Full wwPDB EM Validation Report

Mar 19, 2024 – 11:44 PM JST

PDB ID	:	6JII
EMDB ID	:	EMD-9834
Title	:	Structure of RyR2 (F/A/C/L-Ca2+/apo-CaM-M dataset)
Authors	:	Gong, D.S.; Chi, X.M.; Zhou, G.W.; Huang, G.X.Y.; Lei, J.L.; Yan, N.
Deposited on	:	2019-02-21
Resolution	:	4.20 Å(reported)

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

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

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

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

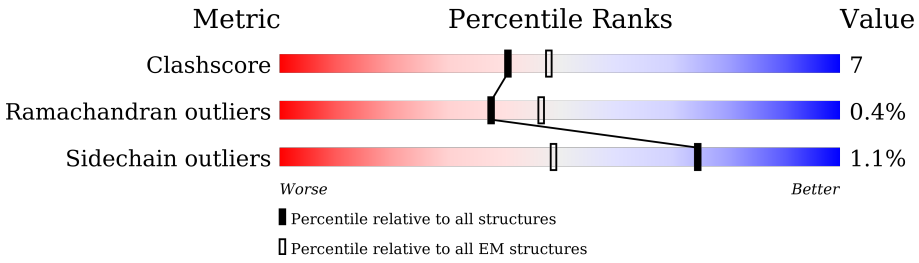
EMDB validation analysis	:	0.0.1.dev70
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry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

1 Overall quality at a glance

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

The reported resolution of this entry is 4.20 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=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	108	77% 22%
1	D	108	77% 22%
1	G	108	76% 23%
1	J	108	76% 23%
2	B	4968	11% 58% 13% 29%
2	E	4968	11% 58% 13% 29%
2	H	4968	11% 58% 13% 29%
2	K	4968	11% 58% 12% 29%

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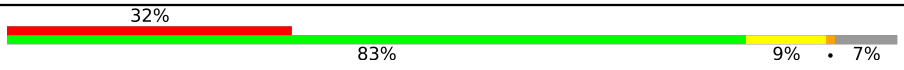
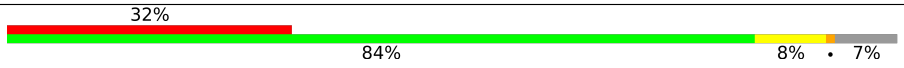
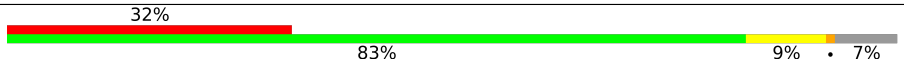
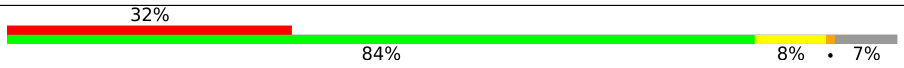
Mol	Chain	Length	Quality of chain
3	C	149	
3	F	149	
3	I	149	
3	L	149	

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 115028 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	107	Total	C	N	O	S	0	0
			819	516	144	155	4		
1	D	107	Total	C	N	O	S	0	0
			819	516	144	155	4		
1	G	107	Total	C	N	O	S	0	0
			819	516	144	155	4		
1	J	107	Total	C	N	O	S	0	0
			819	516	144	155	4		

- Molecule 2 is a protein called Ryr2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	3508	Total	C	N	O	S	0	0
			26813	17078	4599	4977	159		
2	E	3508	Total	C	N	O	S	0	0
			26813	17078	4599	4977	159		
2	H	3508	Total	C	N	O	S	0	0
			26813	17078	4599	4977	159		
2	K	3508	Total	C	N	O	S	0	0
			26813	17078	4599	4977	159		

- Molecule 3 is a protein called Calmodulin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	138	Total	C	N	O	S	0	0
			1078	668	176	225	9		
3	F	138	Total	C	N	O	S	0	0
			1078	668	176	225	9		
3	I	138	Total	C	N	O	S	0	0
			1078	668	176	225	9		
3	L	138	Total	C	N	O	S	0	0
			1078	668	176	225	9		

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

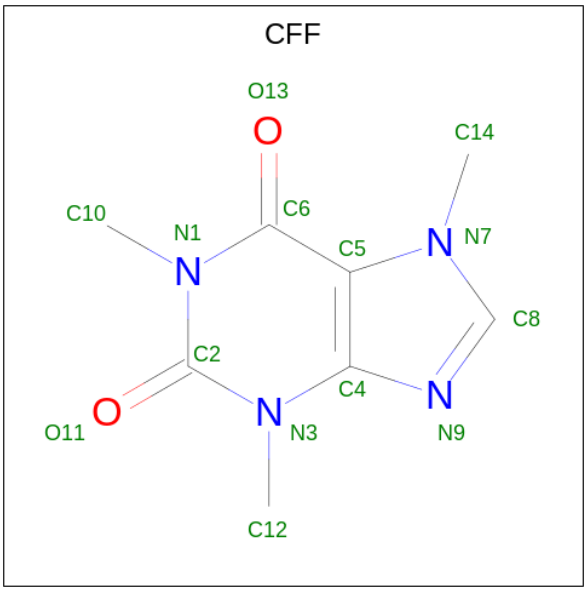
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
4	B	1	Total Zn 1 1	0
4	E	1	Total Zn 1 1	0
4	H	1	Total Zn 1 1	0
4	K	1	Total Zn 1 1	0

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

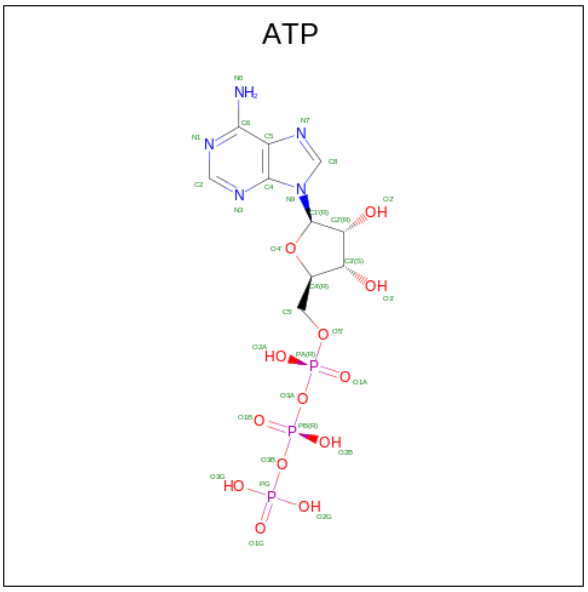
Mol	Chain	Residues	Atoms	AltConf
5	B	1	Total Ca 1 1	0
5	E	1	Total Ca 1 1	0
5	H	1	Total Ca 1 1	0
5	K	1	Total Ca 1 1	0

- Molecule 6 is CAFFEINE (three-letter code: CFF) (formula: $C_8H_{10}N_4O_2$).



Mol	Chain	Residues	Atoms	AltConf
6	B	1	Total C N O 14 8 4 2	0
6	E	1	Total C N O 14 8 4 2	0
6	H	1	Total C N O 14 8 4 2	0
6	K	1	Total C N O 14 8 4 2	0

- Molecule 7 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



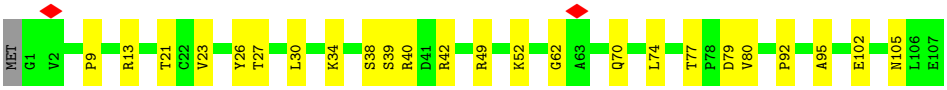
Mol	Chain	Residues	Atoms					AltConf
7	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
7	E	1	Total	C	N	O	P	0
			31	10	5	13	3	
7	H	1	Total	C	N	O	P	0
			31	10	5	13	3	
7	K	1	Total	C	N	O	P	0
			31	10	5	13	3	

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

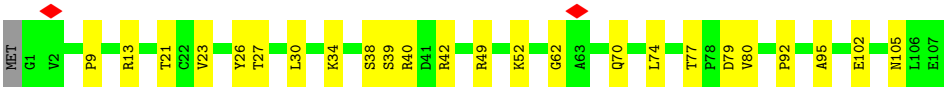
• Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

Chain A:



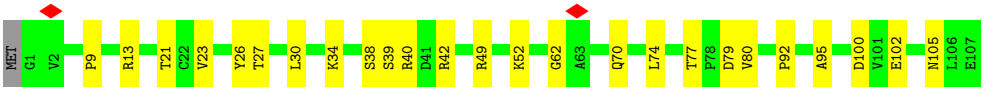
• Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

Chain D:



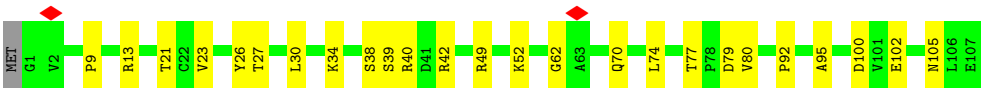
• Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

Chain G:



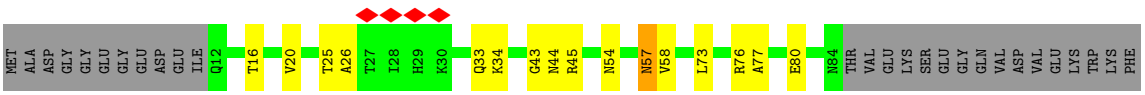
• Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B

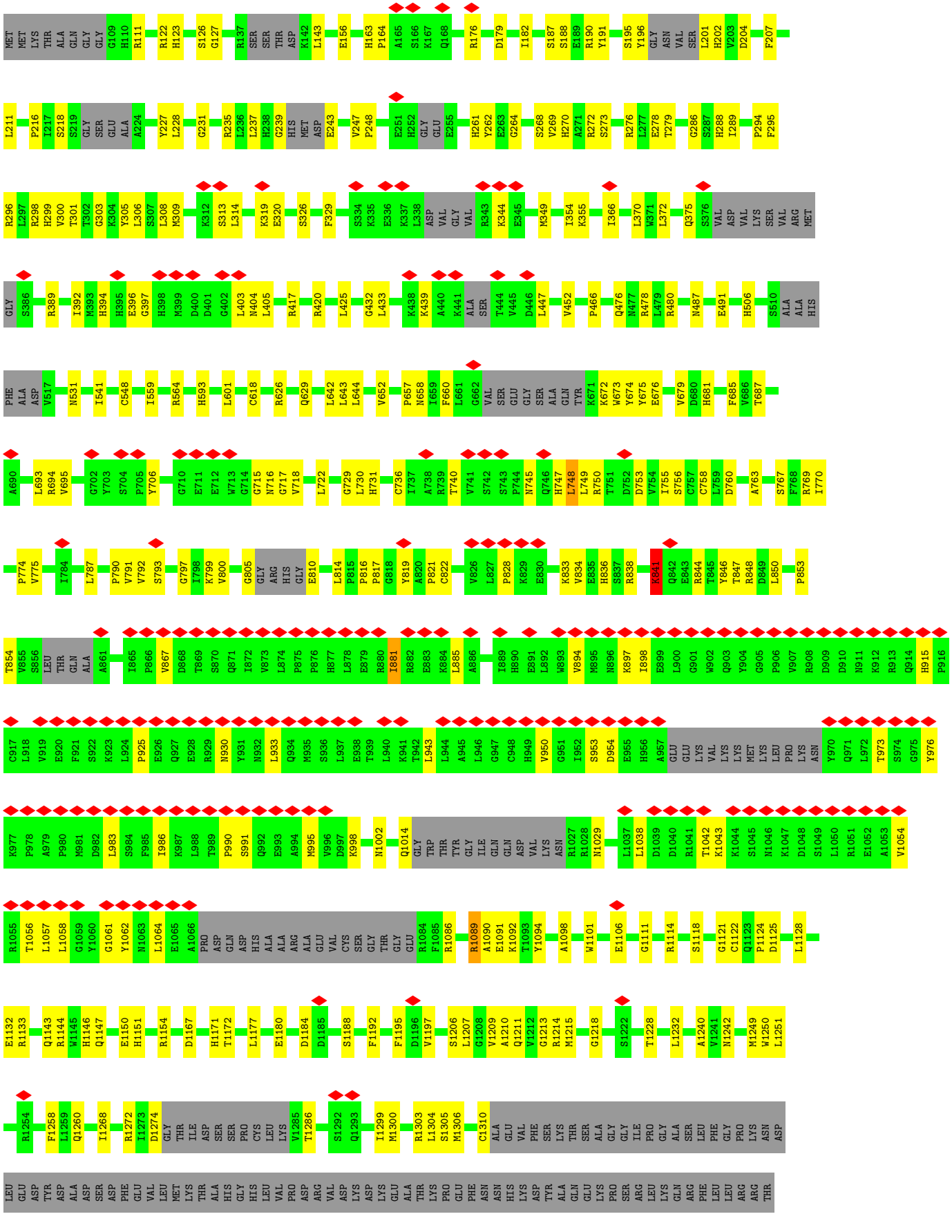
Chain J:

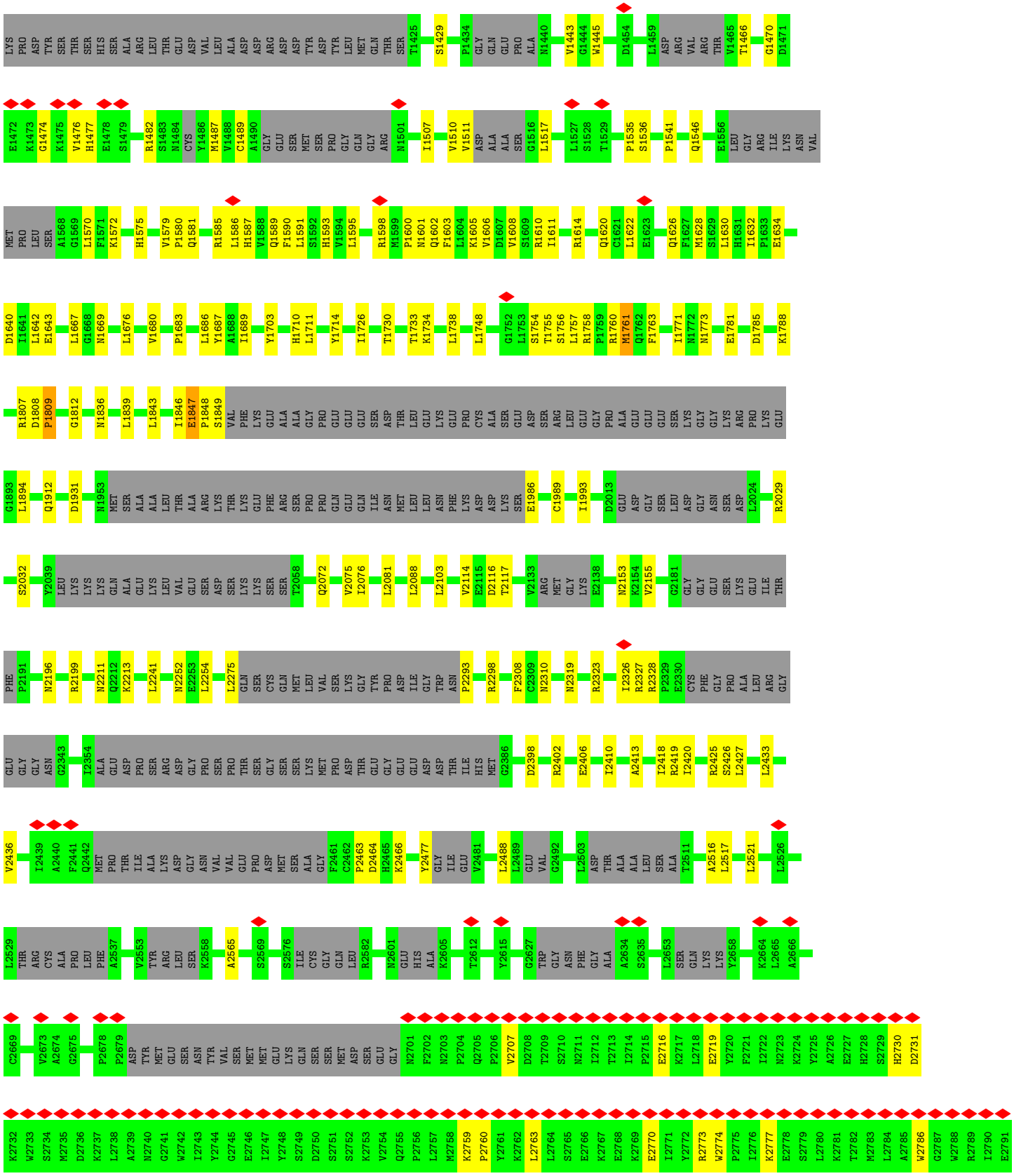


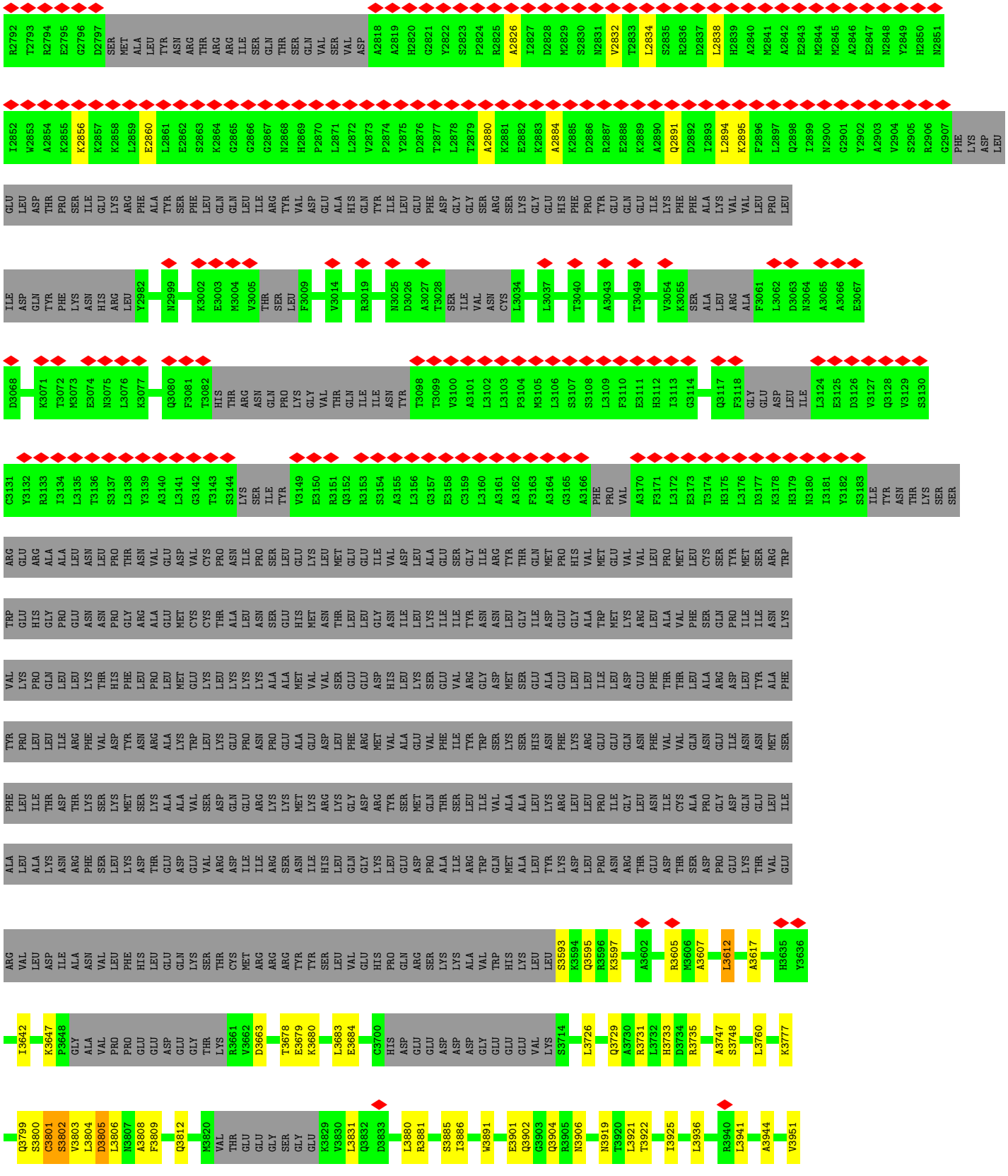
• Molecule 2: Ryr2

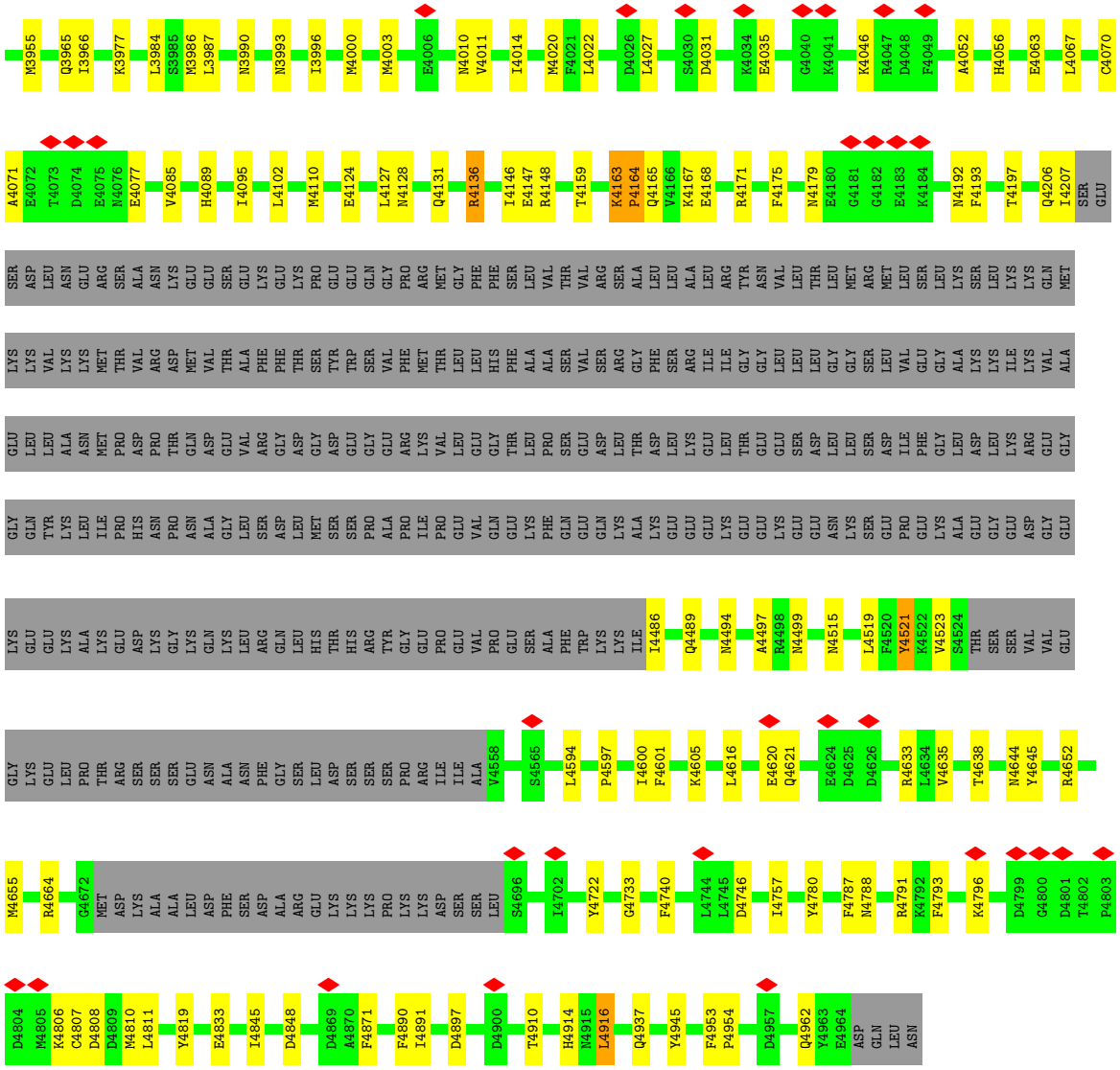
Chain B:





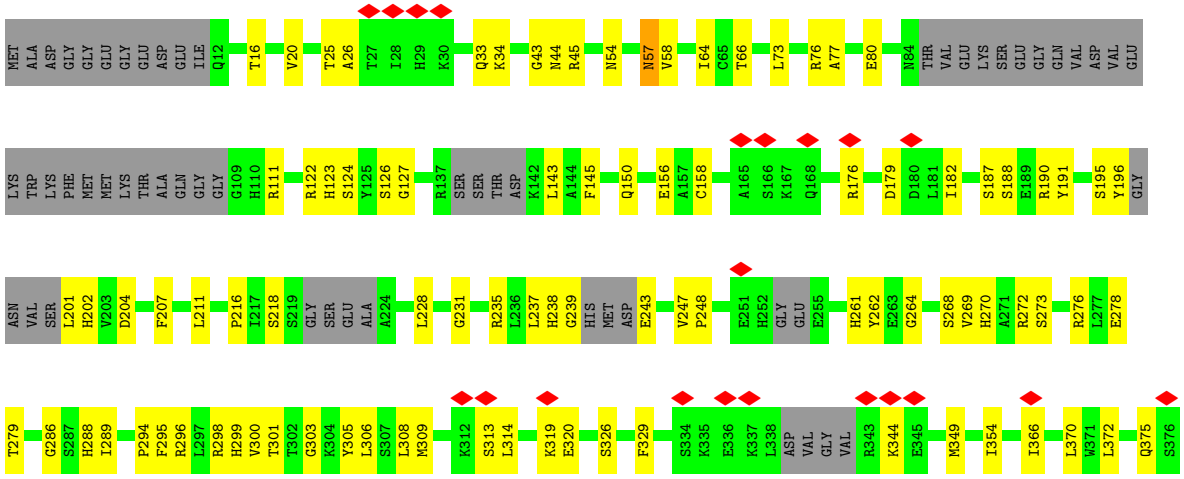


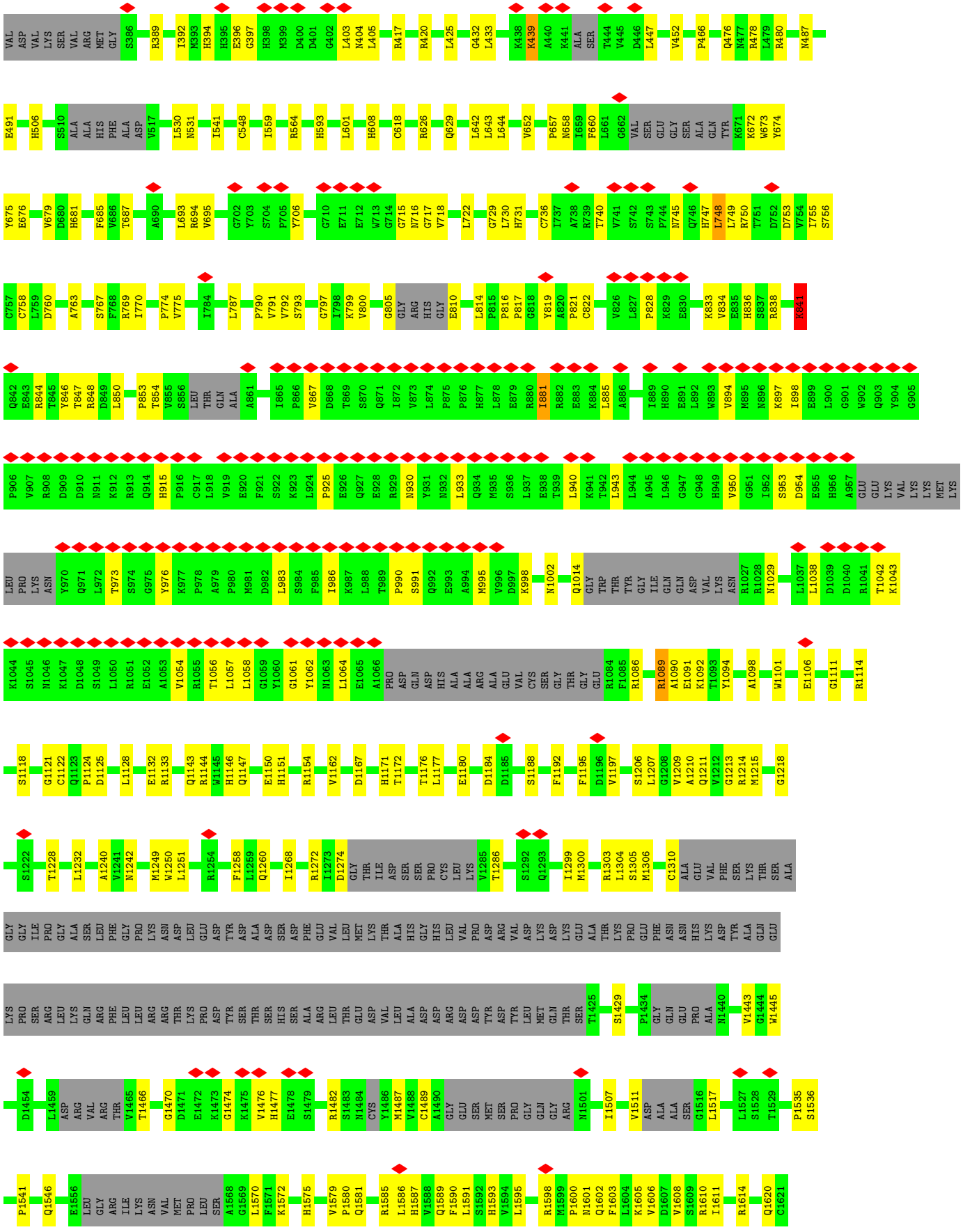

R2792 T2793 R2794 E2795 G2796 D2797 SER MET ALA LEU TYR ASN ARG THR ARG ARG ILE SER GLN THR SER GLN VAL SER VAL ASP A2818 A2819 H2820 G2821 Y2822 S2823 P2824 R2825 A2826 I2827 D2828 M2829 S2830 N2831 V2832 T2833 L2834 S2835 R2836 D2837 L2838 H2839 A2840 M2841 A2842 E2843 M2844 M2845 A2846 E2847 N2848 Y2849 H2850 N2851
I2852 W2853 A2854 K2855 K2856 K2857 K2858 L2859 E2860 L2861 E2862 S2863 K2864 G2865 G2866 G2867 N2868 H2869 P2870 L2871 L2872 V2873 P2874 Y2875 D2876 T2877 L2878 T2879 A2880 K2881 E2882 K2883 A2884 K2885 D2886 R2887 E2888 K2889 A2890 Q2891 D2892 I2893 L2894 K2895 F2896 L2897 Q2898 I2899 N2900 G2901 Y2902 A2903 V2904 S2905 R2906 G2907 PHE LYS ASP LEU
GLU LEU ASP THR PRO SER ILE GLU LYS ARG PHE ALA TYR SER PHE LEU GLN GLN LEU ILE ARG TYR VAL ASP GLU ALA HIS GLN TYR ILE LEU GLU PHE ASP GLY GLY SER ARG SER LYS GLY GLU HIS PHE PRO TYR GLU GLN GLU ILE LYS PHE PHE ALA LYS VAL VAL LEU PRO LEU
ILE ASP GLN TYR PHE LYS ASN HIS ARG LEU Y2982 N2999 K3002 E3003 M3004 V3005 THR SER LEU F3009 V3014 R3019 N3025 D3026 A3027 T3028 SER ILE VAL ASN CYS L3034 L3037 T3040 A3043 T3049 V3054 K3055 SER ALA LEU ARG ALA F3061 L3062 D3063 N3064 A3065 A3066 E3067
D3068 K3071 T3072 M3073 E3074 N3075 L3076 K3077 Q3080 F3081 T3082 HIS THR ARG ASN GLN PRO LYS GLY VAL THR GLN ILE ILE ASN TYR T3098 T3099 V3100 A3101 L3102 L3103 P3104 M3105 L3106 S3107 S3108 L3109 F3110 E3111 H3112 I3113 G3114 Q3117 F3118 GLY GLU ASP LEU ILE L3124 E3125 D3126 V3127 Q3128 V3129 S3130
C3131 Y3132 R3133 I3134 L3135 T3136 S3137 L3138 Y3139 A3140 L3141 G3142 T3143 S3144 LYS SER ILE TYR V3149 E3150 R3151 Q3152 R3153 S3154 A3155 L3156 G3157 E3158 C3159 L3160 A3161 A3162 F3163 A3164 G3165 A3166 PHE PRO VAL A3170 F3171 L3172 E3173 T3174 H3175 L3176 D3177 K3178 H3179 N3180 I3181 Y3182 S3183 ILE TYR ASN THR LYS SER SER
ARG GLU ARG ALA ALA LEU ASN LEU PRO THR ASN VAL GLU ASP VAL CYS PRO ASN ILE PRO SER LEU GLU GLU LYS LEU MET GLU GLU ILE VAL ASP LEU ALA GLU SER GLY ILE ARG TYR THR GLN MET PRO HIS VAL MET GLU VAL VAL LEU PRO MET LEU CYS SER TYR MET SER ARG TRP
TRP GLU HIS GLY PRO GLU ASN ASN PRO GLY ARG ALA GLU MET CYS CYS THR ALA LEU ASN SER GLU HIS MET ASN THR LEU LEU GLY ASN ILE LEU LYS ILE ILE TYR ASN ASN LEU GLY ILE ASP GLU GLY ALA TRP MET LYS ARG LEU ALA VAL PHE SER GLN PRO ILE ILE ASN LYS
VAL LYS PRO GLN LEU LEU LYS THR HIS PHE LEU PRO LEU MET GLU LYS LEU LYS LYS LYS ALA ALA MET VAL VAL SER GLU GLU ASP HIS LEU LYS SER GLU VAL ARG GLY ASP MET SER GLU ALA GLU LEU LEU ILE LEU ASP GLU PHE THR THR LEU ALA ARG ASP LEU TYR ALA PHE
TYR PRO LEU LEU ILE ARG PHE VAL ASP TYR ASN ARG ALA LYS TRP LEU LYS GLU PRO ASN PRO GLU ALA GLU ASP LEU PHE ARG MET VAL ALA GLU VAL PHE ILE TYR TRP SER LYS SER HIS ASN PHE LYS ARG GLU GLU GLN ASN PHE VAL VAL GLN ASN GLU ILE ASN ASN MET SER
PHE LEU ILE THR ASP THR LYS SER LYS MET SER LYS ALA ALA VAL SER ASP GLN GLU ARG LYS LYS MET LYS ARG LYS GLY ASP ARG TYR SER MET GLN THR SER LEU ILE VAL ALA ALA LEU LYS ARG LEU LEU PRO ILE GLY LEU ASN ILE CYS ALA PRO GLY ASP GLN GLU GLU ILE LEU
ALA LEU ALA LYS ASN ARG PHE SER LEU LYS ASP THR GLU ASP VAL ARG ASP ILE ILE ARG SER ASN ILE HIS LEU GLN GLY LYS LEU GLU ASP PRO ALA ILE ARG TRP GLN MET ALA ALA LEU TYR LYS ASP LEU PRO ASN ARG THR GLU ASP THR SER ASP PRO GLU LYS THR VAL GLU
ARG VAL LEU ASP ILE ALA ASN VAL LEU PHE HIS LEU GLU GLN LYS SER THR CYS MET ARG ARG ARG TYR TYR SER LEU LEU VAL GLU HIS PRO GLN ARG SER LYS LYS ALA VAL TRP HIS LYS LEU LEU S3593 K3594 Q3595 R3596 K3597 A3602 R3605 M3606 A3607 L3612 A3617 H3635 Y3636
I3642 K3647 P3648 GLY ALA VAL PRO PRO GLU GLU GLU ASP GLU GLY THR LYS R3661 V3662 D3663 T3678 E3679 K3680 L3683 E3684 C3700 HIS ASP GLU GLU ASP ASP ASP GLY GLU GLU VAL LYS S3714 L3726 Q3729 A3730 R3731 L3732 H3733 D3734 R3735 A3747 S3748 L3760 K3777
Q3799 S3800 C3801 S3802 V3803 L3804 D3805 L3806 N3807 A3808 F3809 Q3812 M3820 VAL THR GLU GLU GLY SER GLY GLU K3829 V3830 L3831 Q3832 D3833 L3880 R3881 S3885 I3886 W3891 E3901 Q3902 G3903 Q3904 R3905 N3906 N3919 T3920 L3921 T3922 I3925 L3936 R3940 L3941 A3944 V3951



• Molecule 2: Ryr2

Chain E:

