	ARG
1	J	107	ILE
1	J	135	VAL
1	J	171	LEU
1	J	175	SER
1	J	179	TYR
1	J	231	LEU
1	J	272	SER
1	J	305	CYS
1	J	347	PHE
1	J	441	VAL
1	J	472	ARG
1	J	474	ARG
1	J	519	VAL
1	J	525	LEU
1	J	531	ARG
1	J	539	LEU
1	J	818	ARG
1	J	933	LEU
1	J	935	LEU
1	J	1038	SER
1	J	1110	ARG
1	J	1271	ARG
1	J	1302	ARG
1	J	1427	ILE
1	J	1454	THR
1	J	1470	ARG
1	J	1547	LYS
1	J	1584	ARG
1	J	1623	ARG

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Mol	Chain	Res	Type
1	J	1634	LEU
1	J	1715	LEU
1	J	1738	LEU
1	J	2113	SER
1	J	2206	THR
1	J	2209	GLU
1	J	2279	SER
1	J	2336	ARG
1	J	2355	ARG
1	J	2439	GLU
1	J	2449	GLU
1	J	2512	ILE
1	J	2516	ASP
1	J	2524	VAL
1	J	2548	LEU
1	J	2577	ILE
1	J	2582	MET
1	J	2622	LEU
1	J	2625	ARG
1	J	3648	ARG
1	J	3714	SER
1	J	3731	LYS
1	J	3732	SER
1	J	3782	MET
1	J	3864	THR
1	J	3904	ARG
1	J	3930	ILE
1	J	3951	PHE
1	J	3987	ASP
1	J	4056	GLU
1	J	4085	ARG
1	J	4089	SER
1	J	4165	GLU
1	J	4649	LEU
1	J	4672	LYS
1	J	4741	LEU
1	J	4828	SER
1	J	4877	ASP
1	J	4951	LYS
1	J	4963	ILE
2	K	49	ARG
2	K	50	ILE

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Mol	Chain	Res	Type
2	K	66	MET
2	K	74	LEU
2	K	103	LEU
2	K	106	LEU
3	L	4	GLN
3	L	6	THR
3	L	7	GLU
3	L	8	GLU
3	L	19	LEU
3	L	27	THR
3	L	31	LYS
3	L	45	THR
3	L	48	GLU
3	L	50	GLN
3	L	54	ASN
3	L	55	GLU
3	L	75	ARG
3	L	77	MET
3	L	88	GLU
3	L	91	ARG
3	L	106	LEU
3	L	109	VAL
3	L	125	MET
3	L	127	ARG
3	L	143	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (169) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	23	GLN
1	A	57	ASN
1	A	71	GLN
1	A	473	ASN
1	A	475	GLN
1	A	536	ASN
1	A	634	GLN
1	A	838	HIS
1	A	994	ASN
1	A	1281	ASN
1	A	1429	ASN
1	A	1560	ASN
1	A	1679	ASN

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Mol	Chain	Res	Type
1	A	1760	HIS
1	A	1861	GLN
1	A	1938	GLN
1	A	2041	HIS
1	A	2107	GLN
1	A	2213	ASN
1	A	2584	HIS
1	A	3627	GLN
1	A	3767	GLN
1	A	3837	GLN
1	A	3851	ASN
1	A	3882	GLN
1	A	3897	ASN
1	A	3909	ASN
1	A	3946	GLN
1	A	3963	ASN
1	A	3976	ASN
1	A	4020	GLN
1	A	4043	GLN
1	A	4250	GLN
1	A	4626	ASN
1	A	4886	HIS
1	A	4946	GLN
1	A	4947	GLN
2	B	20	GLN
2	B	43	ASN
2	B	53	GLN
2	B	87	HIS
2	B	94	ASN
3	C	108	HIS
1	D	23	GLN
1	D	57	ASN
1	D	71	GLN
1	D	473	ASN
1	D	475	GLN
1	D	536	ASN
1	D	838	HIS
1	D	994	ASN
1	D	1281	ASN
1	D	1429	ASN
1	D	1560	ASN
1	D	1679	ASN

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Mol	Chain	Res	Type
1	D	1760	HIS
1	D	1861	GLN
1	D	1938	GLN
1	D	2041	HIS
1	D	2107	GLN
1	D	2213	ASN
1	D	2584	HIS
1	D	3627	GLN
1	D	3767	GLN
1	D	3837	GLN
1	D	3851	ASN
1	D	3882	GLN
1	D	3897	ASN
1	D	3909	ASN
1	D	3946	GLN
1	D	3963	ASN
1	D	3976	ASN
1	D	4020	GLN
1	D	4043	GLN
1	D	4250	GLN
1	D	4626	ASN
1	D	4886	HIS
1	D	4946	GLN
1	D	4947	GLN
2	E	20	GLN
2	E	32	ASN
2	E	43	ASN
2	E	53	GLN
2	E	87	HIS
2	E	94	ASN
3	F	108	HIS
1	G	23	GLN
1	G	57	ASN
1	G	71	GLN
1	G	473	ASN
1	G	475	GLN
1	G	536	ASN
1	G	634	GLN
1	G	838	HIS
1	G	994	ASN
1	G	1281	ASN
1	G	1429	ASN

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Mol	Chain	Res	Type
1	G	1560	ASN
1	G	1679	ASN
1	G	1760	HIS
1	G	1861	GLN
1	G	1938	GLN
1	G	2041	HIS
1	G	2107	GLN
1	G	2213	ASN
1	G	2584	HIS
1	G	3627	GLN
1	G	3767	GLN
1	G	3837	GLN
1	G	3851	ASN
1	G	3882	GLN
1	G	3897	ASN
1	G	3909	ASN
1	G	3946	GLN
1	G	3963	ASN
1	G	3976	ASN
1	G	4020	GLN
1	G	4043	GLN
1	G	4250	GLN
1	G	4886	HIS
1	G	4946	GLN
1	G	4947	GLN
2	H	20	GLN
2	H	43	ASN
2	H	53	GLN
2	H	87	HIS
2	H	94	ASN
1	J	23	GLN
1	J	57	ASN
1	J	71	GLN
1	J	473	ASN
1	J	475	GLN
1	J	536	ASN
1	J	634	GLN
1	J	838	HIS
1	J	994	ASN
1	J	1281	ASN
1	J	1429	ASN
1	J	1560	ASN

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Mol	Chain	Res	Type
1	J	1679	ASN
1	J	1760	HIS
1	J	1861	GLN
1	J	1938	GLN
1	J	2041	HIS
1	J	2107	GLN
1	J	2213	ASN
1	J	2584	HIS
1	J	3627	GLN
1	J	3767	GLN
1	J	3837	GLN
1	J	3851	ASN
1	J	3882	GLN
1	J	3897	ASN
1	J	3909	ASN
1	J	3946	GLN
1	J	3963	ASN
1	J	3976	ASN
1	J	4020	GLN
1	J	4043	GLN
1	J	4250	GLN
1	J	4886	HIS
1	J	4946	GLN
1	J	4947	GLN
2	K	20	GLN
2	K	43	ASN
2	K	53	GLN
2	K	87	HIS
2	K	94	ASN
3	L	50	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 20 ligands modelled in this entry, 8 are monoatomic - leaving 12 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	$\#\|Z\| > 2$
4	CFF	D	5101	-	8,15,15	3.50	3 (37%)	8,23,23	1.14	0
4	CFF	J	5101	-	8,15,15	3.50	3 (37%)	8,23,23	1.14	0
8	F0U	G	5105	-	29,30,30	2.29	8 (27%)	31,43,43	1.47	4 (12%)
4	CFF	A	5101	-	8,15,15	3.50	3 (37%)	8,23,23	1.14	0
6	ATP	A	5103	-	26,33,33	0.67	0	31,52,52	0.74	1 (3%)
8	F0U	J	5105	-	29,30,30	2.29	8 (27%)	31,43,43	1.47	4 (12%)
8	F0U	A	5105	-	29,30,30	2.29	8 (27%)	31,43,43	1.47	4 (12%)
6	ATP	D	5103	-	26,33,33	0.67	0	31,52,52	0.74	1 (3%)
6	ATP	J	5103	-	26,33,33	0.67	0	31,52,52	0.74	1 (3%)
6	ATP	G	5103	-	26,33,33	0.67	0	31,52,52	0.74	1 (3%)
4	CFF	G	5101	-	8,15,15	3.50	3 (37%)	8,23,23	1.14	0
8	F0U	D	5105	-	29,30,30	2.29	8 (27%)	31,43,43	1.47	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
4	CFF	D	5101	-	-	-	0/2/2/2
4	CFF	J	5101	-	-	-	0/2/2/2
8	F0U	G	5105	-	-	0/11/18/18	0/3/3/3
4	CFF	A	5101	-	-	-	0/2/2/2
6	ATP	A	5103	-	-	7/18/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	F0U	J	5105	-	-	0/11/18/18	0/3/3/3
8	F0U	A	5105	-	-	0/11/18/18	0/3/3/3
6	ATP	D	5103	-	-	7/18/38/38	0/3/3/3
6	ATP	J	5103	-	-	7/18/38/38	0/3/3/3
6	ATP	G	5103	-	-	7/18/38/38	0/3/3/3
4	CFF	G	5101	-	-	-	0/2/2/2
8	F0U	D	5105	-	-	0/11/18/18	0/3/3/3