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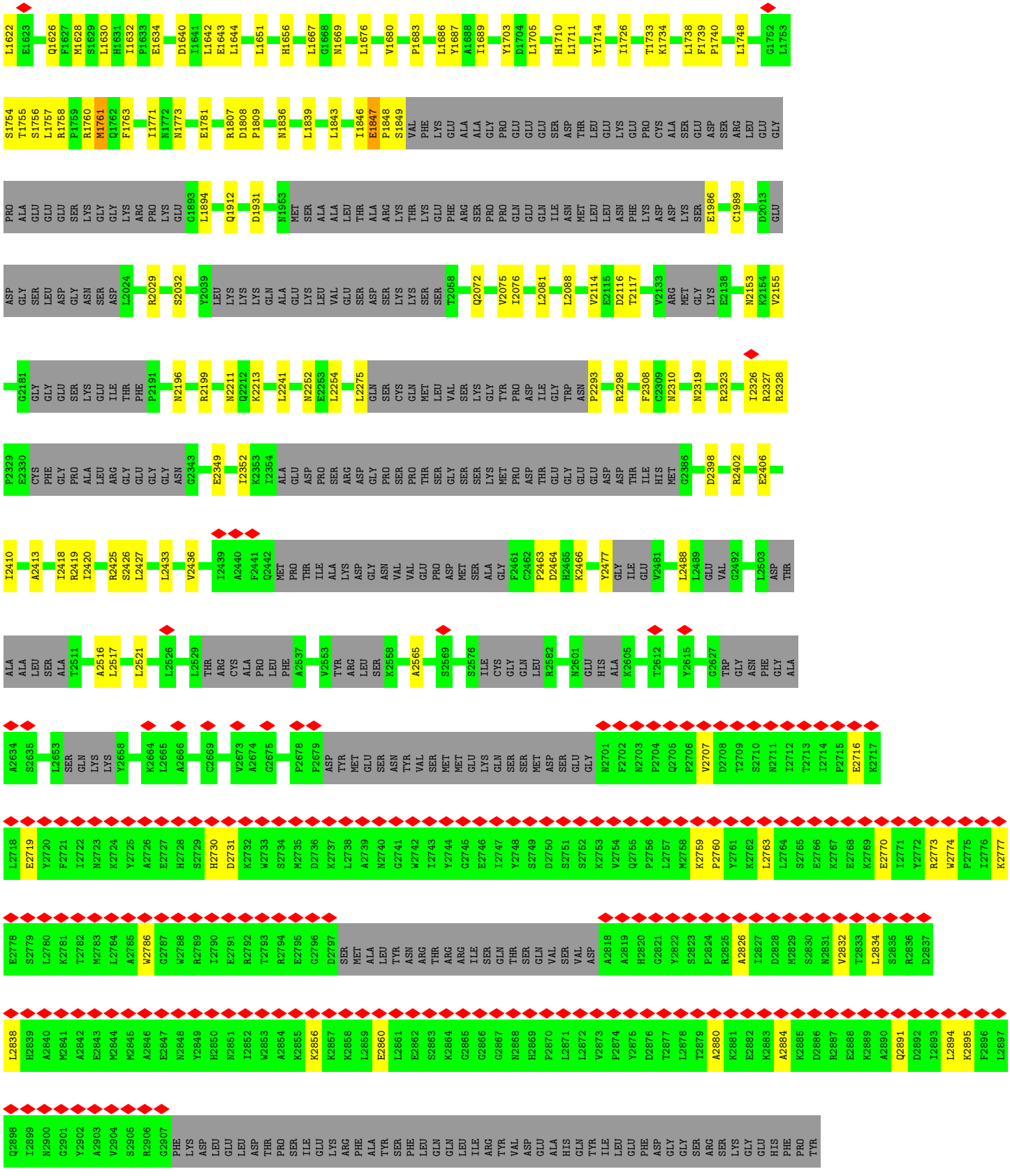
E491 H506 S510 ALA ALA HIS PHE ALA ASP V517 L530 N531 I541 C548 I559 R564 H593 L601 H608 C618 R626 Q629 L642 L643 L644 V652 P657 N658 I659 F660 L661 G662 VAL SER GLU GLY SER ALA GLN TYR K671 K672 W673 Y674
Y675 E676 V679 D680 H681 F685 V686 T687 A690 L693 R694 V695 G702 Y703 S704 P705 Y706 G710 E711 E712 W713 G714 G715 N716 G717 V718 L722 G729 L730 H731 C736 I737 A738 R739 T740 V741 S742 S743 P744 N745 Q746 H747 L748 L749 R750 T751 D752 D753 V754 I755 S756
C757 C758 L759 D760 A763 S767 F768 R769 I770 P774 V775 I784 L787 P790 V791 V792 S793 G797 I798 K799 V800 G805 GLY ARG HIS GLY E810 L814 P815 P816 P817 G818 Y819 A820 P821 C822 V826 L827 P828 K829 E830 K833 V834 E835 H836 S837 R838 K841
Q842 E843 R844 T845 Y846 T847 R848 D849 L850 P853 T854 V855 S856 LEU THR GLN ALA A861 I865 P866 V867 D868 T869 S870 Q871 I872 V873 L874 P875 P876 H877 L878 E879 R880 I881 R882 E883 K884 L885 A886 I889 H890 E891 L892 W893 V894 M895 N896 K897 I898 E899 L900 G901 W902 Q903 Y904 G905
P906 V907 R908 D909 D910 N911 K912 R913 Q914 H915 P916 C917 L918 V919 E920 F921 S922 K923 L924 P925 E926 Q927 E928 R929 N930 Y931 N932 L933 Q934 N935 S936 L937 E938 T939 L940 K941 T942 L943 L944 A945 L946 G947 C948 H949 V950 G951 I952 S953 D954 E955 H956 A957 GLU GLU LYS VAL LYS LYS MET LYS
LEU PRO LYS ASN Y970 Q971 L972 T973 S974 G975 Y976 K977 P978 A979 P980 M981 D982 L983 S984 F985 I986 K987 L988 T989 P990 S991 Q992 E993 A994 M995 V996 D997 K998 N1002 Q1014 GLY TRP THR TYR GLY ILE GLN GLN ASP VAL LYS ASN R1027 R1028 N1029 L1037 L1038 D1039 D1040 R1041 T1042 K1043
K1044 S1045 N1046 K1047 D1048 S1049 L1050 R1051 E1052 A1053 V1054 R1055 T1056 L1057 L1058 G1059 Y1060 G1061 Y1062 N1063 L1064 E1065 A1066 PRO ASP GLN ASP HIS ALA ALA ARG ALA GLU VAL CYS SER GLY THR GLY GLU R1084 F1085 R1086 R1089 A1090 E1091 K1092 T1093 Y1094 A1098 W1101 E1106 G1111 R1114
S1118 G1121 C1122 Q1123 P1124 D1125 L1128 E1132 R1133 Q1143 R1144 W1145 H1146 Q1147 E1150 H1151 R1154 V1162 D1167 H1171 T1172 T1176 L1177 E1180 D1184 D1185 S1188 F1192 F1195 D1196 V1197 S1206 L1207 G1208 V1209 A1210 Q1211 V1212 G1213 R1214 M1215 G1218
S1222 T1228 L1232 A1240 V1241 N1242 M1249 W1250 L1251 R1254 F1258 L1259 Q1260 I1268 R1272 I1273 D1274 GLY THR ILE ASP SER SER PRO CYS LEU LYS V1285 T1286 S1292 Q1293 I1299 M1300 R1303 L1304 S1305 M1306 C1310 ALA GLU VAL PHE SER LYS THR SER ALA
GLY GLY ILE PRO GLY ALA SER LEU PHE GLY PRO LYS ASN ASP LEU GLU ASP TYR ASP ALA ASP SER ASP PHE GLU VAL LEU LEU MET LYS THR ALA HIS GLY HIS LEU VAL PRO ASP ARG VAL ASP LYS ASP LYS GLU ALA THR LYS PRO ASP PHE PRO ASN HIS LYS ASP TYR ALA GLN GLU
LYS PRO SER ARG LEU LYS GLN ARG PHE LEU LEU ARG ARG THR LYS PRO ASP TYR SER THR SER HIS SER ASP ALA ARG LEU THR GLU ASP VAL LEU ALA ASP ASP ARG ASP ASP TYR ASP TYR LEU MET GLN THR SER T1425 S1429 P1434 GLY GLN GLU PRO ALA N1440 V1443 G1444 W1445
D1454 L1459 ASP ARG VAL ARG THR V1465 T1466 G1470 D1471 E1472 K1473 G1474 K1475 V1476 H1477 E1478 S1479 R1482 S1483 N1484 CYS Y1486 M1487 V1488 C1489 A1490 GLY GLU SER MET SER PRO GLY GLN GLY ARG N1501 I1507 V1511 ASP ALA ALA SER G1516 L1517 L1527 S1528 T1529 P1535 S1536
P1541 Q1546 E1556 LEU GLY ARG ILE LYS ASN VAL MET PRO LEU SER A1568 G1569 L1570 F1571 K1572 H1575 V1579 P1580 Q1581 R1585 L1586 H1587 V1588 Q1589 F1590 L1591 S1592 H1593 V1594 L1595 R1598 M1599 P1600 N1601 Q1602 F1603 L1604 K1605 V1606 D1607 V1608 S1609 R1610 I1611 R1614 Q1620 C1621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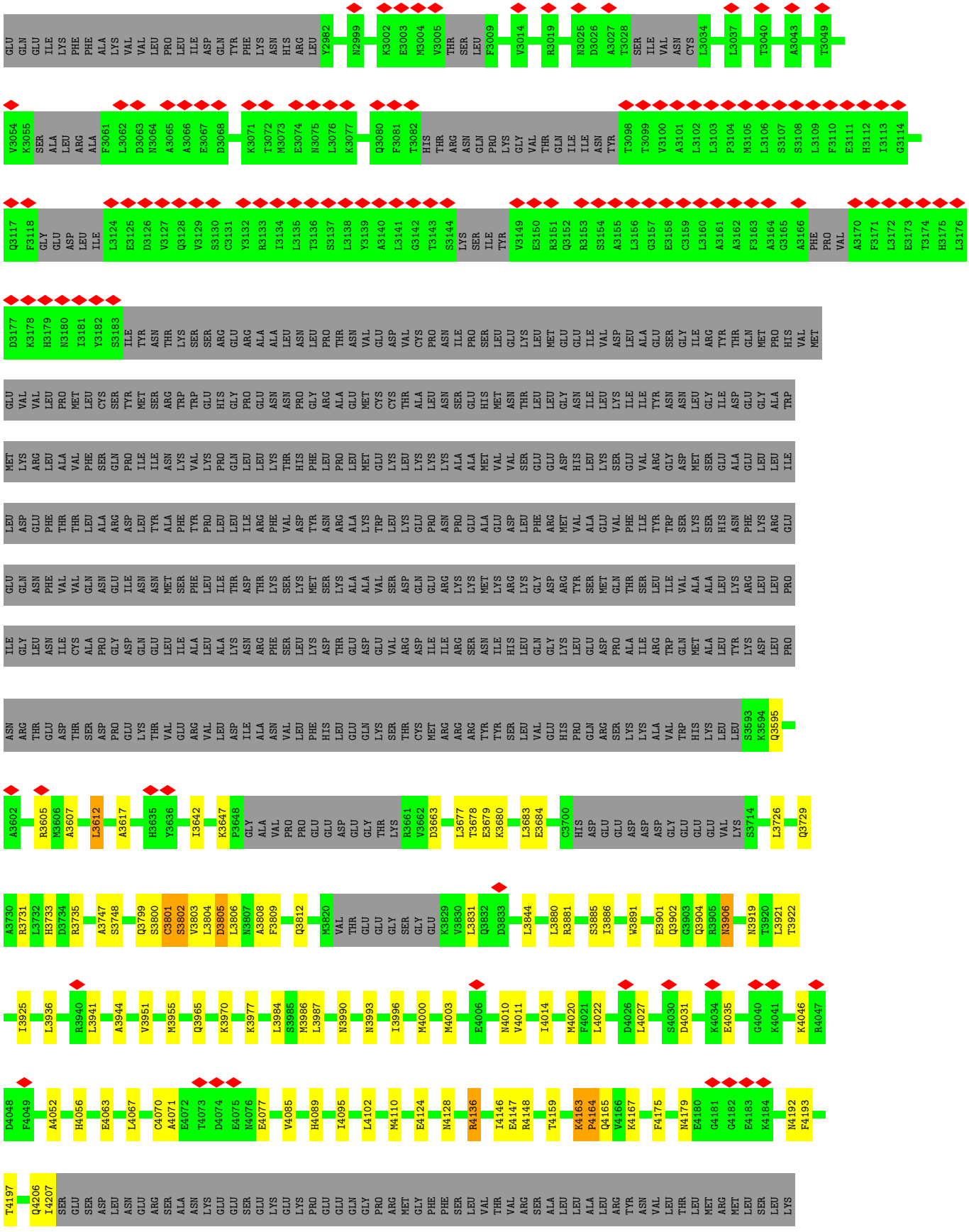
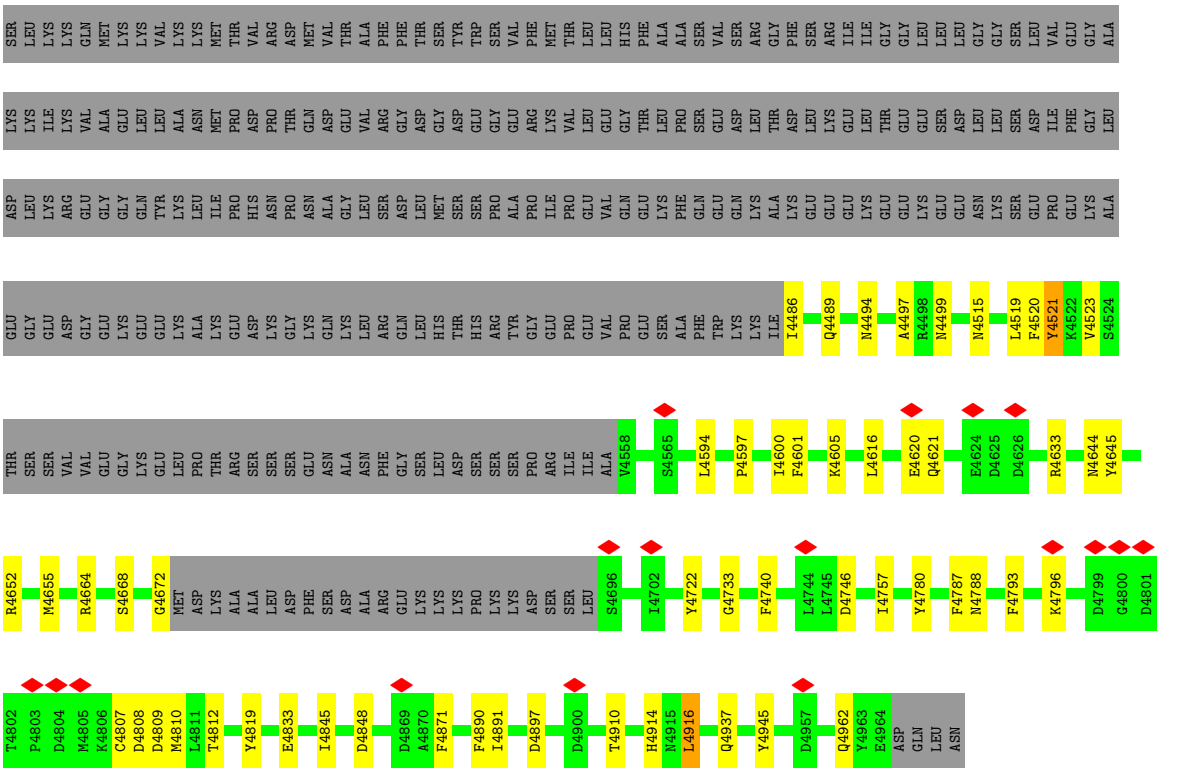
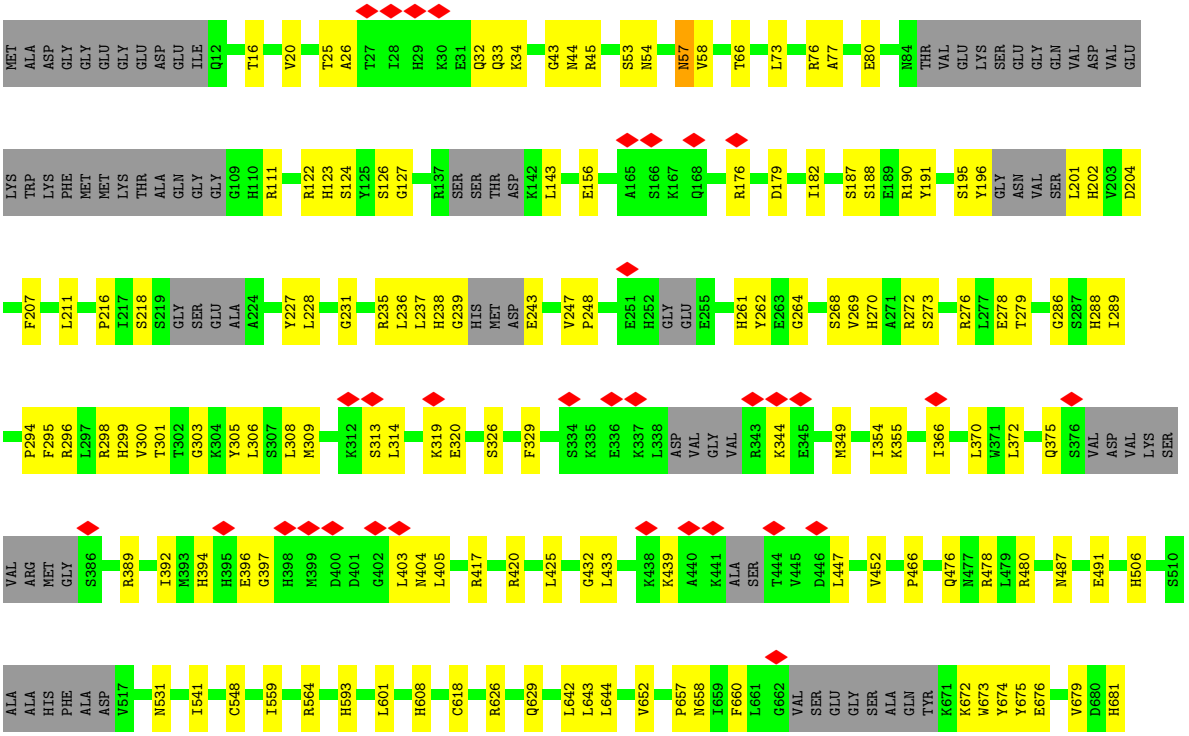
S1754 T1755 S1756 L1757 R1758 P1759 R1760 M1761 Q1762 F1763 I1771 N1772 N1773 E1781 R1807 D1808 P1809 N1836 L1839 L1843 I1846 E1847 P1848 S1849 VAL PHE LYS GLU GLU ALA ALA GLY PRO GLU GLU GLU SER ASP THR LEU GLU LYS GLU PRO CYS ALA SER GLU ASP SER ARG LEU GLU GLY
PRO ALA GLU GLU GLU SER LYS GLY GLY LYS ARG PRO LYS GLU G1893 L1894 Q1912 D1931 N1953 MET SER ALA ALA LEU THR ALA ARG LYS THR LYS GLU PHE ARG SER PRO PRO GLN GLU GLU GLN ILE ASN MET LEU LEU ASN PHE LYS ASP ASP LYS SER E1986 C1989 D2013 GLU
ASP GLY SER LEU ASP GLY ASN SER ASP L2024 R2029 S2032 Y2039 LEU LYS LYS LYS GLN ALA GLU LYS LEU VAL GLU SER ASP SER LYS LYS SER SER T2058 Q2072 V2075 I2076 L2081 L2088 V2114 E2115 D2116 T2117 W2133 ARG MET GLY LYS E2138 N2153 K2154 V2155
G2181 GLY GLY GLU SER LYS GLU ILE THR PHE P2191 N2196 R2199 N2211 Q2212 K2213 L2241 N2252 E2253 L2254 L2275 GLN SER CYS GLN MET LEU VAL SER LYS GLY TYR PRO ASP ILE GLY TRP ASN P2293 R2298 F2308 C2309 N2310 N2319 R2323 I2326 R2327 R2328
P2329 E2330 CYS PHE GLY PRO ALA LEU ARG GLY GLU GLY GLY ASN G2343 E2349 I2352 K2353 I2354 ALA GLU ASP PRO SER ARG ASP GLY PRO SER PRO THR SER GLY SER SER LYS MET PRO ASP THR GLU GLY GLU GLU ASP ASP THR ILE HIS MET G2386 D2398 R2402 E2406
I2410 A2413 I2418 R2419 I2420 R2425 S2426 L2427 L2433 V2436 I2439 A2440 F2441 Q2442 MET PRO THR ILE ALA LYS ASP GLY ASN VAL VAL GLU PRO ASP MET SER ALA GLY F2461 C2462 P2463 D2464 H2465 K2466 Y2477 GLY ILE GLU V2481 L2488 L2489 GLU VAL G2492 L2503 ASP THR
ALA ALA LEU SER ALA T2511 A2516 L2517 L2521 L2526 L2529 THR ARG CYS ALA PRO LEU PHE A2537 V2553 TYR ARG LEU SER K2568 A2565 S2569 S2576 ILE CYS GLY GLN LEU R2582 N2601 GLU HIS ALA K2605 T2612 Y2615 G2627 TRP GLY ASN PHE GLY ALA
A2634 S2635 L2653 SER GLN LYS LYS Y2658 K2664 L2665 A2666 C2669 V2673 A2674 G2675 P2678 P2679 ASP TYR MET GLU SER ASN TYR VAL SER MET MET GLU LYS GLN SER SER MET ASP SER GLU GLY N2701 F2702 N2703 P2704 Q2705 P2706 V2707 D2708 T2709 S2710 N2711 I2712 T2713 I2714 P2715 E2716 K2717
L2718 E2719 Y2720 F2721 I2722 N2723 K2724 Y2725 A2726 E2727 H2728 S2729 H2730 D2731 K2732 W2733 S2734 M2735 D2736 K2737 L2738 A2739 N2740 G2741 W2742 I2743 Y2744 G2745 E2746 I2747 Y2748 S2749 D2750 S2751 S2752 K2753 V2754 Q2755 P2756 L2757 M2758 K2759 P2760 Y2761 K2762 L2763 L2764 S2765 E2766 K2767 E2768 K2769 E2770 I2771 Y2772 R2773 W2774 P2775 I2776 K2777
E2778 S2779 L2780 K2781 T2782 M2783 L2784 A2785 W2786 G2787 W2788 R2789 I2790 E2791 R2792 T2793 R2794 E2795 G2796 D2797 SER MET ALA LEU TYR ASN ARG THR ARG ARG ILE SER GLN THR SER GLN VAL SER VAL ASP A2818 A2819 H2820 G2821 Y2822 S2823 P2824 R2825 A2826 I2827 D2828 M2829 S2830 N2831 V2832 T2833 L2834 S2835 R2836 D2837
L2838 H2839 A2840 M2841 A2842 E2843 M2844 M2845 A2846 E2847 N2848 Y2849 H2850 N2851 I2852 W2853 A2854 K2855 K2856 K2857 K2858 L2859 E2860 L2861 E2862 S2863 K2864 G2865 G2866 G2867 N2868 H2869 P2870 L2871 L2872 V2873 P2874 Y2875 D2876 T2877 L2878 T2879 A2880 K2881 E2882 K2883 A2884 K2885 D2886 R2887 E2888 K2889 A2890 Q2891 D2892 I2893 L2894 K2895 F2896 L2897
Q2898 I2899 N2900 G2901 Y2902 A2903 V2904 S2905 R2906 G2907 PHE LYS ASP LEU GLU LEU ASP THR PRO SER ILE GLU LYS ARG PHE ALA TYR SER PHE LEU GLN GLN LEU ILE ARG TYR VAL ASP GLU ALA HIS GLN TYR ILE LEU GLU PHE ASP GLY GLY SER ARG SER LYS GLY GLU HIS PHE PRO TYR

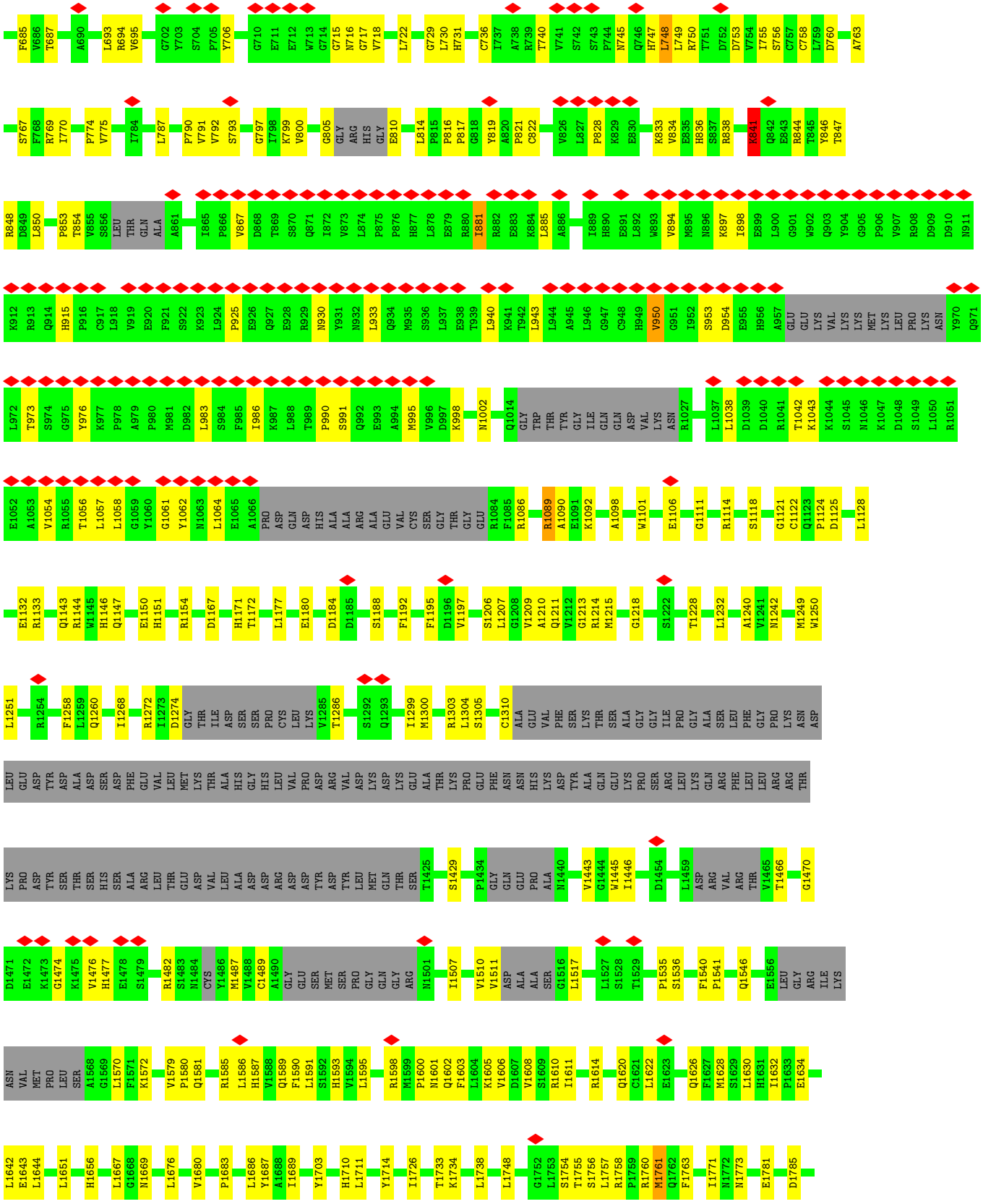


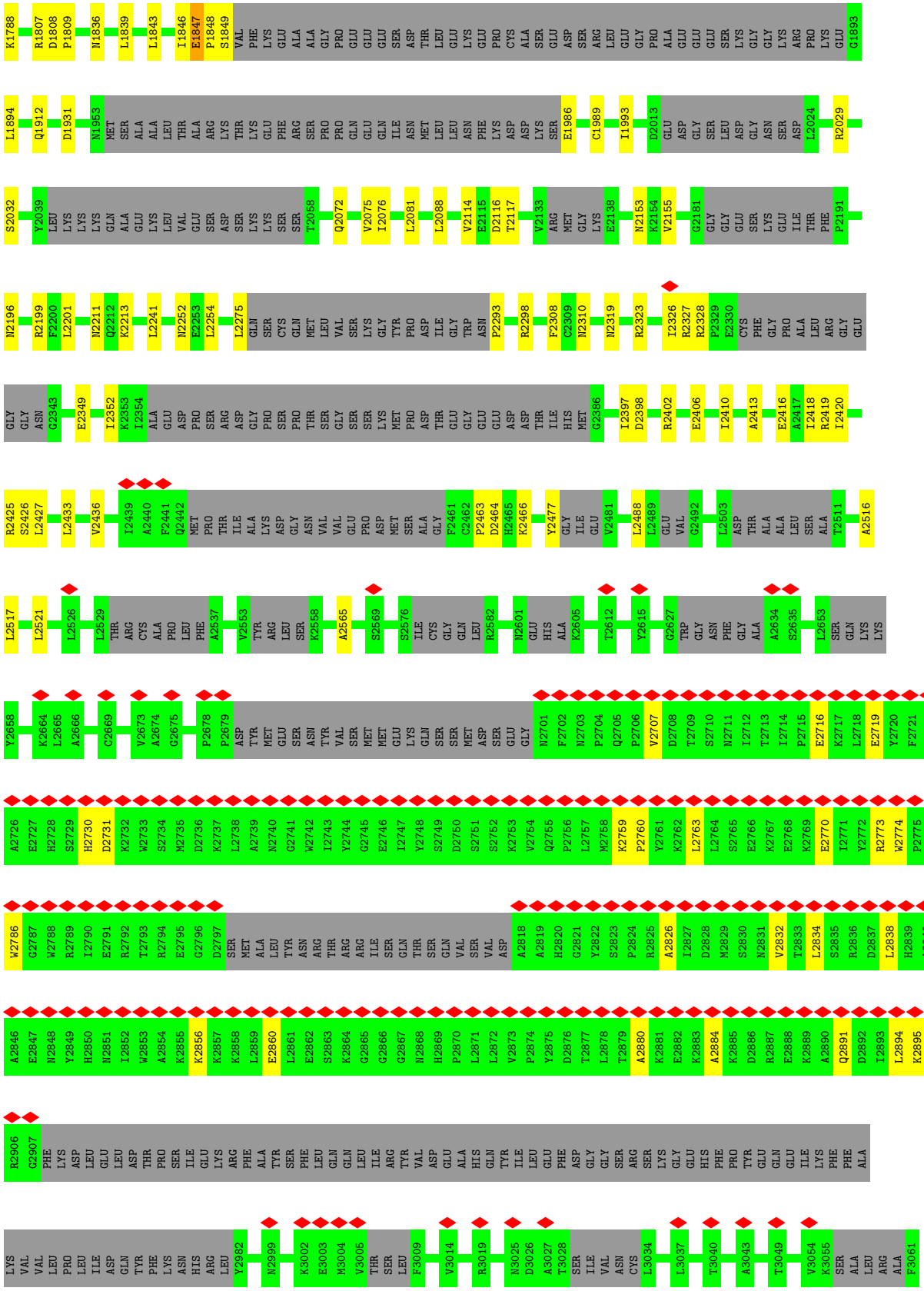


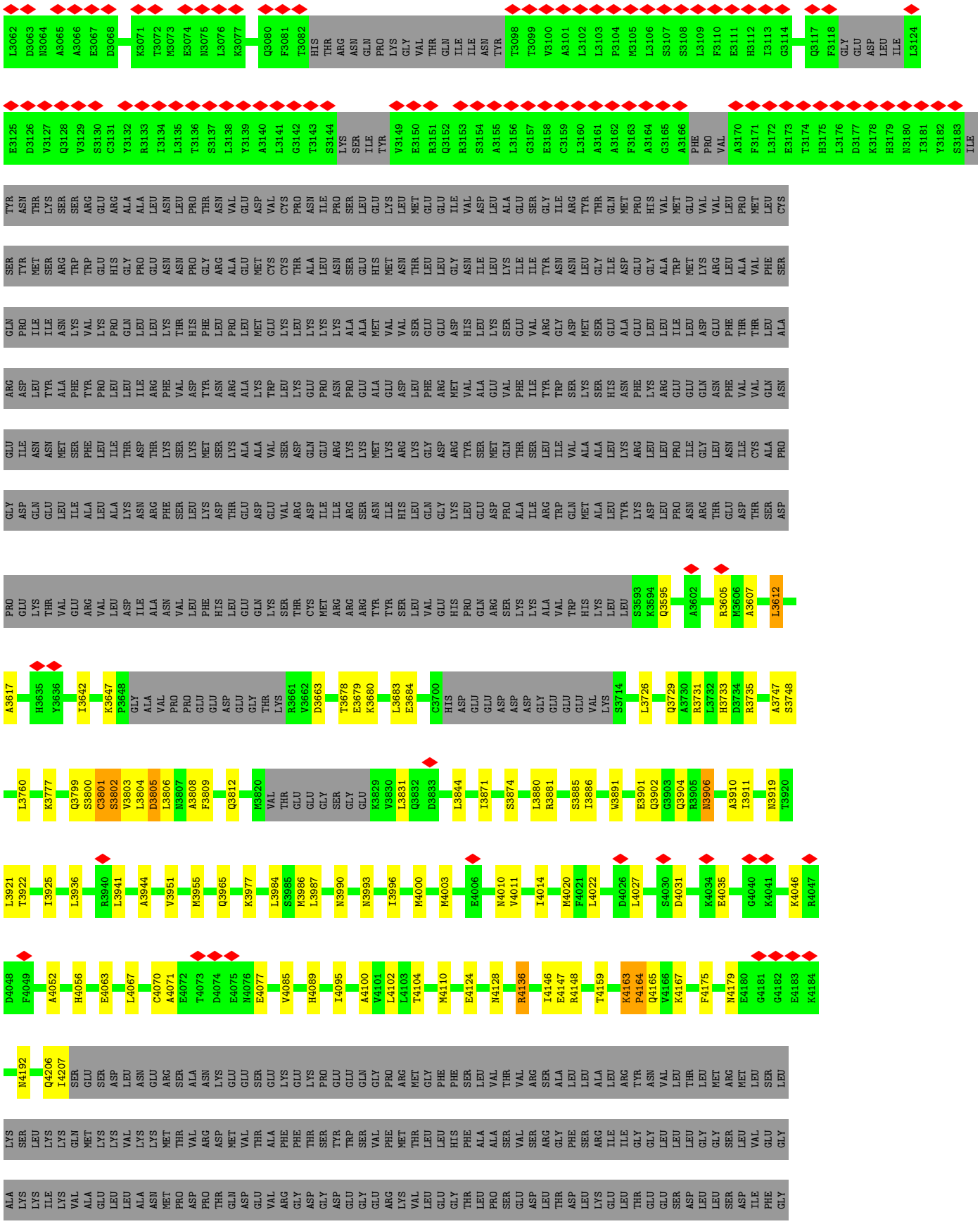
• Molecule 2: Ryr2

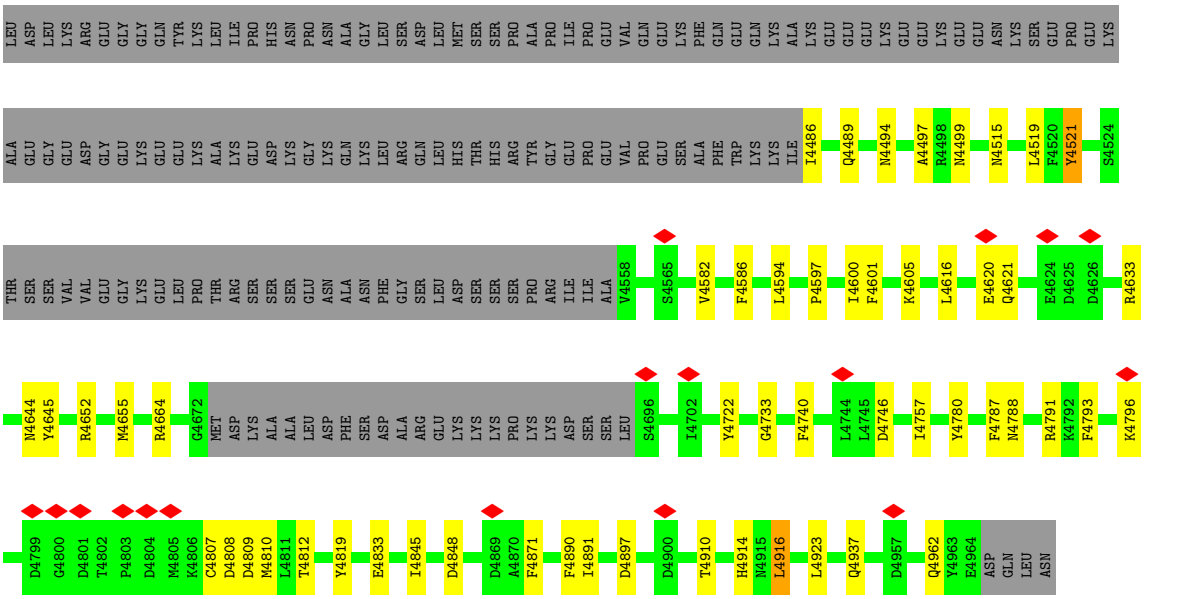
Chain H:



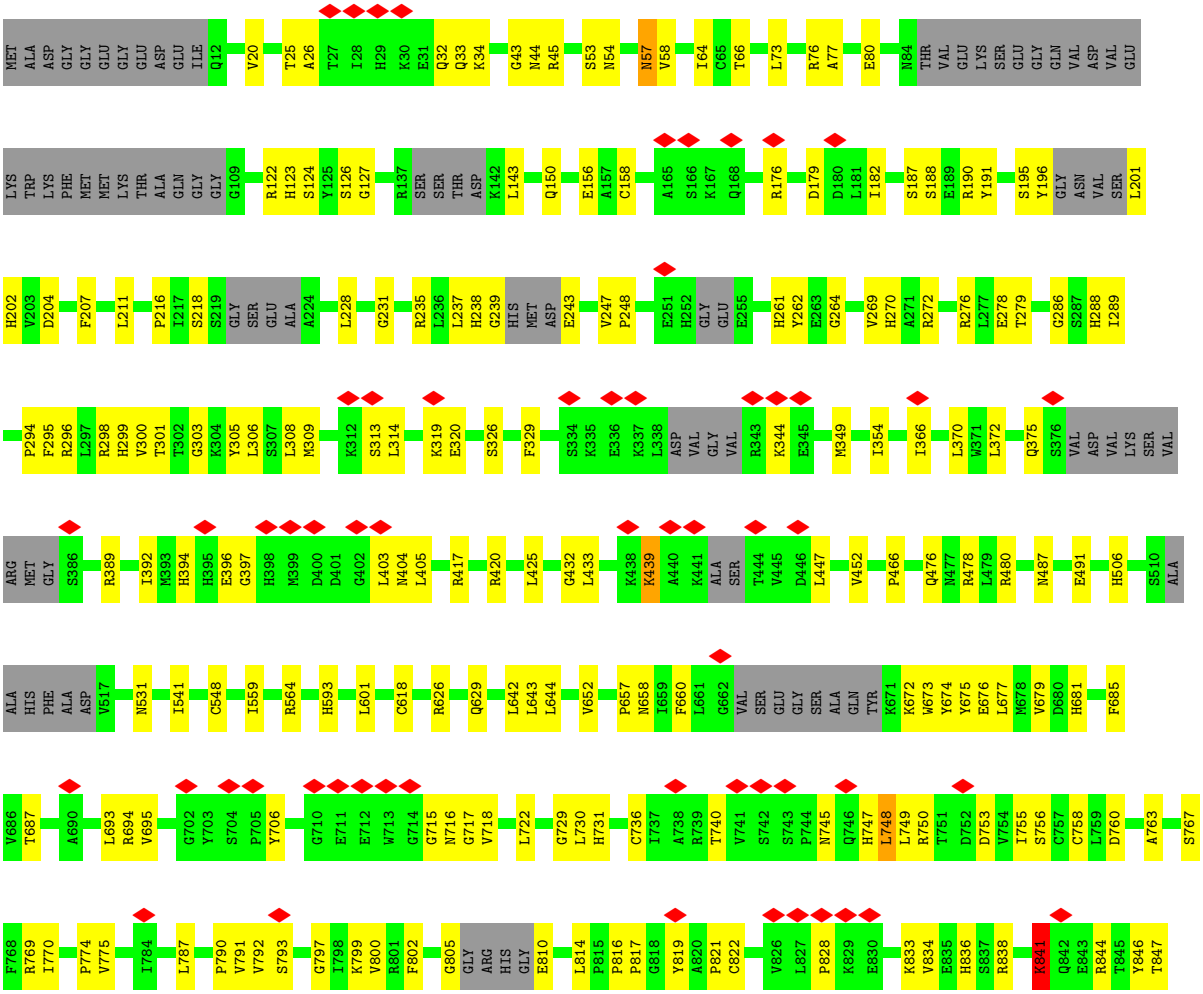


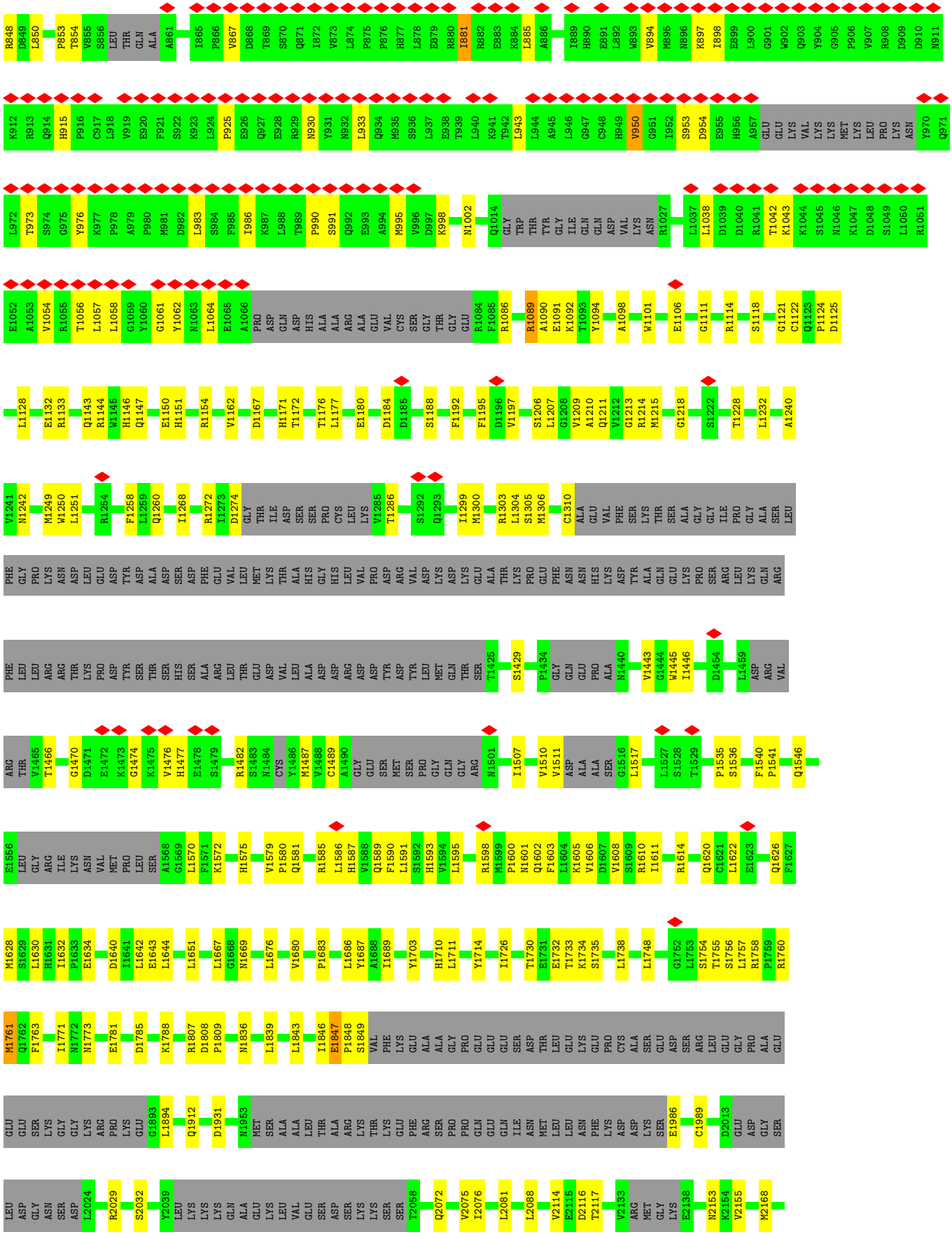


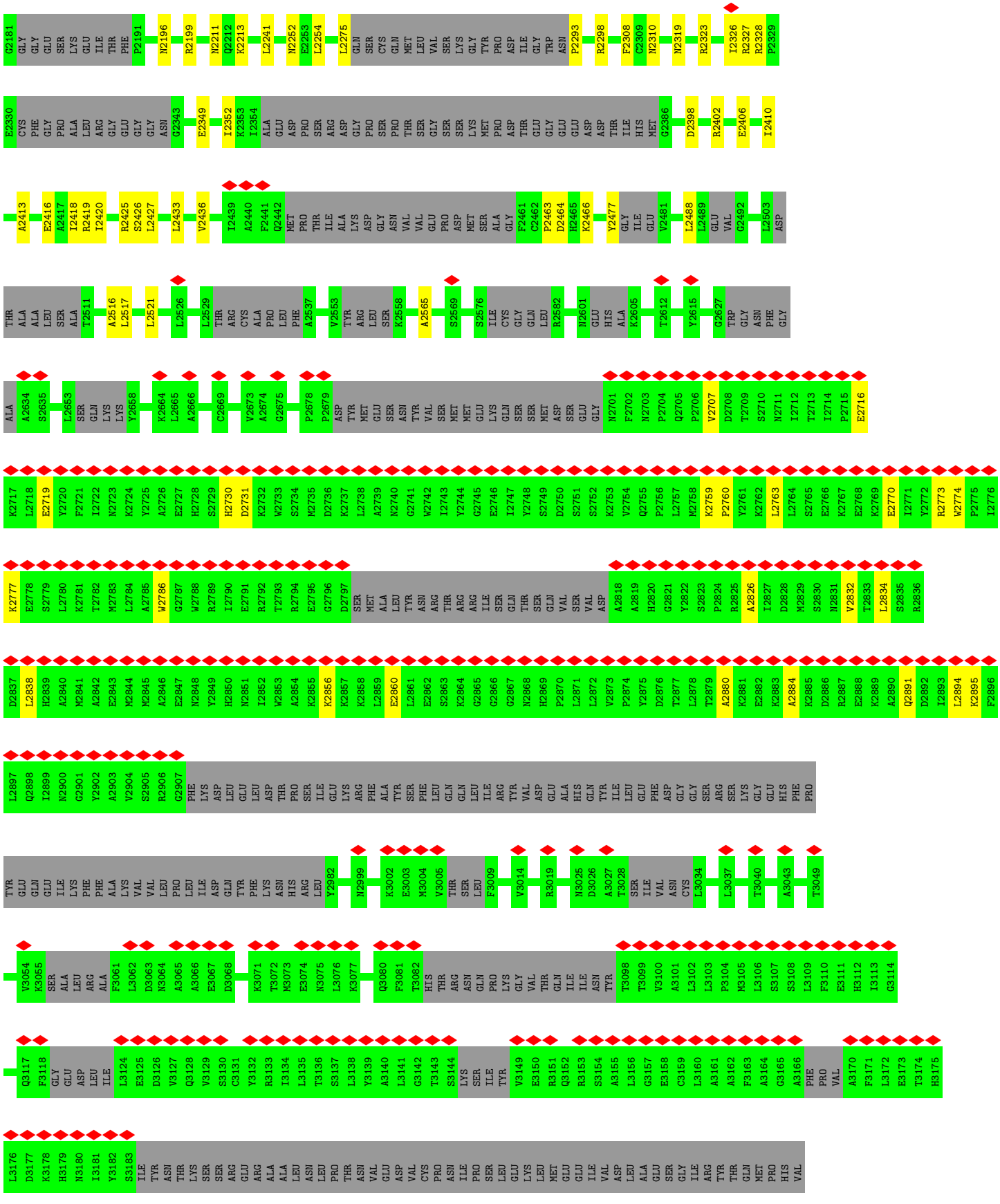

L3062 D3063 N3064 A3065 A3066 E3067 D3068 K3071 T3072 M3073 E3074 N3075 L3076 K3077 Q3080 F3081 T3082 HIS THR ARG ASN GLN PRO LYS GLY VAL THR GLN ILE ILE ASN TYR T3098 T3099 V3100 A3101 L3102 L3103 P3104 M3105 L3106 S3107 S3108 L3109 F3110 E3111 H3112 I3113 G3114 Q3117 F3118 GLY GLU ASP LEU ILE L3124
E3125 D3126 V3127 Q3128 V3129 S3130 C3131 Y3132 R3133 I3134 L3135 T3136 S3137 L3138 Y3139 A3140 L3141 G3142 T3143 S3144 LYS SER ILE TYR V3149 E3150 R3151 Q3152 R3153 S3154 A3155 L3156 G3157 E3158 C3159 L3160 A3161 A3162 F3163 A3164 G3165 A3166 PHE PRO VAL A3170 F3171 L3172 E3173 T3174 H3175 L3176 D3177 K3178 H3179 N3180 I3181 Y3182 S3183 ILE
TYR ASN THR LYS SER SER ARG GLU ARG ALA ALA LEU ASN LEU PRO THR ASN VAL GLU ASP VAL CYS PRO ASN ILE PRO SER LEU GLU LYS LEU MET GLU GLU ILE VAL ASP LEU ALA GLU SER GLY ILE ARG TYR THR GLN MET PRO HIS VAL MET GLU VAL VAL LEU PRO MET LEU CYS
SER TYR MET SER ARG TRP TRP GLU HIS GLY PRO GLU ASN ASN PRO GLY ARG ALA GLU MET CYS CYS THR ALA LEU ASN SER GLU HIS MET ASN THR LEU LEU LEU GLY ASN ILE LEU LYS ILE ILE TYR ASN ASN LEU GLY ILE ASP GLU GLY ALA TRP MET LYS ARG LEU ALA VAL PHE SER
GLN PRO ILE ILE ASN LYS VAL LYS PRO GLN LEU LEU LEU ILE LYS THR HIS PHE LEU PRO LEU MET GLU LYS LEU LYS LYS LYS ALA ALA MET VAL VAL SER GLU LYS GLU ALA GLU LEU ALA GLU LEU LEU ILE LEU ASP GLU PHE THR THR LEU ALA
ARG ASP LEU TYR ALA PHE TYR PRO LEU LEU ILE ARG PHE VAL ASP TYR ASN ARG ALA LYS TRP LEU LYS GLU PRO ASN PRO GLU ALA GLU ASP LYS HIS LEU LYS SER GLU VAL ARG GLY ASP MET SER LYS SER HIS ASN PHE LYS ARG GLU GLN ASN PHE VAL VAL GLN ASN
GLU ILE ASN ASN MET SER PHE LEU ILE THR ASP THR LYS SER LYS MET SER LYS ALA ALA VAL SER ASP GLN GLU GLN ARG LYS LYS MET LYS ARG LYS GLY ASP ARG TYR SER MET GLN THR SER LEU ILE VAL ALA ALA LEU LYS ARG LEU LEU PRO ILE GLY LEU ASN ILE ALA PRO
GLY ASP GLN GLU LEU ALA LYS ASN ARG PHE SER LEU LYS ASP THR GLU ASP GLU GLN ILE ILE ARG SER ASN ILE HIS LEU GLN GLY LYS LEU GLU ASP ARG ILE ARG TRP GLN MET ALA LEU TYR LYS ASP LEU LEU PRO ASN ARG THR GLU ASP SER ASP
PRO GLU LYS THR VAL GLU ARG VAL LEU ASP ILE ALA ASN VAL LEU PHE HIS LEU GLU GLN LYS SER THR CYS MET ARG ARG ARG TYR TYR SER LEU VAL GLU HIS PRO GLN ARG SER LYS LYS ALA VAL TRP HIS LYS LEU LEU S3593 K3594 Q3595 A3602 R3605 M3606 A3607 L3612
A3617 H3635 Y3636 I3642 K3647 P3648 GLY ALA VAL PRO PRO GLU GLU GLU ASP GLU GLY THR LYS R3661 V3662 D3663 T3678 E3679 K3680 L3683 E3684 C3700 HIS ASP GLU GLU ASP ASP ASP GLY GLU GLU GLU GLU VAL LYS S3714 L3726 Q3729 A3730 R3731 L3732 H3733 D3734 R3735 A3747 S3748
L3760 K3777 Q3799 S3800 C3801 S3802 V3803 L3804 D3805 L3806 N3807 A3808 F3809 Q3812 M3820 VAL THR GLU GLU GLY SER GLY GLU K3829 V3830 L3831 Q3832 D3833 L3844 I3871 S3874 L3880 R3881 S3885 I3886 W3891 E3901 Q3902 G3903 Q3904 R3905 N3906 A3910 I3911 N3919 T3920
L3921 T3922 I3925 L3936 R3940 L3941 A3944 V3951 M3955 Q3965 K3977 L3984 S3985 M3986 L3987 N3990 N3993 I3996 M4000 M4003 E4006 N4010 V4011 I4014 M4020 F4021 L4022 D4026 L4027 S4030 D4031 K4034 E4035 G4040 K4041 K4046 R4047
D4048 F4049 A4052 H4056 E4063 L4067 C4070 A4071 E4072 T4073 D4074 E4075 N4076 E4077 V4085 H4089 I4095 A4100 V4101 L4102 L4103 T4104 M4110 E4124 N4128 R4136 I4146 E4147 R4148 T4159 K4163 P4164 Q4165 V4166 K4167 F4175 N4179 E4180 G4181 G4182 E4183 K4184
N4192 Q4206 I4207 SER GLU SER ASP LEU ASN GLU ARG SER ALA ASN LYS GLU GLU SER GLU LYS GLU LYS PRO GLU GLU GLN GLY PRO ARG MET GLY PHE PHE SER LEU VAL THR VAL ARG SER ALA LEU ASP GLU ARG LEU
LYS SER LEU LYS LYS GLN MET LYS LYS VAL LYS LYS MET THR VAL ARG ASP MET VAL THR ALA PHE PHE THR SER TYR TRP SER VAL PHE MET THR LEU LEU HIS PHE ALA ALA SER VAL SER ARG GLY PHE SER ARG ILE ILE GLY GLY LEU LEU LEU GLY GLY SER LEU VAL GLU GLY
ALA LYS LYS ILE LYS VAL ALA GLU LEU LEU ALA ASN MET PRO ASP PRO THR GLN ASP GLU VAL ARG GLY ASP GLY ASP GLY ASP GLU LEU ARG LYS VAL LEU GLU GLY THR LEU PRO SER GLU ASP LEU THR ASP LEU LYS GLU LEU THR GLU GLU SER ARG LEU GLU ILE PHE GLY