All (44) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	5101	CFF	O13-C6	6.47	1.40	1.24
4	D	5101	CFF	O13-C6	6.47	1.40	1.24
4	G	5101	CFF	O13-C6	6.47	1.40	1.24
4	J	5101	CFF	O13-C6	6.47	1.40	1.24
8	A	5105	F0U	CAU-NAT	-6.23	1.33	1.44
8	D	5105	F0U	CAU-NAT	-6.23	1.33	1.44
8	G	5105	F0U	CAU-NAT	-6.23	1.33	1.44
8	J	5105	F0U	CAU-NAT	-6.23	1.33	1.44
4	A	5101	CFF	C5-C6	5.43	1.50	1.41
4	D	5101	CFF	C5-C6	5.43	1.50	1.41
4	G	5101	CFF	C5-C6	5.43	1.50	1.41
4	J	5101	CFF	C5-C6	5.43	1.50	1.41
8	A	5105	F0U	CAG-CAH	-4.96	1.40	1.50
8	D	5105	F0U	CAG-CAH	-4.96	1.40	1.50
8	G	5105	F0U	CAG-CAH	-4.96	1.40	1.50
8	J	5105	F0U	CAG-CAH	-4.96	1.40	1.50
8	A	5105	F0U	CAL-NAM	-4.69	1.34	1.43
8	D	5105	F0U	CAL-NAM	-4.69	1.34	1.43
8	G	5105	F0U	CAL-NAM	-4.69	1.34	1.43
8	J	5105	F0U	CAL-NAM	-4.69	1.34	1.43
4	A	5101	CFF	C6-N1	4.67	1.45	1.38
4	D	5101	CFF	C6-N1	4.67	1.45	1.38
4	G	5101	CFF	C6-N1	4.67	1.45	1.38
4	J	5101	CFF	C6-N1	4.67	1.45	1.38
8	A	5105	F0U	CAP-CAQ	-4.37	1.33	1.39
8	D	5105	F0U	CAP-CAQ	-4.37	1.33	1.39
8	G	5105	F0U	CAP-CAQ	-4.37	1.33	1.39
8	J	5105	F0U	CAP-CAQ	-4.37	1.33	1.39
8	A	5105	F0U	CAP-CAO	-4.09	1.33	1.39
8	D	5105	F0U	CAP-CAO	-4.09	1.33	1.39
8	G	5105	F0U	CAP-CAO	-4.09	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	J	5105	F0U	CAP-CAO	-4.09	1.33	1.39
8	A	5105	F0U	CAZ-NBA	2.86	1.40	1.34
8	D	5105	F0U	CAZ-NBA	2.86	1.40	1.34
8	G	5105	F0U	CAZ-NBA	2.86	1.40	1.34
8	J	5105	F0U	CAZ-NBA	2.86	1.40	1.34
8	A	5105	F0U	CAO-CAN	-2.51	1.35	1.50
8	D	5105	F0U	CAO-CAN	-2.51	1.35	1.50
8	G	5105	F0U	CAO-CAN	-2.51	1.35	1.50
8	J	5105	F0U	CAO-CAN	-2.51	1.35	1.50
8	A	5105	F0U	NAS-NAT	-2.47	1.34	1.39
8	D	5105	F0U	NAS-NAT	-2.47	1.34	1.39
8	G	5105	F0U	NAS-NAT	-2.47	1.34	1.39
8	J	5105	F0U	NAS-NAT	-2.47	1.34	1.39

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	A	5105	F0U	CAJ-NAI-CAH	-4.54	116.75	121.89
8	D	5105	F0U	CAJ-NAI-CAH	-4.54	116.75	121.89
8	G	5105	F0U	CAJ-NAI-CAH	-4.54	116.75	121.89
8	J	5105	F0U	CAJ-NAI-CAH	-4.54	116.75	121.89
8	A	5105	F0U	CAZ-NBA-CAU	4.03	120.54	115.98
8	D	5105	F0U	CAZ-NBA-CAU	4.03	120.54	115.98
8	G	5105	F0U	CAZ-NBA-CAU	4.03	120.54	115.98
8	J	5105	F0U	CAZ-NBA-CAU	4.03	120.54	115.98
8	A	5105	F0U	CAP-CAO-CAN	-2.42	121.01	128.55
8	D	5105	F0U	CAP-CAO-CAN	-2.42	121.01	128.55
8	G	5105	F0U	CAP-CAO-CAN	-2.42	121.01	128.55
8	J	5105	F0U	CAP-CAO-CAN	-2.42	121.01	128.55
6	A	5103	ATP	C5-C6-N6	2.32	123.88	120.35
6	D	5103	ATP	C5-C6-N6	2.32	123.88	120.35
6	G	5103	ATP	C5-C6-N6	2.32	123.88	120.35
6	J	5103	ATP	C5-C6-N6	2.32	123.88	120.35
8	A	5105	F0U	CAY-CAZ-NBA	-2.13	119.95	123.43
8	D	5105	F0U	CAY-CAZ-NBA	-2.13	119.95	123.43
8	G	5105	F0U	CAY-CAZ-NBA	-2.13	119.95	123.43
8	J	5105	F0U	CAY-CAZ-NBA	-2.13	119.95	123.43

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	5103	ATP	PB-O3B-PG-O2G
6	A	5103	ATP	PB-O3A-PA-O5'
6	A	5103	ATP	C5'-O5'-PA-O2A
6	A	5103	ATP	C5'-O5'-PA-O3A
6	D	5103	ATP	PB-O3B-PG-O2G
6	D	5103	ATP	PB-O3A-PA-O5'
6	D	5103	ATP	C5'-O5'-PA-O2A
6	D	5103	ATP	C5'-O5'-PA-O3A
6	G	5103	ATP	PB-O3B-PG-O2G
6	G	5103	ATP	PB-O3A-PA-O5'
6	G	5103	ATP	C5'-O5'-PA-O2A
6	G	5103	ATP	C5'-O5'-PA-O3A
6	J	5103	ATP	PB-O3B-PG-O2G
6	J	5103	ATP	PB-O3A-PA-O5'
6	J	5103	ATP	C5'-O5'-PA-O2A
6	J	5103	ATP	C5'-O5'-PA-O3A
6	A	5103	ATP	PB-O3B-PG-O1G
6	D	5103	ATP	PB-O3B-PG-O1G
6	G	5103	ATP	PB-O3B-PG-O1G
6	J	5103	ATP	PB-O3B-PG-O1G
6	A	5103	ATP	PB-O3B-PG-O3G
6	D	5103	ATP	PB-O3B-PG-O3G
6	G	5103	ATP	PB-O3B-PG-O3G
6	J	5103	ATP	PB-O3B-PG-O3G
6	A	5103	ATP	O4'-C4'-C5'-O5'
6	D	5103	ATP	O4'-C4'-C5'-O5'
6	G	5103	ATP	O4'-C4'-C5'-O5'
6	J	5103	ATP	O4'-C4'-C5'-O5'

There are no ring outliers.

12 monomers are involved in 49 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	5101	CFF	1	0
4	J	5101	CFF	1	0
8	G	5105	F0U	2	0
4	A	5101	CFF	1	0
6	A	5103	ATP	9	0
8	J	5105	F0U	2	0
8	A	5105	F0U	2	0
6	D	5103	ATP	10	0
6	J	5103	ATP	9	0
6	G	5103	ATP	9	0

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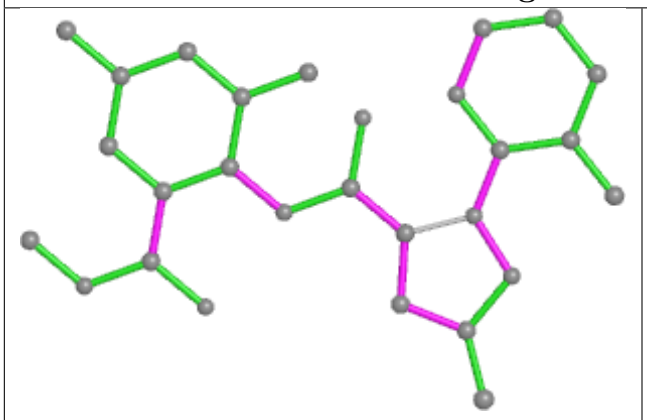
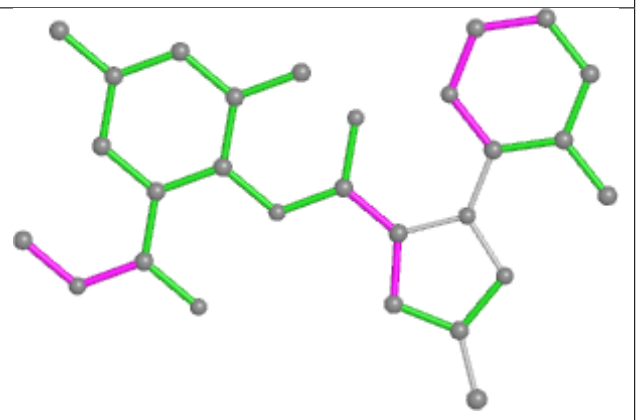
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	G	5101	CFF	1	0
8	D	5105	F0U	2	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

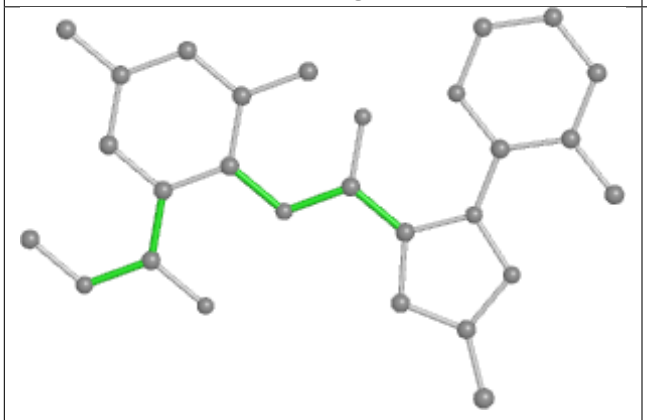
Ligand F0U G 5105



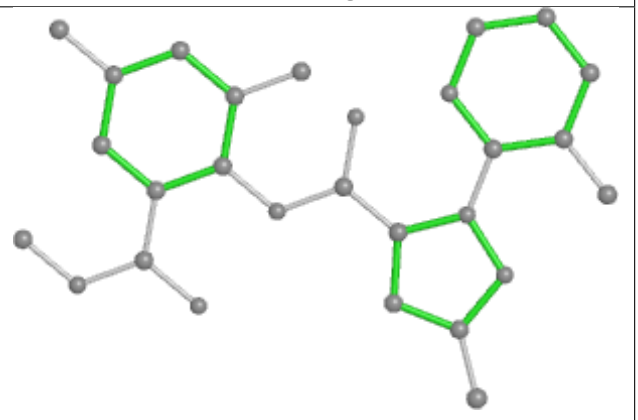
Bond lengths



Bond angles

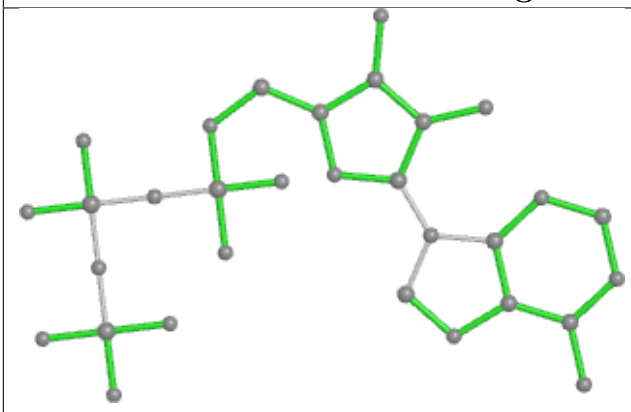


Torsions

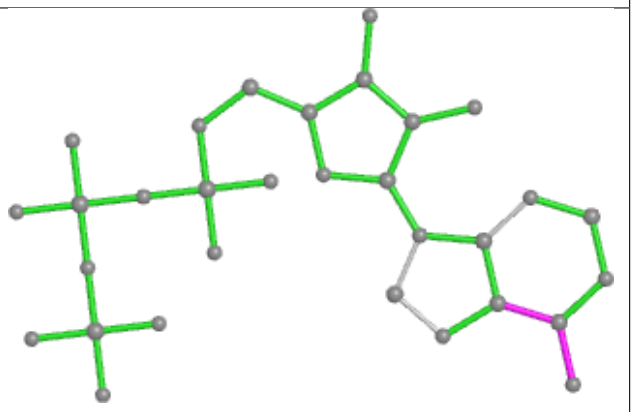


Rings

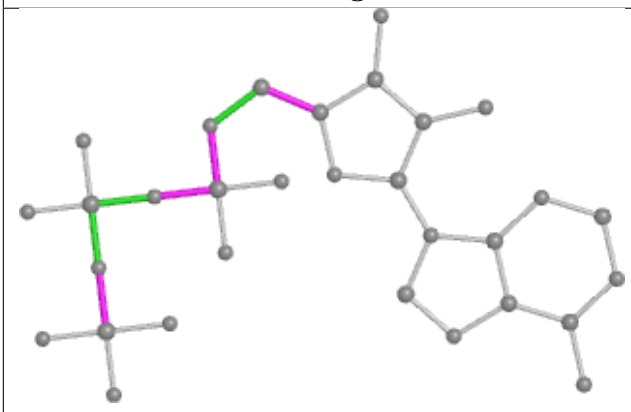
Ligand ATP A 5103



Bond lengths



Bond angles



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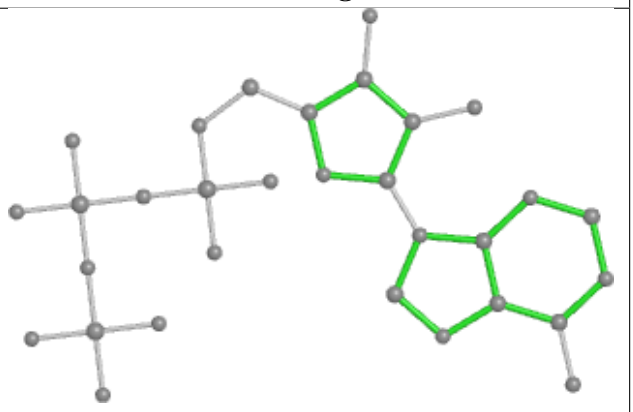
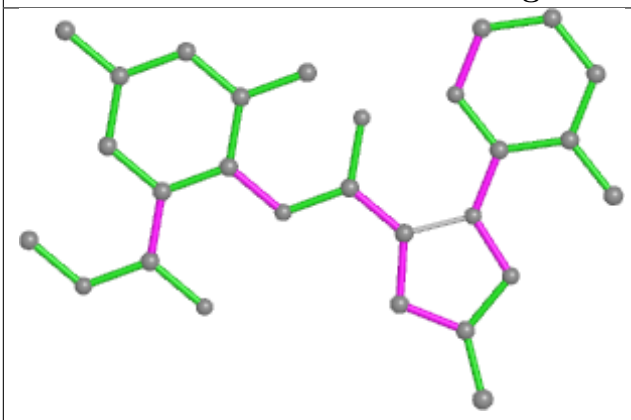
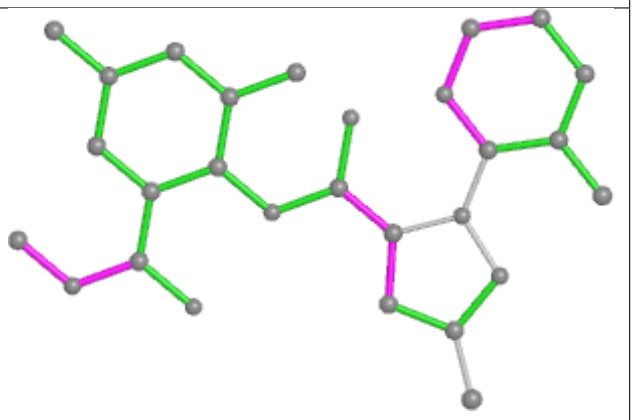