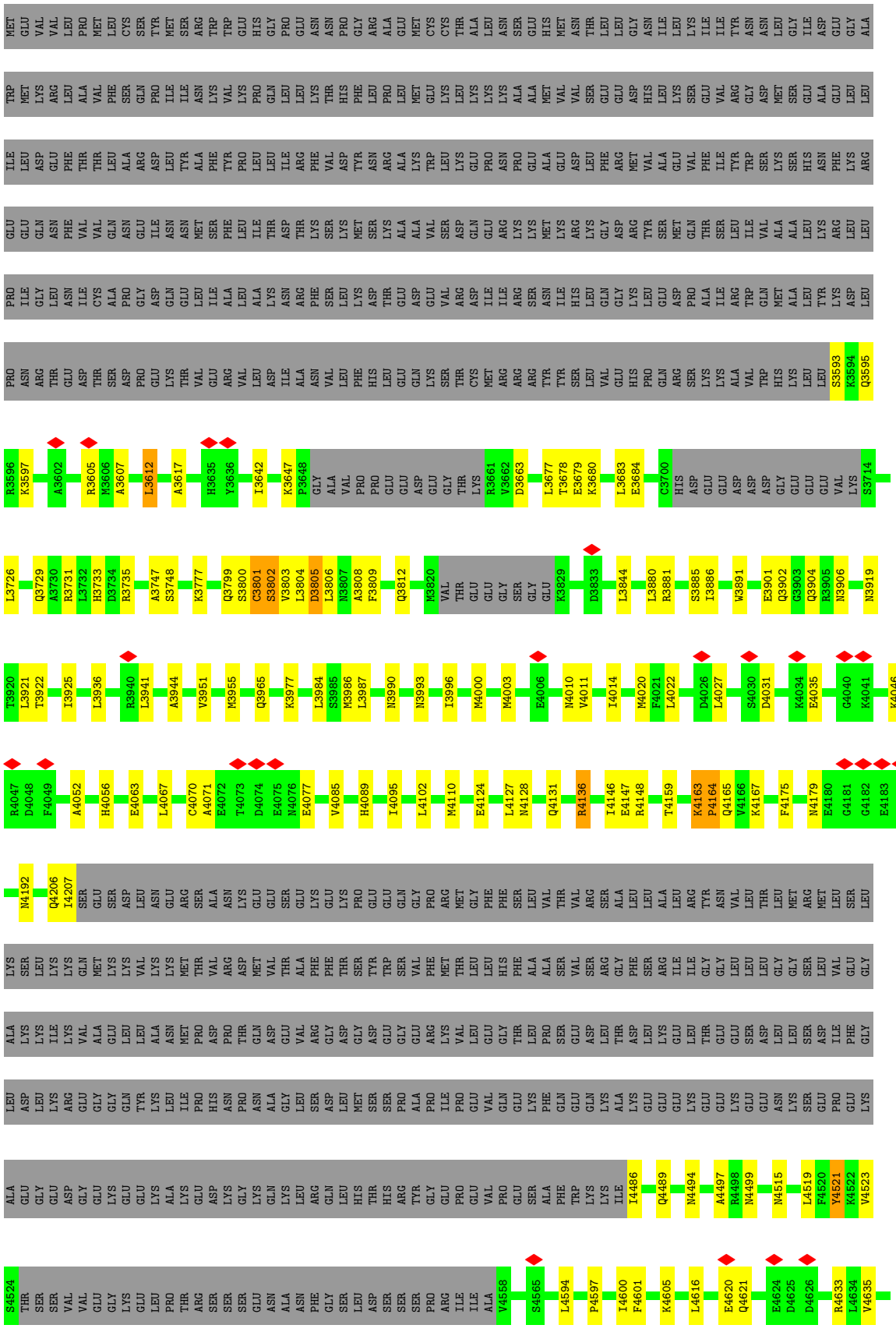


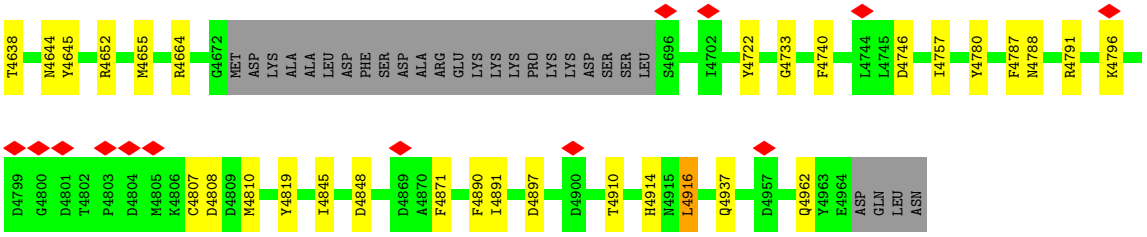
• Molecule 2: Ryr2





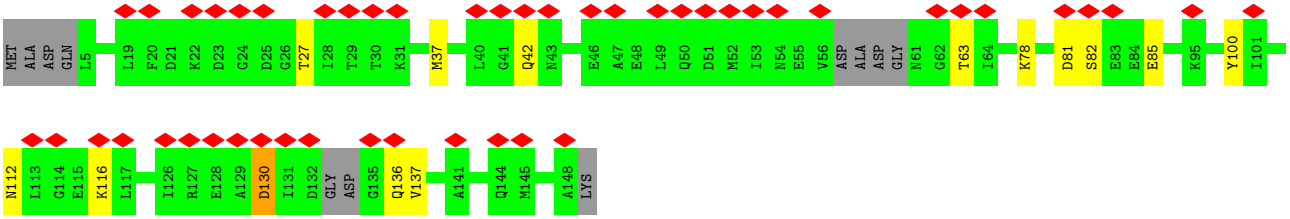






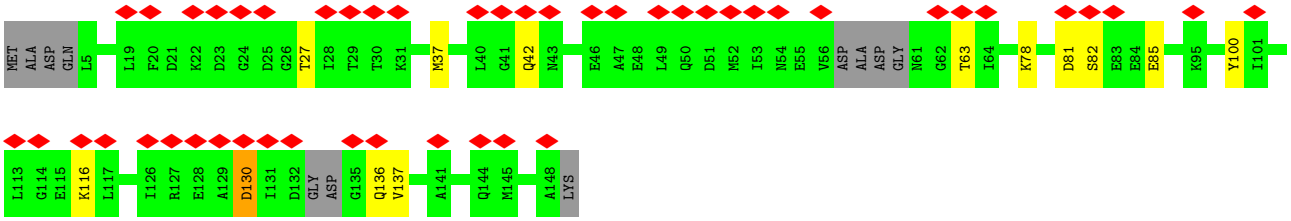
• Molecule 3: Calmodulin-1

Chain C:



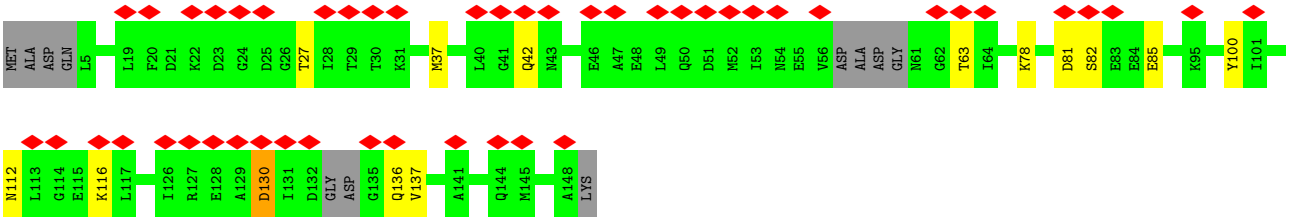
• Molecule 3: Calmodulin-1

Chain F:



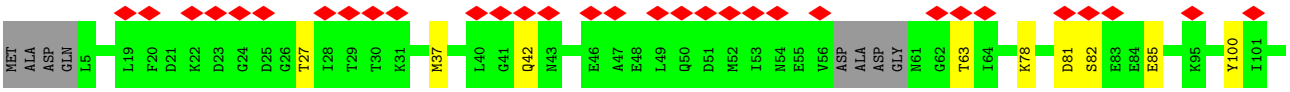
• Molecule 3: Calmodulin-1

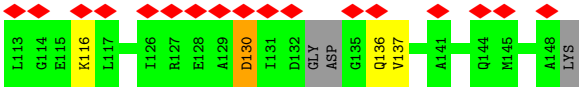
Chain I:



• Molecule 3: Calmodulin-1

Chain L:




L113
G114
E115
K116
L117
I126
R127
E128
A129
D130
I131
D132
GLY
ASP
G135
Q136
V137
A141
Q144
M145
A148
LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	69556	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN 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	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.096	Depositor
Minimum map value	-0.036	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.022	Depositor
Map size (Å)	436.4, 436.4, 436.4	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.091, 1.091, 1.091	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ATP, CFF, ZN, 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	0.38	0/835	0.56	0/1123
1	D	0.38	0/835	0.56	0/1123
1	G	0.38	0/835	0.56	0/1123
1	J	0.38	0/835	0.56	0/1123
2	B	0.41	0/27315	0.61	2/36936 (0.0%)
2	E	0.41	0/27315	0.61	2/36936 (0.0%)
2	H	0.41	0/27315	0.61	2/36936 (0.0%)
2	K	0.41	0/27315	0.61	2/36936 (0.0%)
3	C	0.33	0/1088	0.53	0/1459
3	F	0.33	0/1088	0.53	0/1459
3	I	0.33	0/1088	0.53	0/1459
3	L	0.33	0/1088	0.53	0/1459
All	All	0.41	0/116952	0.60	8/158072 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	24
2	E	0	24
2	H	0	24
2	K	0	24
All	All	0	96

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	2517	LEU	CA-CB-CG	6.97	131.33	115.30
2	B	2517	LEU	CA-CB-CG	6.97	131.32	115.30
2	E	2517	LEU	CA-CB-CG	6.95	131.29	115.30
2	K	2517	LEU	CA-CB-CG	6.95	131.29	115.30
2	B	1738	LEU	CA-CB-CG	6.03	129.18	115.30
2	K	1738	LEU	CA-CB-CG	6.02	129.16	115.30
2	H	1738	LEU	CA-CB-CG	6.02	129.14	115.30
2	E	1738	LEU	CA-CB-CG	6.01	129.13	115.30

There are no chirality outliers.

All (96) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	1476	VAL	Peptide
2	B	1570	LEU	Peptide
2	B	1579	VAL	Peptide
2	B	1748	LEU	Peptide
2	B	1808	ASP	Peptide
2	B	1809	PRO	Peptide
2	B	1847	GLU	Peptide
2	B	2075	VAL	Peptide
2	B	2308	PHE	Peptide
2	B	3612	LEU	Peptide
2	B	3802	SER	Peptide
2	B	3805	ASP	Peptide
2	B	4070	CYS	Peptide
2	B	4163	LYS	Peptide
2	B	685	PHE	Peptide
2	B	729	GLY	Peptide
2	B	748	LEU	Peptide
2	B	791	VAL	Peptide
2	B	816	PRO	Peptide
2	B	817	PRO	Peptide
2	B	819	TYR	Peptide
2	B	838	ARG	Peptide
2	B	841	LYS	Peptide
2	B	854	THR	Peptide
2	E	1476	VAL	Peptide
2	E	1570	LEU	Peptide
2	E	1579	VAL	Peptide
2	E	1748	LEU	Peptide
2	E	1808	ASP	Peptide
2	E	1809	PRO	Peptide

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Mol	Chain	Res	Type	Group
2	E	1847	GLU	Peptide
2	E	2075	VAL	Peptide
2	E	2308	PHE	Peptide
2	E	3612	LEU	Peptide
2	E	3802	SER	Peptide
2	E	3805	ASP	Peptide
2	E	4070	CYS	Peptide
2	E	4163	LYS	Peptide
2	E	685	PHE	Peptide
2	E	729	GLY	Peptide
2	E	748	LEU	Peptide
2	E	791	VAL	Peptide
2	E	816	PRO	Peptide
2	E	817	PRO	Peptide
2	E	819	TYR	Peptide
2	E	838	ARG	Peptide
2	E	841	LYS	Peptide
2	E	854	THR	Peptide
2	H	1476	VAL	Peptide
2	H	1570	LEU	Peptide
2	H	1579	VAL	Peptide
2	H	1748	LEU	Peptide
2	H	1808	ASP	Peptide
2	H	1809	PRO	Peptide
2	H	1847	GLU	Peptide
2	H	2075	VAL	Peptide
2	H	2308	PHE	Peptide
2	H	3612	LEU	Peptide
2	H	3802	SER	Peptide
2	H	3805	ASP	Peptide
2	H	4070	CYS	Peptide
2	H	4163	LYS	Peptide
2	H	685	PHE	Peptide
2	H	729	GLY	Peptide
2	H	748	LEU	Peptide
2	H	791	VAL	Peptide
2	H	816	PRO	Peptide
2	H	817	PRO	Peptide
2	H	819	TYR	Peptide
2	H	838	ARG	Peptide
2	H	841	LYS	Peptide
2	H	854	THR	Peptide

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Mol	Chain	Res	Type	Group
2	K	1476	VAL	Peptide
2	K	1570	LEU	Peptide
2	K	1579	VAL	Peptide
2	K	1748	LEU	Peptide
2	K	1808	ASP	Peptide
2	K	1809	PRO	Peptide
2	K	1847	GLU	Peptide
2	K	2075	VAL	Peptide
2	K	2308	PHE	Peptide
2	K	3612	LEU	Peptide
2	K	3802	SER	Peptide
2	K	3805	ASP	Peptide
2	K	4070	CYS	Peptide
2	K	4163	LYS	Peptide
2	K	685	PHE	Peptide
2	K	729	GLY	Peptide
2	K	748	LEU	Peptide
2	K	791	VAL	Peptide
2	K	816	PRO	Peptide
2	K	817	PRO	Peptide
2	K	819	TYR	Peptide
2	K	838	ARG	Peptide
2	K	841	LYS	Peptide
2	K	854	THR	Peptide

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	819	0	824	13	0
1	D	819	0	824	13	0
1	G	819	0	824	14	0
1	J	819	0	824	14	0
2	B	26813	0	25339	450	0
2	E	26813	0	25339	437	0
2	H	26813	0	25339	441	0
2	K	26813	0	25339	439	0
3	C	1078	0	1032	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	F	1078	0	1032	7	0
3	I	1078	0	1032	8	0
3	L	1078	0	1032	7	0
4	B	1	0	0	0	0
4	E	1	0	0	0	0
4	H	1	0	0	0	0
4	K	1	0	0	0	0
5	B	1	0	0	0	0
5	E	1	0	0	0	0
5	H	1	0	0	0	0
5	K	1	0	0	0	0
6	B	14	0	10	1	0
6	E	14	0	10	1	0
6	H	14	0	10	0	0
6	K	14	0	10	0	0
7	B	31	0	12	4	0
7	E	31	0	12	4	0
7	H	31	0	12	5	0
7	K	31	0	12	4	0
All	All	115028	0	108868	1669	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 7.