Rings

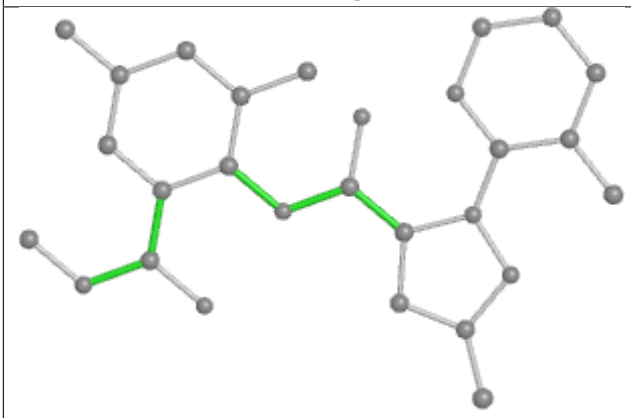
Ligand F0U J 5105



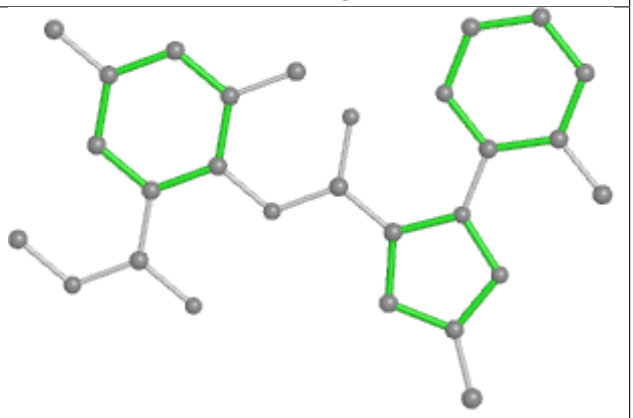
Bond lengths



Bond angles

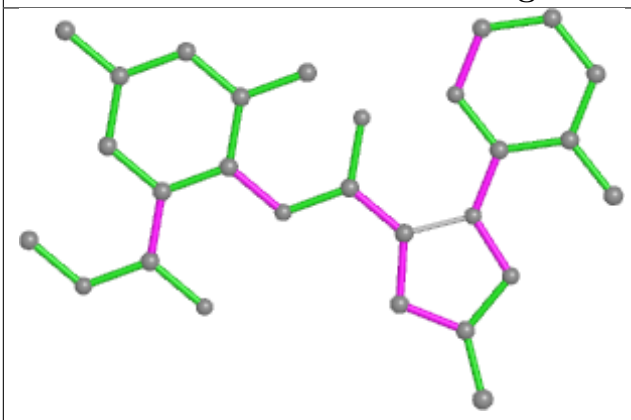


Torsions

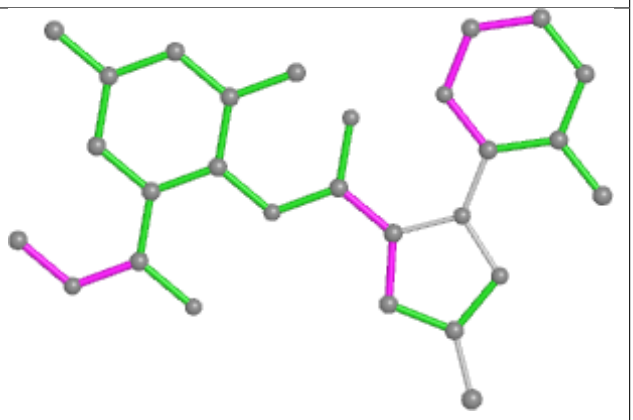


Rings

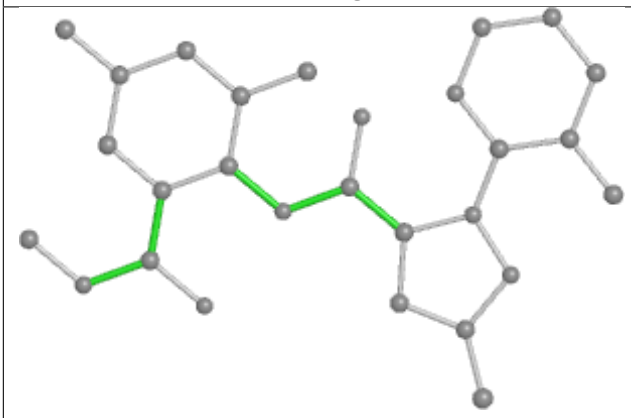
Ligand F0U A 5105



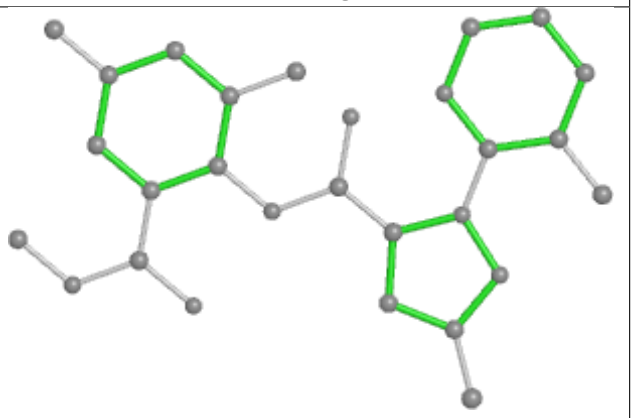
Bond lengths



Bond angles

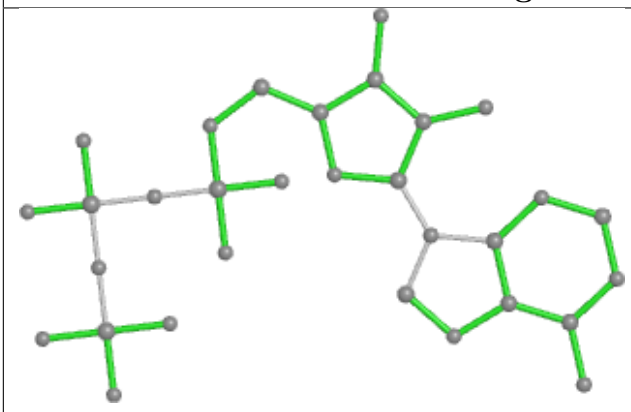


Torsions

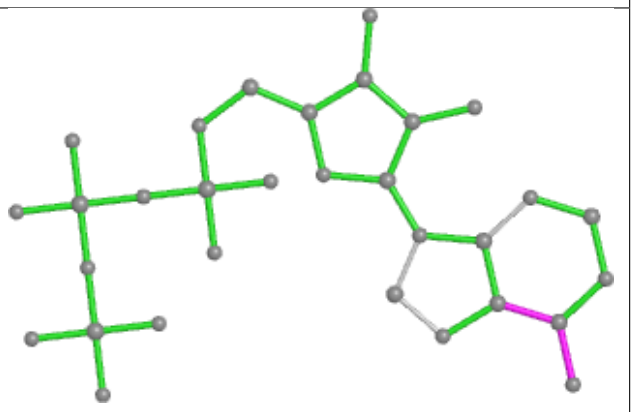


Rings

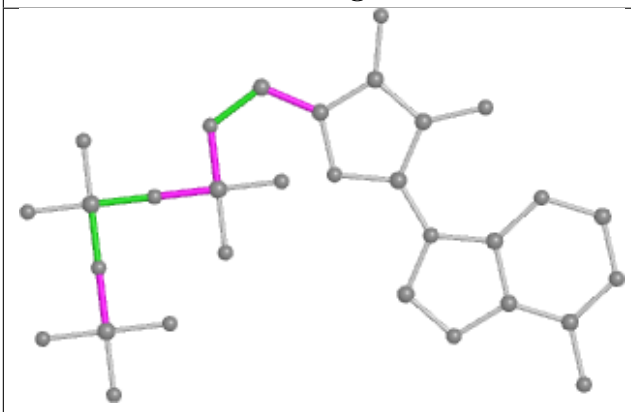
Ligand ATP D 5103



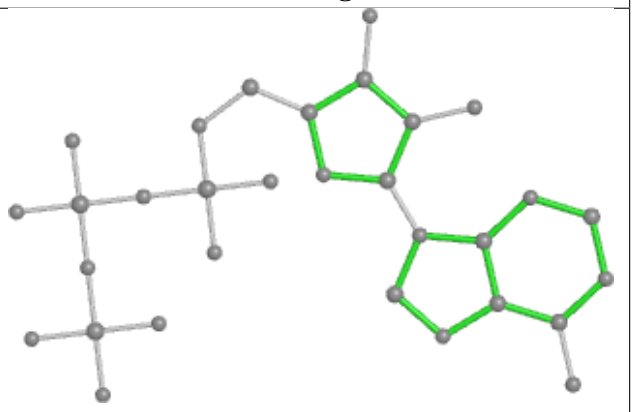
Bond lengths



Bond angles

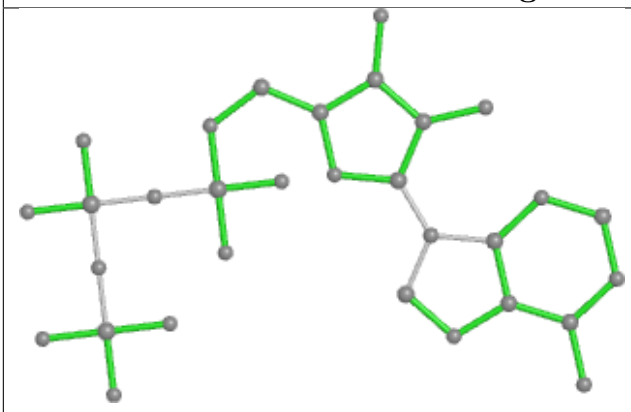


Torsions

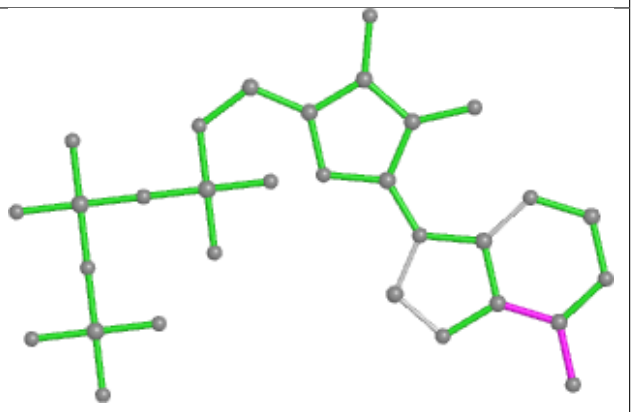


Rings

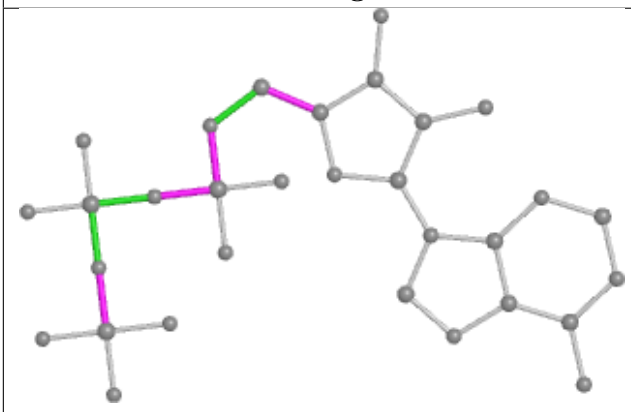
Ligand ATP J 5103



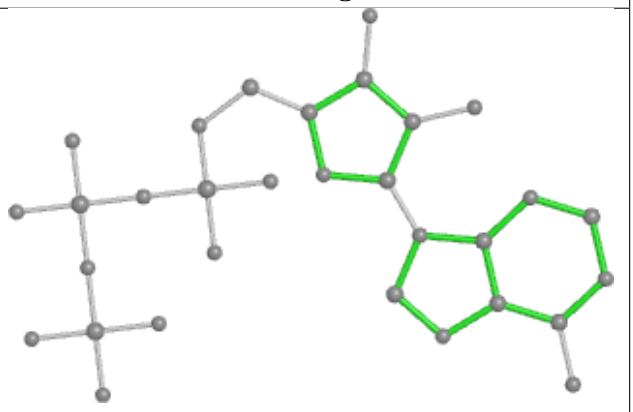
Bond lengths



Bond angles

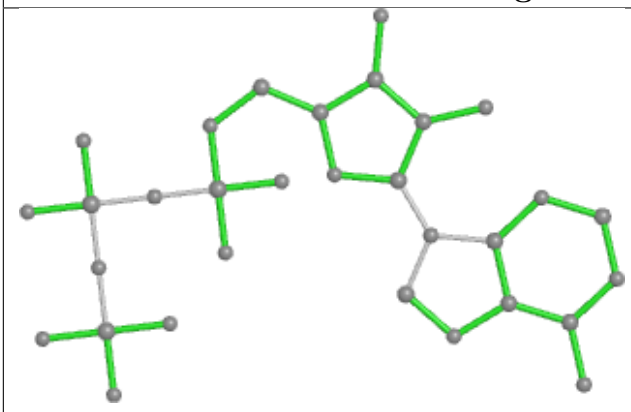


Torsions

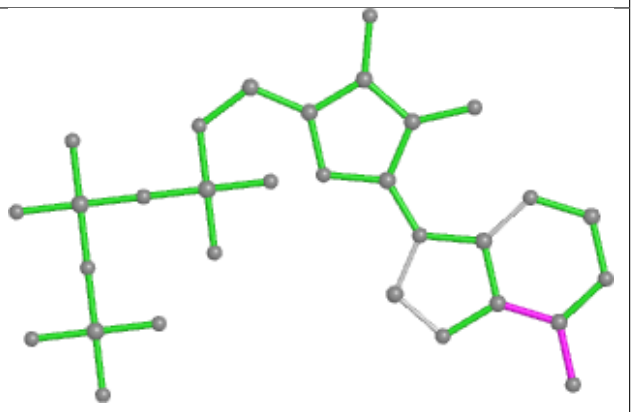


Rings

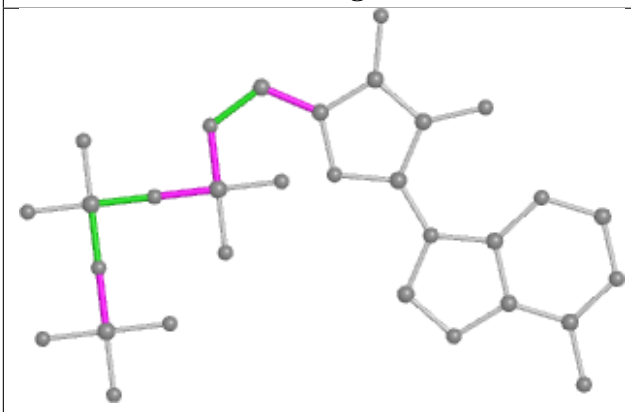
Ligand ATP G 5103



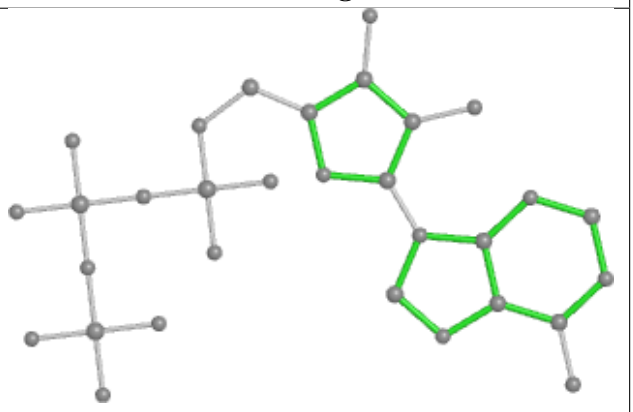
Bond lengths



Bond angles

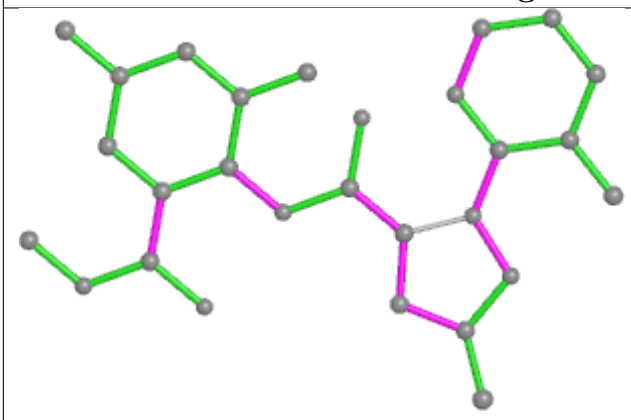


Torsions

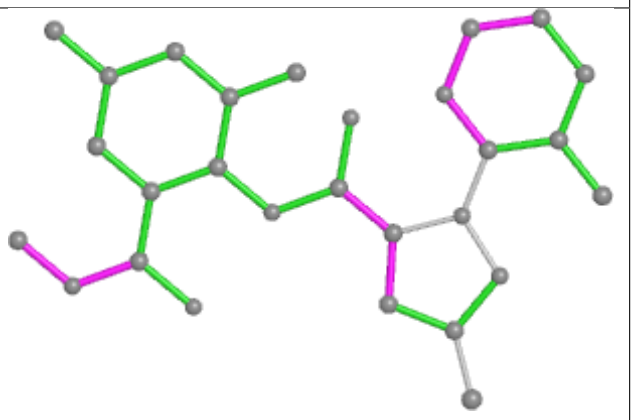


Rings

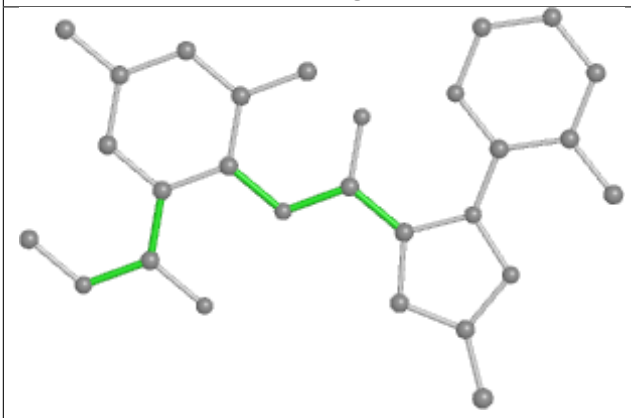
Ligand F0U D 5105



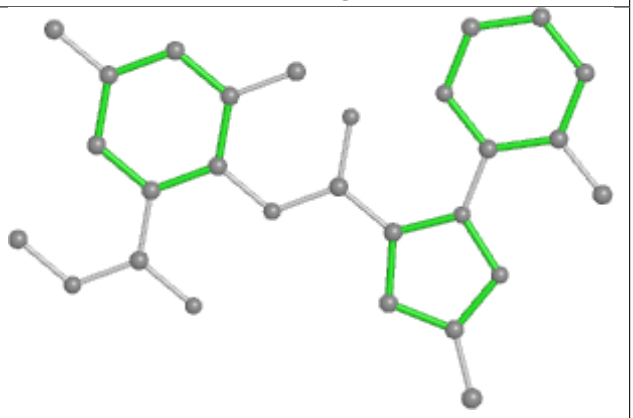
Bond lengths



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.

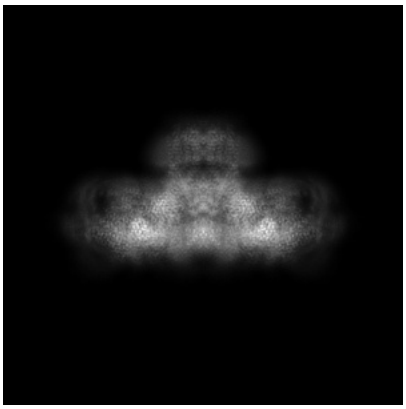
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-30067. These allow visual inspection of the internal detail of the map and identification of artifacts.

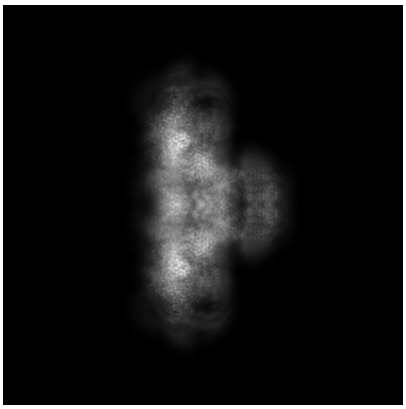
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

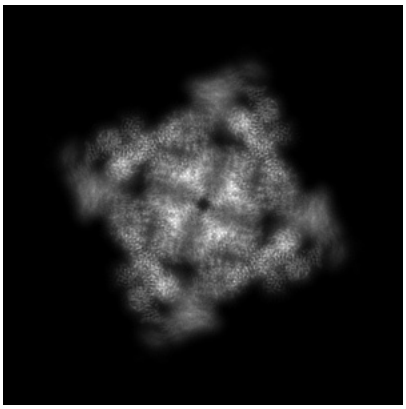
6.1.1 Primary map



X

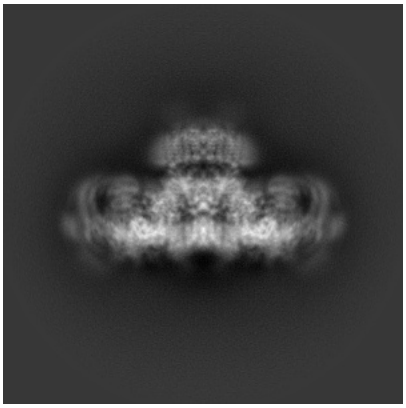


Y

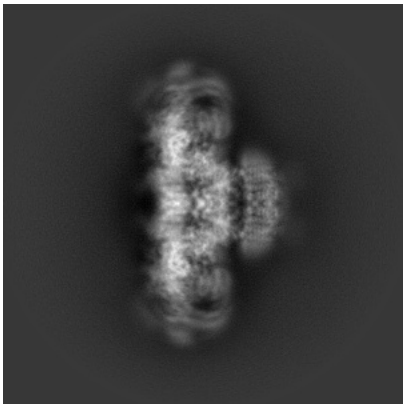


Z

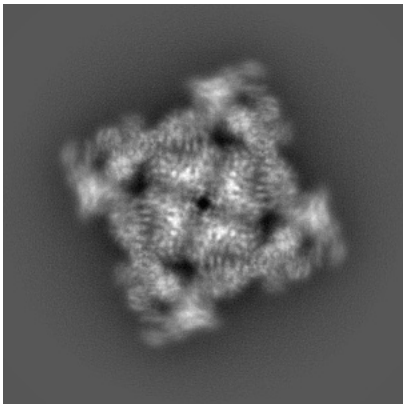
6.1.2 Raw map



X



Y

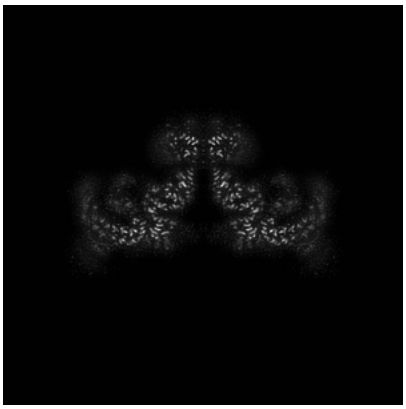


Z

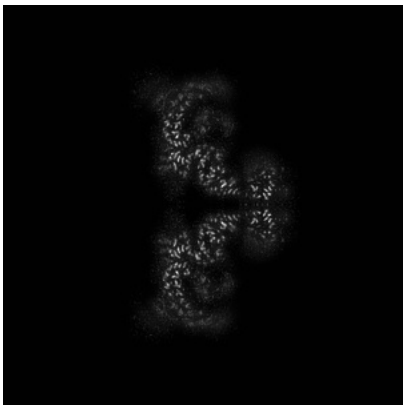
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

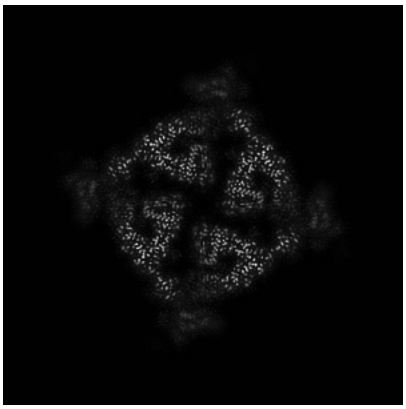
6.2.1 Primary map



X Index: 224

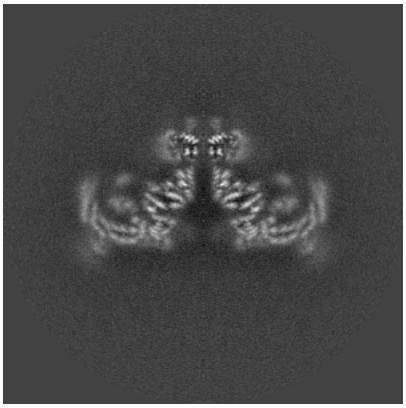


Y Index: 224

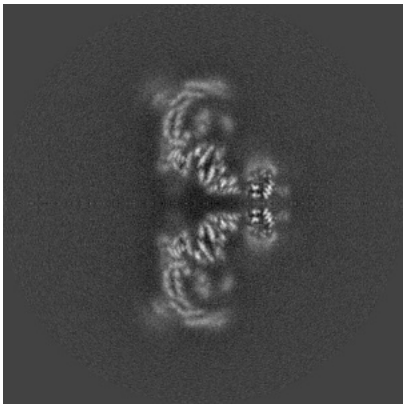


Z Index: 224

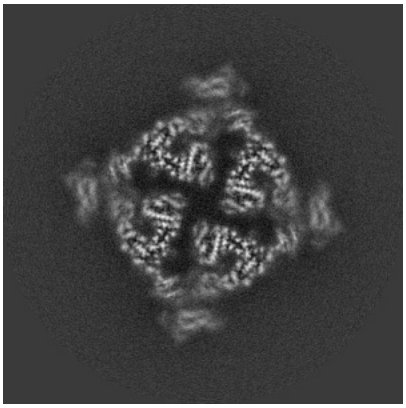
6.2.2 Raw map



X Index: 224



Y Index: 224

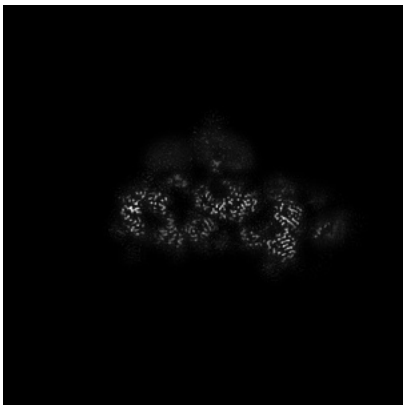


Z Index: 224

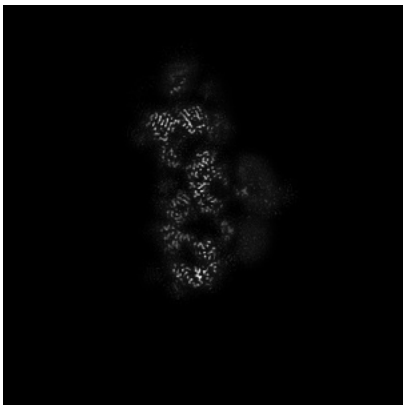
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

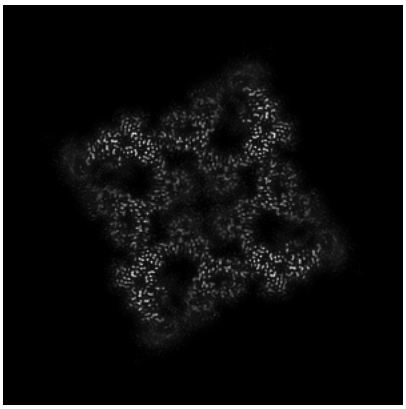
6.3.1 Primary map



X Index: 269

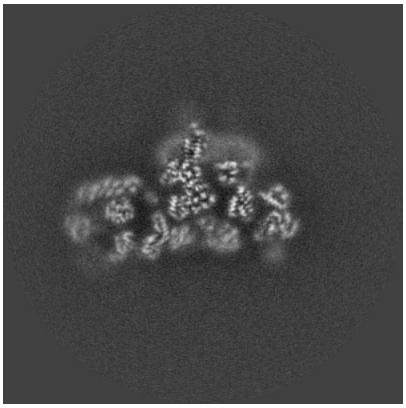


Y Index: 179

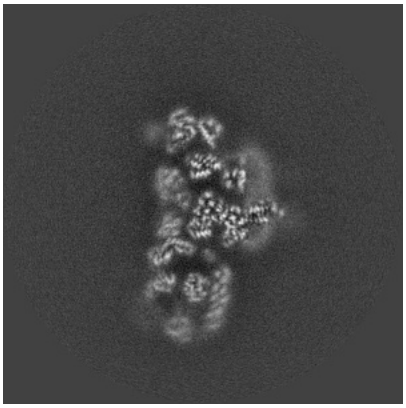


Z Index: 194

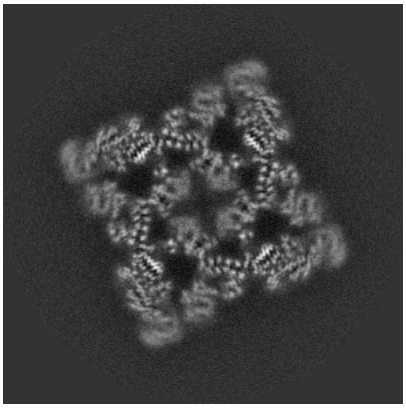
6.3.2 Raw map



X Index: 190



Y Index: 258

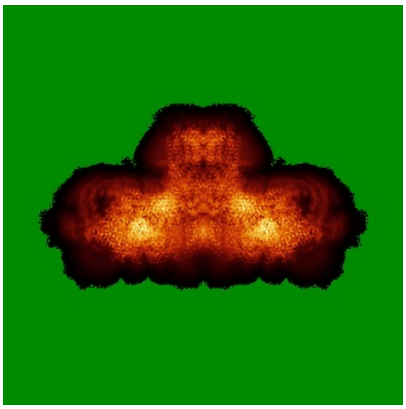


Z Index: 198

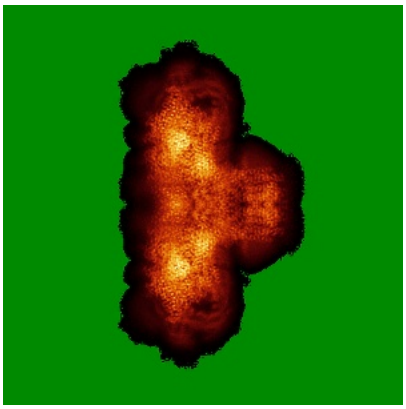
The images above show the largest variance slices of the map in three orthogonal directions.

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

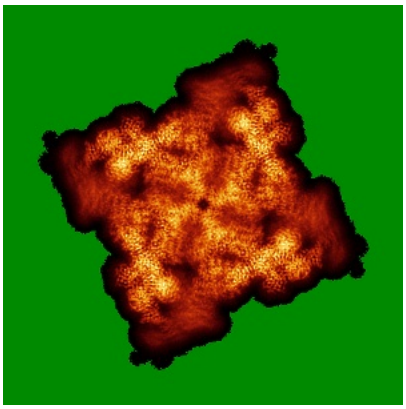
6.4.1 Primary map



X

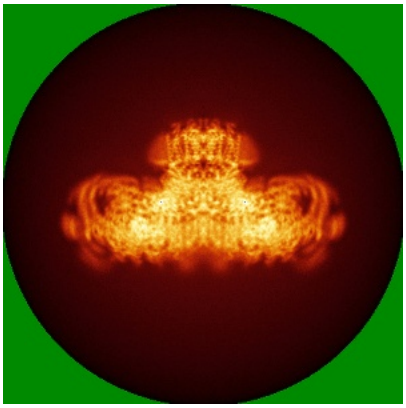


Y

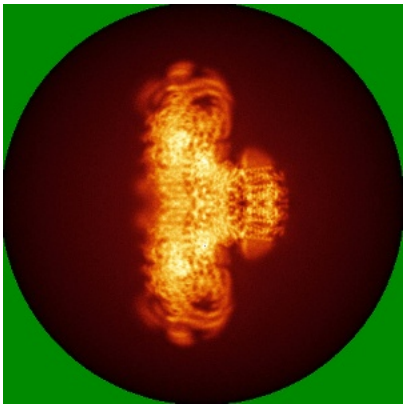


Z

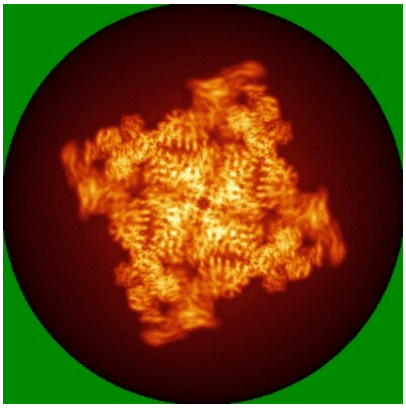
6.4.2 Raw map



X



Y

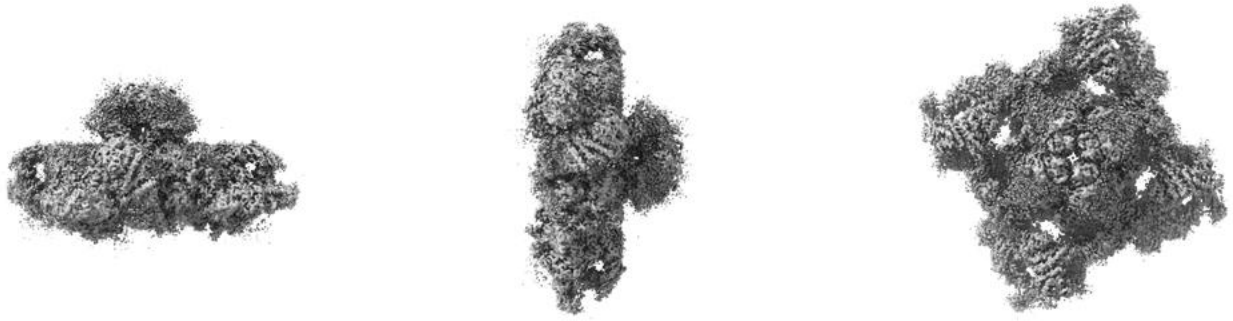


Z

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)

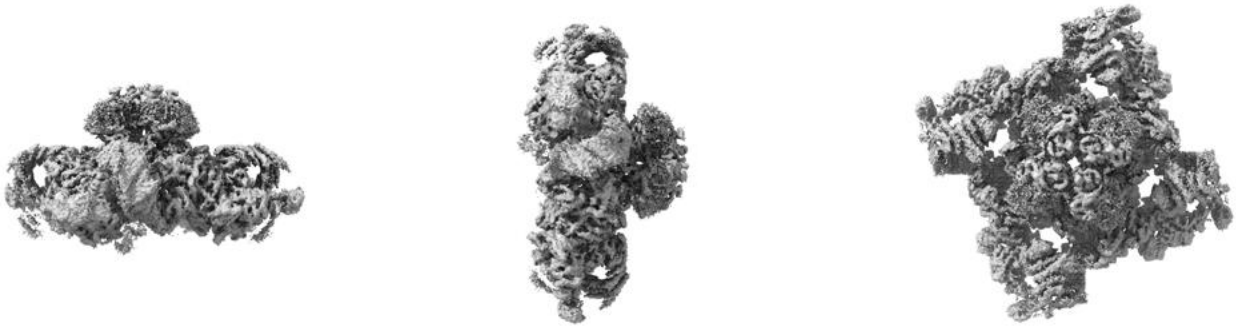
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0302. 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.

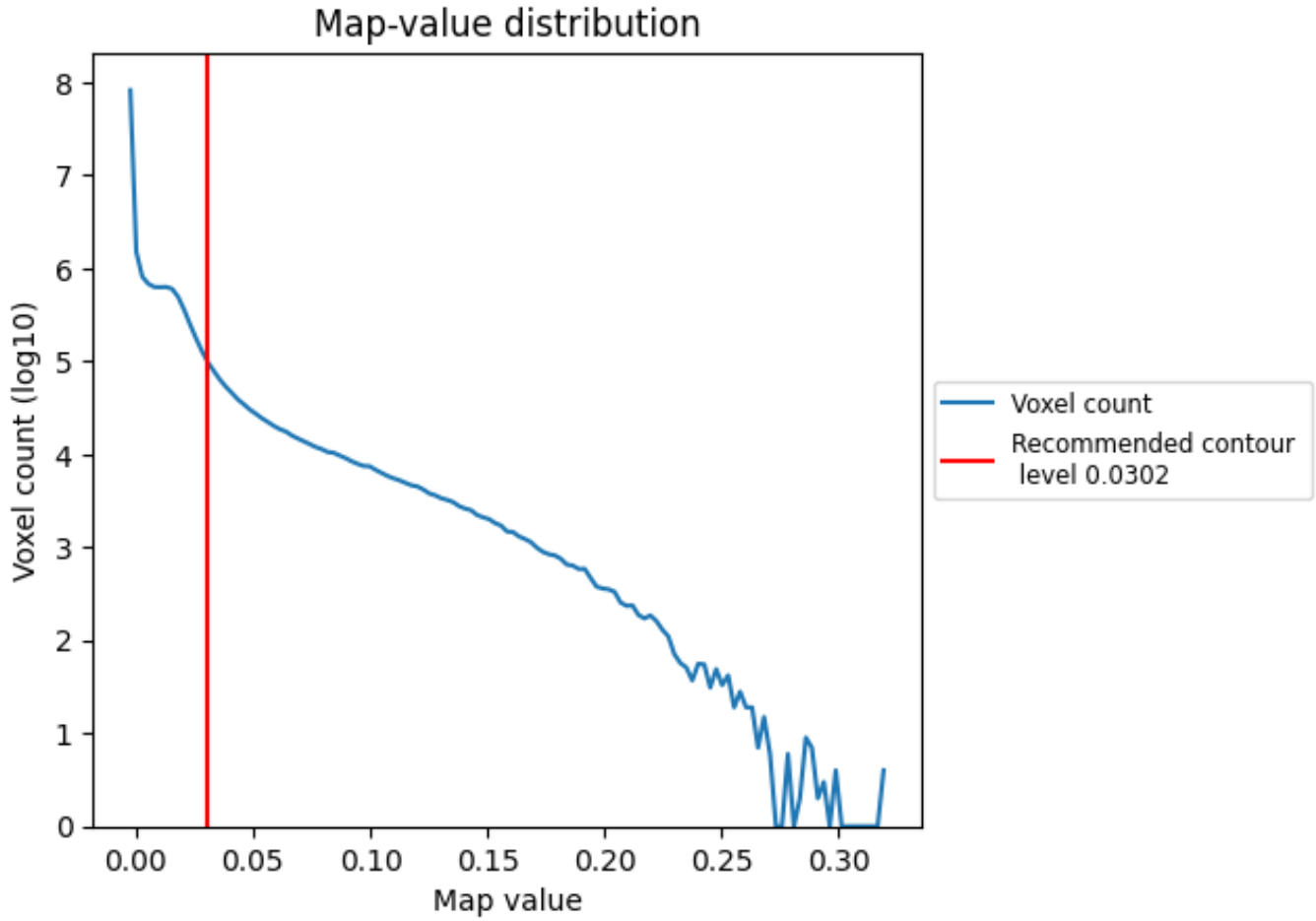
6.6 Mask visualisation (i)

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

7 Map analysis

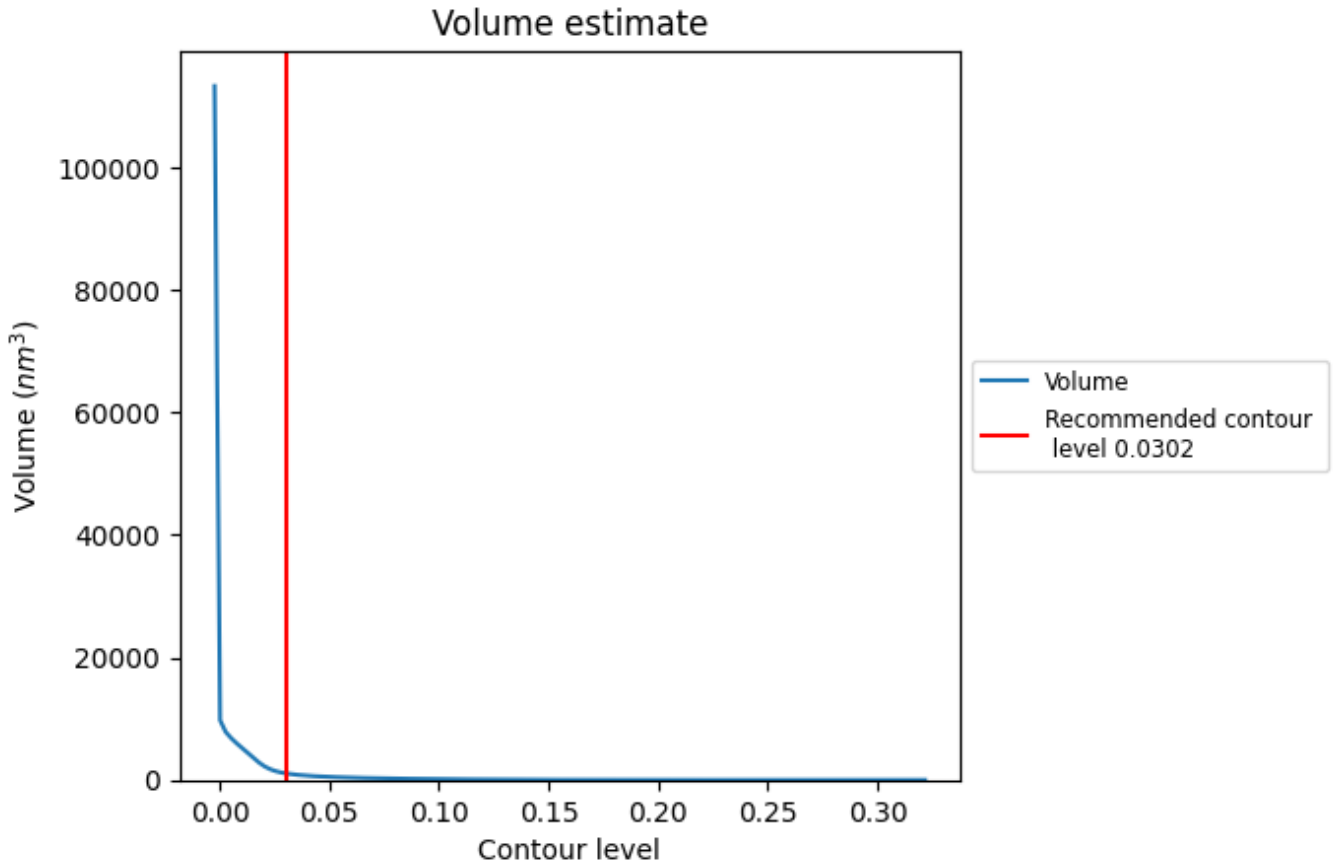
This section contains the results of statistical analysis of the map.

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.

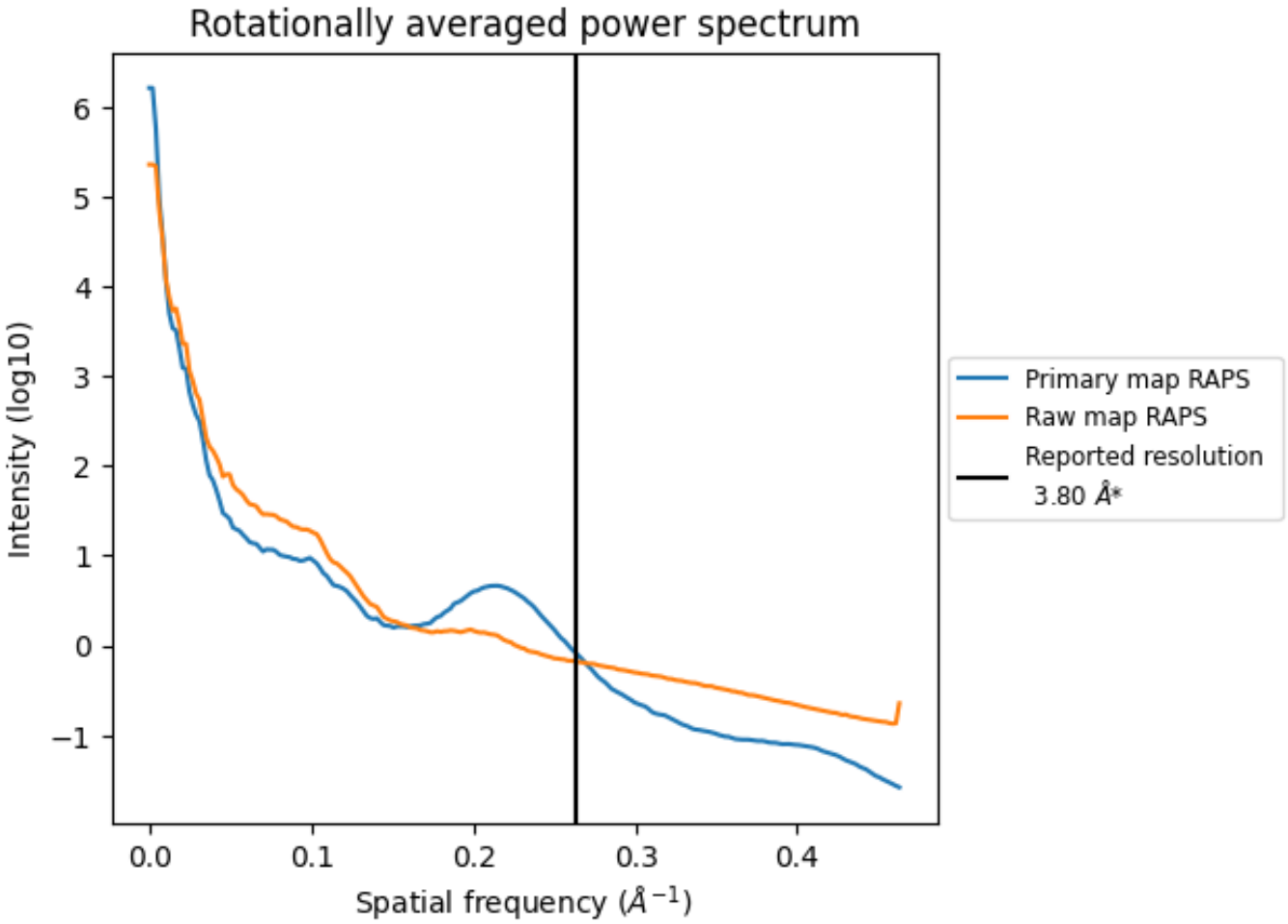
7.2 Volume estimate



The volume at the recommended contour level is 1077 nm^3; this corresponds to an approximate mass of 973 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

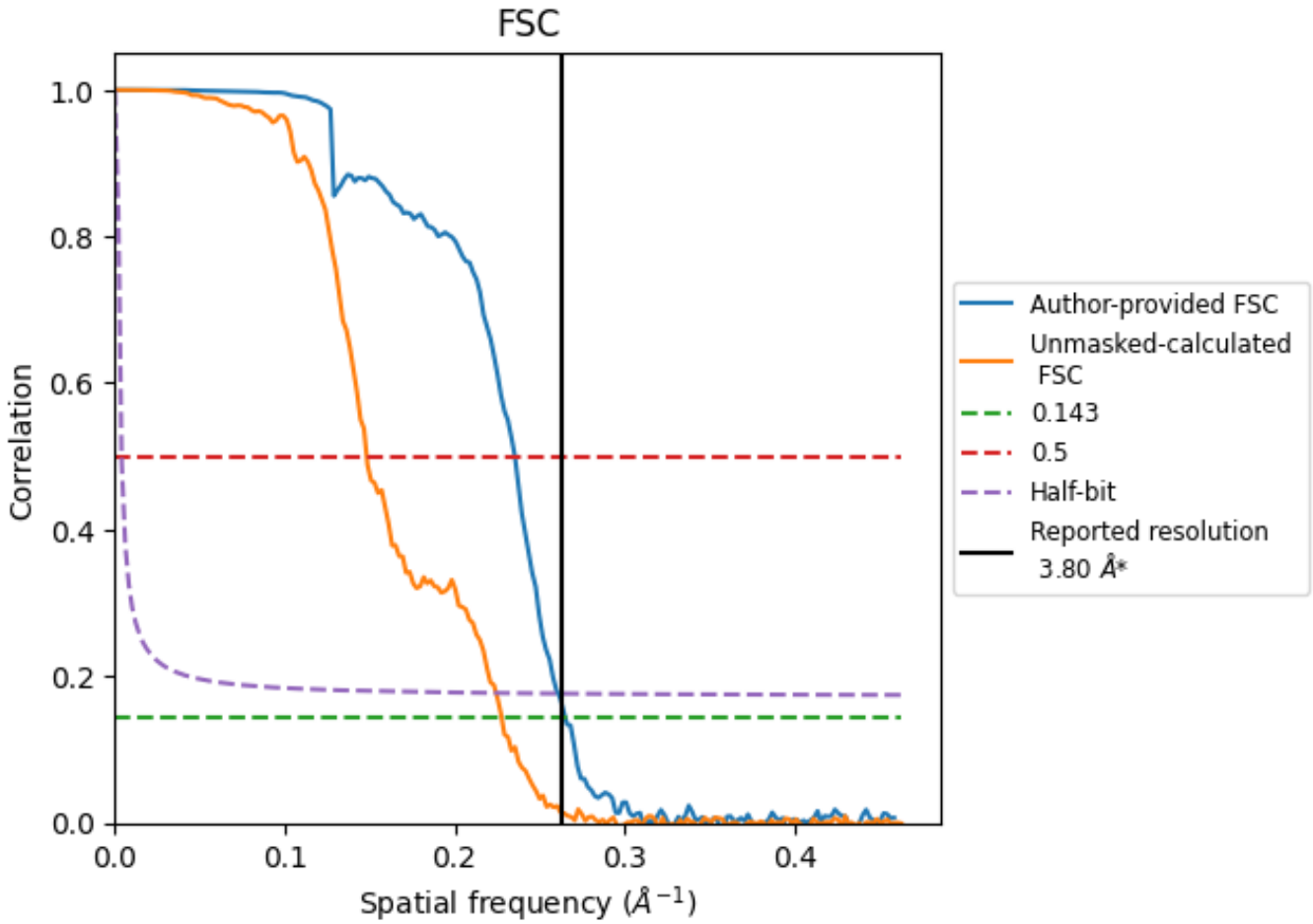


*Reported resolution corresponds to spatial frequency of 0.263 $Å^{-1}$

8 Fourier-Shell correlation

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 0.263 Å^{-1}

8.2 Resolution estimates (i)

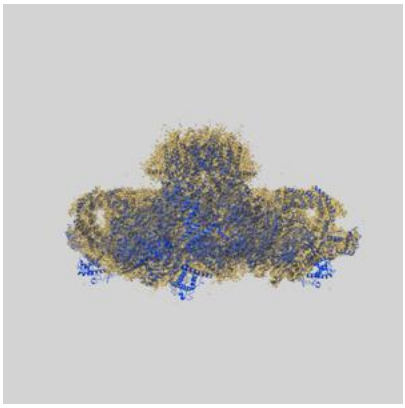
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.77	4.25	3.83
Unmasked-calculated*	4.39	6.74	4.45

*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 4.39 differs from the reported value 3.8 by more than 10 %

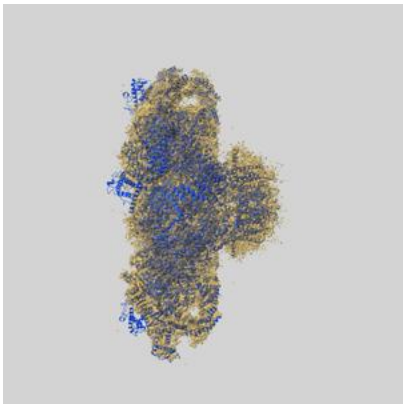
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-30067 and PDB model 6M2W. Per-residue inclusion information can be found in section 3 on page 8.

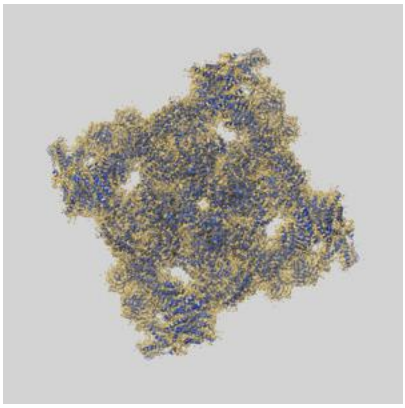
9.1 Map-model overlay



X



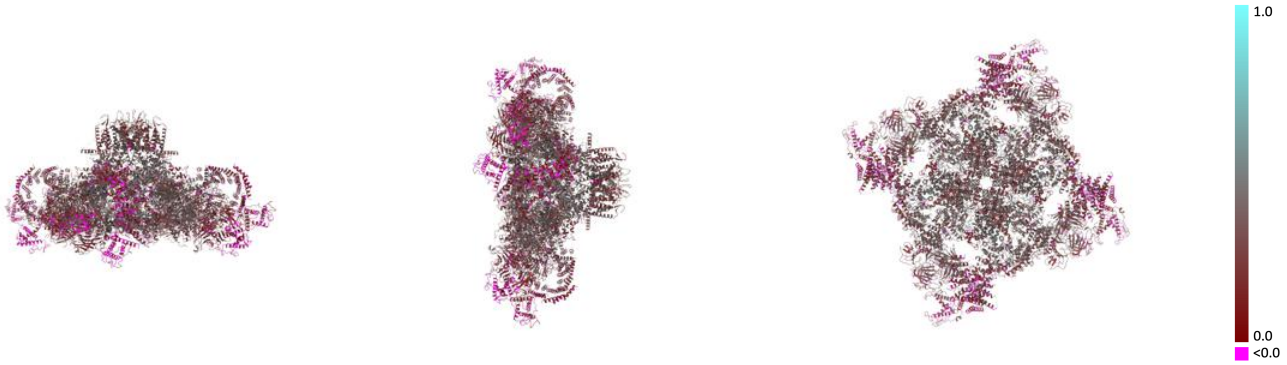
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0302 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.

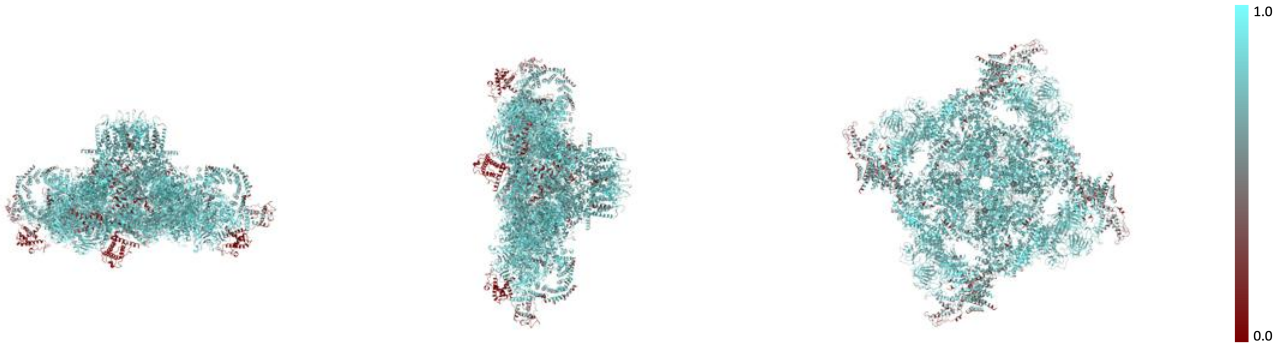
9.2 Q-score mapped to coordinate model (i)



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.

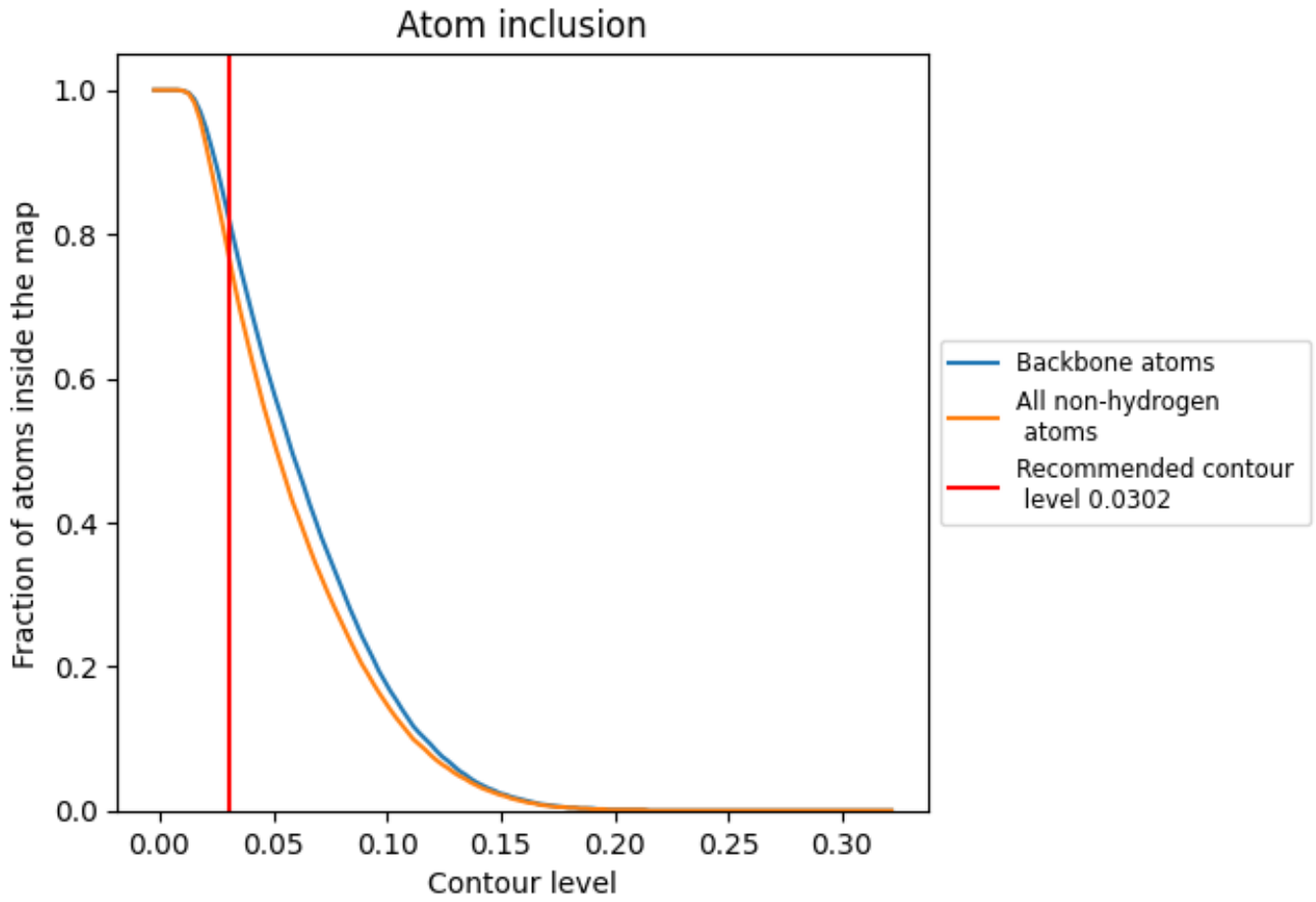
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0302).

9.4 Atom inclusion (i)



At the recommended contour level, 83% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.0302) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7730	0.3090
A	0.7800	0.3140
B	0.7710	0.2130
C	0.6120	0.2450
D	0.7790	0.3130
E	0.7840	0.2240
F	0.5780	0.1900
G	0.7790	0.3140
H	0.7830	0.2180
I	0.5810	0.1930
J	0.7800	0.3180
K	0.7760	0.2210
L	0.5770	0.1980