All (1669) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:1986:GLU:N	2:K:1989:CYS:HG	1.54	1.05
2:B:1986:GLU:N	2:B:1989:CYS:HG	1.54	1.05
2:H:1986:GLU:N	2:H:1989:CYS:HG	1.55	1.03
2:B:4811:LEU:HD13	2:E:4519:LEU:HD21	1.39	1.03
2:E:1986:GLU:N	2:E:1989:CYS:HG	1.56	1.02
2:B:76:ARG:NH2	2:E:3806:LEU:HD11	1.77	1.00
2:E:76:ARG:NH2	2:H:3806:LEU:HD11	1.78	0.98
2:B:3806:LEU:HD11	2:K:76:ARG:NH2	1.77	0.98
2:H:76:ARG:NH2	2:K:3806:LEU:HD11	1.78	0.96
2:E:4848:ASP:CG	2:H:4819:TYR:HE1	1.67	0.96
2:B:207:PHE:CZ	2:E:2326:ILE:HG23	2.00	0.96
2:E:207:PHE:CZ	2:H:2326:ILE:HG23	2.00	0.96
2:B:4819:TYR:HE1	2:K:4848:ASP:CG	1.69	0.95
2:B:4848:ASP:CG	2:E:4819:TYR:HE1	1.68	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2326:ILE:HG23	2:K:207:PHE:CZ	2.01	0.95
2:H:4848:ASP:CG	2:K:4819:TYR:HE1	1.70	0.95
2:H:207:PHE:CZ	2:K:2326:ILE:HG23	2.01	0.93
2:B:1843:LEU:O	2:B:1847:GLU:HB2	1.71	0.91
2:E:76:ARG:HH21	2:H:3806:LEU:HD21	1.36	0.91
2:E:1843:LEU:O	2:E:1847:GLU:HB2	1.71	0.91
2:K:1843:LEU:O	2:K:1847:GLU:HB2	1.71	0.90
2:H:1843:LEU:O	2:H:1847:GLU:HB2	1.71	0.90
2:B:4796:LYS:NZ	2:B:4807:CYS:SG	2.45	0.90
2:H:143:LEU:HD11	2:K:2426:SER:O	1.72	0.90
2:E:143:LEU:HD11	2:H:2426:SER:O	1.72	0.89
2:H:76:ARG:HH21	2:K:3806:LEU:HD21	1.38	0.89
2:B:2426:SER:O	2:K:143:LEU:HD11	1.72	0.88
2:B:3806:LEU:HD21	2:K:76:ARG:HH21	1.38	0.88
2:B:76:ARG:HH21	2:E:3806:LEU:HD21	1.38	0.88
2:B:76:ARG:HH21	2:E:3806:LEU:HD11	1.36	0.87
2:B:143:LEU:HD11	2:E:2426:SER:O	1.73	0.86
2:E:76:ARG:HH21	2:H:3806:LEU:HD11	1.38	0.86
2:E:4848:ASP:CG	2:H:4819:TYR:CE1	2.48	0.86
2:B:4811:LEU:HD13	2:E:4519:LEU:CD2	2.04	0.85
2:B:4848:ASP:CG	2:E:4819:TYR:CE1	2.50	0.85
2:E:76:ARG:NH2	2:H:3806:LEU:HD21	1.91	0.84
2:H:76:ARG:NH2	2:K:3806:LEU:HD21	1.93	0.84
2:B:4819:TYR:CE1	2:K:4848:ASP:CG	2.50	0.84
2:H:4848:ASP:CG	2:K:4819:TYR:CE1	2.51	0.84
2:B:3806:LEU:HD21	2:K:76:ARG:NH2	1.92	0.84
2:B:3806:LEU:HD11	2:K:76:ARG:HH21	1.37	0.83
2:H:76:ARG:HH21	2:K:3806:LEU:HD11	1.37	0.83
2:B:76:ARG:NH2	2:E:3806:LEU:HD21	1.92	0.82
2:H:143:LEU:CD1	2:K:2426:SER:O	2.28	0.81
2:B:2426:SER:O	2:K:143:LEU:CD1	2.28	0.81
2:E:143:LEU:CD1	2:H:2426:SER:O	2.29	0.80
2:B:4848:ASP:OD2	2:E:4819:TYR:CE1	2.35	0.80
2:E:4848:ASP:OD2	2:H:4819:TYR:CE1	2.34	0.80
2:E:143:LEU:HD13	2:H:2426:SER:OG	1.81	0.80
2:B:4819:TYR:CE1	2:K:4848:ASP:OD2	2.35	0.80
2:B:143:LEU:CD1	2:E:2426:SER:O	2.29	0.80
2:H:4848:ASP:OD2	2:K:4819:TYR:CE1	2.36	0.79
2:H:143:LEU:HD13	2:K:2426:SER:OG	1.82	0.78
2:B:143:LEU:HD13	2:E:2426:SER:OG	1.84	0.78
2:B:2426:SER:OG	2:K:143:LEU:HD13	1.83	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:4787:PHE:HD1	2:B:4808:ASP:O	1.66	0.78
2:K:123:HIS:HD2	2:K:126:SER:H	1.32	0.77
2:H:123:HIS:HD2	2:H:126:SER:H	1.32	0.77
2:B:2419:ARG:HD3	2:K:156:GLU:OE1	1.86	0.76
2:B:156:GLU:OE1	2:E:2419:ARG:HD3	1.85	0.75
2:H:156:GLU:OE1	2:K:2419:ARG:HD3	1.86	0.75
2:B:123:HIS:HD2	2:B:126:SER:H	1.32	0.74
2:B:143:LEU:CD1	2:E:2427:LEU:HD13	2.18	0.74
2:E:123:HIS:HD2	2:E:126:SER:H	1.32	0.74
2:E:156:GLU:OE1	2:H:2419:ARG:HD3	1.88	0.74
2:B:143:LEU:HD11	2:E:2427:LEU:HD13	1.69	0.74
2:B:2427:LEU:HD13	2:K:143:LEU:HD11	1.70	0.73
2:B:2427:LEU:HD13	2:K:143:LEU:CD1	2.19	0.73
2:H:143:LEU:CD1	2:K:2427:LEU:HD13	2.19	0.73
2:E:143:LEU:HD11	2:H:2427:LEU:HD13	1.71	0.72
2:H:143:LEU:HD11	2:K:2427:LEU:HD13	1.71	0.72
2:E:143:LEU:CD1	2:H:2427:LEU:HD13	2.20	0.72
2:B:4519:LEU:O	2:K:4810:MET:CB	2.39	0.71
2:E:207:PHE:CE2	2:H:2326:ILE:HG23	2.26	0.71
2:B:76:ARG:HH21	2:E:3806:LEU:CD1	2.04	0.70
3:F:100:TYR:HB3	3:F:136:GLN:HB3	1.72	0.70
2:H:4810:MET:CB	2:K:4519:LEU:O	2.38	0.70
2:B:207:PHE:CZ	2:E:2326:ILE:CG2	2.74	0.70
3:C:100:TYR:HB3	3:C:136:GLN:HB3	1.72	0.70
2:H:207:PHE:CZ	2:K:2326:ILE:CG2	2.75	0.70
2:E:207:PHE:CZ	2:H:2326:ILE:CG2	2.74	0.70
2:B:299:HIS:HE2	2:B:301:THR:HG1	1.40	0.69
2:H:1605:LYS:HD3	2:H:1606:VAL:HG23	1.74	0.69
3:L:100:TYR:HB3	3:L:136:GLN:HB3	1.72	0.69
2:E:299:HIS:HE2	2:E:301:THR:HG1	1.39	0.69
2:E:4848:ASP:CB	2:H:4819:TYR:HE1	2.04	0.69
3:I:100:TYR:HB3	3:I:136:GLN:HB3	1.72	0.69
2:B:2326:ILE:CG2	2:K:207:PHE:CZ	2.75	0.69
2:H:4046:LYS:H	2:H:4077:GLU:HB3	1.57	0.69
2:K:4046:LYS:H	2:K:4077:GLU:HB3	1.57	0.69
2:B:2326:ILE:HG23	2:K:207:PHE:CE2	2.27	0.69
2:B:207:PHE:CE2	2:E:2326:ILE:HG23	2.27	0.69
2:E:76:ARG:HH21	2:H:3806:LEU:CD1	2.06	0.69
2:E:76:ARG:HH21	2:H:3806:LEU:CD2	2.06	0.69
2:K:1605:LYS:HD3	2:K:1606:VAL:HG23	1.74	0.69
2:H:207:PHE:CE2	2:K:2326:ILE:HG23	2.27	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1089:ARG:HE	2:B:1600:PRO:HB3	1.59	0.68
2:B:3806:LEU:CD1	2:K:76:ARG:HH21	2.05	0.68
2:B:1605:LYS:HD3	2:B:1606:VAL:HG23	1.74	0.68
2:B:2327:ARG:HH21	2:K:191:TYR:HE2	1.42	0.68
2:E:4046:LYS:H	2:E:4077:GLU:HB3	1.57	0.68
2:B:3806:LEU:CD2	2:K:76:ARG:HH21	2.07	0.68
2:B:4046:LYS:H	2:B:4077:GLU:HB3	1.57	0.68
2:E:1089:ARG:HE	2:E:1600:PRO:HB3	1.59	0.68
2:E:1605:LYS:HD3	2:E:1606:VAL:HG23	1.74	0.68
2:E:4810:MET:CB	2:H:4519:LEU:O	2.42	0.68
2:H:191:TYR:HE2	2:K:2327:ARG:HH21	1.42	0.68
2:H:4848:ASP:CB	2:K:4819:TYR:HE1	2.06	0.68
2:K:657:PRO:HA	2:K:834:VAL:HA	1.76	0.67
2:B:4848:ASP:CB	2:E:4819:TYR:HE1	2.07	0.67
2:H:1089:ARG:HE	2:H:1600:PRO:HB3	1.59	0.67
2:K:1089:ARG:HE	2:K:1600:PRO:HB3	1.59	0.67
2:B:4819:TYR:HE1	2:K:4848:ASP:CB	2.07	0.67
2:B:850:LEU:HB3	2:B:1207:LEU:HD11	1.77	0.67
2:H:657:PRO:HA	2:H:834:VAL:HA	1.76	0.67
2:K:3951:VAL:O	2:K:3955:MET:HB2	1.95	0.67
2:E:191:TYR:HE2	2:H:2327:ARG:HH21	1.42	0.67
2:B:3951:VAL:O	2:B:3955:MET:HB2	1.95	0.66
2:E:758:CYS:HB3	2:E:767:SER:HB2	1.78	0.66
2:H:758:CYS:HB3	2:H:767:SER:HB2	1.78	0.66
2:E:3951:VAL:O	2:E:3955:MET:HB2	1.95	0.66
2:H:3951:VAL:O	2:H:3955:MET:HB2	1.96	0.66
2:E:657:PRO:HA	2:E:834:VAL:HA	1.76	0.66
2:H:76:ARG:HH21	2:K:3806:LEU:CD2	2.08	0.66
2:B:191:TYR:HE2	2:E:2327:ARG:HH21	1.42	0.66
2:H:76:ARG:HH21	2:K:3806:LEU:CD1	2.06	0.66
2:B:207:PHE:CE1	2:E:2326:ILE:CG2	2.79	0.66
2:E:850:LEU:HB3	2:E:1207:LEU:HD11	1.77	0.66
2:B:657:PRO:HA	2:B:834:VAL:HA	1.76	0.65
2:K:758:CYS:HB3	2:K:767:SER:HB2	1.78	0.65
2:B:758:CYS:HB3	2:B:767:SER:HB2	1.78	0.65
2:H:207:PHE:CE1	2:K:2326:ILE:CG2	2.80	0.65
2:K:850:LEU:HB3	2:K:1207:LEU:HD11	1.77	0.65
2:B:2326:ILE:CG2	2:K:207:PHE:CE1	2.79	0.65
2:E:207:PHE:CE1	2:H:2326:ILE:CG2	2.80	0.65
2:K:797:GLY:HA2	2:K:1622:LEU:HA	1.79	0.65
2:B:76:ARG:HH21	2:E:3806:LEU:CD2	2.07	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:850:LEU:HB2	2:B:1213:GLY:H	1.62	0.65
2:H:850:LEU:HB3	2:H:1207:LEU:HD11	1.77	0.65
2:H:299:HIS:HE2	2:H:301:THR:HG1	1.39	0.64
2:B:797:GLY:HA2	2:B:1622:LEU:HA	1.79	0.64
2:E:26:ALA:HB3	2:E:33:GLN:HB3	1.80	0.64
2:H:26:ALA:HB3	2:H:33:GLN:HB3	1.80	0.64
2:H:1303:ARG:HH12	2:H:1595:LEU:HB2	1.62	0.64
2:K:1303:ARG:HH12	2:K:1595:LEU:HB2	1.62	0.64
2:E:1303:ARG:HH12	2:E:1595:LEU:HB2	1.62	0.63
2:E:4796:LYS:NZ	2:E:4807:CYS:SG	2.71	0.63
2:K:26:ALA:HB3	2:K:33:GLN:HB3	1.80	0.63
2:E:850:LEU:HB2	2:E:1213:GLY:H	1.62	0.63
2:K:4796:LYS:NZ	2:K:4807:CYS:SG	2.71	0.63
2:B:26:ALA:HB3	2:B:33:GLN:HB3	1.80	0.63
2:H:797:GLY:HA2	2:H:1622:LEU:HA	1.79	0.63
2:H:4146:ILE:HD12	2:H:4962:GLN:HB2	1.81	0.63
2:H:4796:LYS:NZ	2:H:4807:CYS:SG	2.71	0.63
2:H:850:LEU:HB2	2:H:1213:GLY:H	1.62	0.63
2:K:850:LEU:HB2	2:K:1213:GLY:H	1.62	0.63
2:B:1303:ARG:HH12	2:B:1595:LEU:HB2	1.62	0.63
2:E:247:VAL:O	2:E:272:ARG:NH1	2.30	0.63
2:E:797:GLY:HA2	2:E:1622:LEU:HA	1.79	0.63
2:E:4146:ILE:HD12	2:E:4962:GLN:HB2	1.81	0.63
2:H:1299:ILE:HG12	2:H:1546:GLN:HG2	1.81	0.63
2:K:299:HIS:HE2	2:K:301:THR:HG1	1.40	0.63
2:B:1299:ILE:HG12	2:B:1546:GLN:HG2	1.81	0.62
2:K:4146:ILE:HD12	2:K:4962:GLN:HB2	1.81	0.62
2:B:3806:LEU:CD1	2:K:76:ARG:NH2	2.59	0.62
1:G:77:THR:HG22	1:G:79:ASP:H	1.63	0.62
2:K:476:GLN:HE22	2:K:3678:THR:HG22	1.65	0.62
2:B:247:VAL:O	2:B:272:ARG:NH1	2.30	0.62
2:B:80:GLU:HG3	2:E:3891:TRP:HZ3	1.63	0.62
2:B:4811:LEU:HD22	2:E:4520:PHE:CE1	2.35	0.62
1:J:77:THR:HG22	1:J:79:ASP:H	1.63	0.62
2:B:476:GLN:HE22	2:B:3678:THR:HG22	1.65	0.62
1:D:77:THR:HG22	1:D:79:ASP:H	1.63	0.62
2:B:143:LEU:HD12	2:E:2427:LEU:CD1	2.30	0.62
2:B:4146:ILE:HD12	2:B:4962:GLN:HB2	1.81	0.62
2:B:4808:ASP:OD2	2:E:4523:VAL:HG21	1.99	0.62
2:E:80:GLU:HG3	2:H:3891:TRP:HZ3	1.63	0.62
1:A:77:THR:HG22	1:A:79:ASP:H	1.63	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:476:GLN:HE22	2:E:3678:THR:HG22	1.65	0.62
2:H:76:ARG:NH2	2:K:3806:LEU:CD1	2.60	0.61
2:H:476:GLN:HE22	2:H:3678:THR:HG22	1.65	0.61
2:K:4020:MET:CE	2:K:4063:GLU:HB3	2.31	0.61
2:K:4031:ASP:HB3	2:K:4035:GLU:HB2	1.83	0.61
2:B:3891:TRP:HZ3	2:K:80:GLU:HG3	1.64	0.61
2:E:1299:ILE:HG12	2:E:1546:GLN:HG2	1.81	0.61
2:H:4031:ASP:HB3	2:H:4035:GLU:HB2	1.83	0.61
2:K:247:VAL:O	2:K:272:ARG:NH1	2.30	0.61
2:B:694:ARG:HB2	2:B:793:SER:HB2	1.83	0.61
2:B:1114:ARG:HB3	2:B:1128:LEU:HD22	1.83	0.61
2:B:4020:MET:CE	2:B:4063:GLU:HB3	2.30	0.61
2:K:195:SER:HB3	2:K:202:HIS:HB2	1.82	0.61
2:E:694:ARG:HB2	2:E:793:SER:HB2	1.83	0.61
2:E:4020:MET:CE	2:E:4063:GLU:HB3	2.30	0.61
2:K:930:ASN:HA	2:K:933:LEU:HB2	1.83	0.61
2:B:4810:MET:CB	2:E:4519:LEU:O	2.49	0.61
2:E:4022:LEU:HA	2:E:4089:HIS:HE1	1.66	0.61
2:H:195:SER:HB3	2:H:202:HIS:HB2	1.82	0.61
2:H:80:GLU:HG3	2:K:3891:TRP:HZ3	1.65	0.60
2:K:1114:ARG:HB3	2:K:1128:LEU:HD22	1.83	0.60
2:B:4022:LEU:HA	2:B:4089:HIS:HE1	1.66	0.60
2:B:4031:ASP:HB3	2:B:4035:GLU:HB2	1.83	0.60
2:K:1272:ARG:NH1	2:K:1587:HIS:O	2.34	0.60
2:E:4031:ASP:HB3	2:E:4035:GLU:HB2	1.83	0.60
2:H:694:ARG:HB2	2:H:793:SER:HB2	1.83	0.60
2:H:930:ASN:HA	2:H:933:LEU:HB2	1.83	0.60
2:B:195:SER:HB3	2:B:202:HIS:HB2	1.82	0.60
2:E:1114:ARG:HB3	2:E:1128:LEU:HD22	1.83	0.60
2:E:1272:ARG:NH1	2:E:1587:HIS:O	2.34	0.60
2:H:247:VAL:O	2:H:272:ARG:NH1	2.30	0.60
2:H:4020:MET:CE	2:H:4063:GLU:HB3	2.31	0.60
2:K:1299:ILE:HG12	2:K:1546:GLN:HG2	1.81	0.60
2:H:1272:ARG:NH1	2:H:1587:HIS:O	2.34	0.60
2:K:1249:MET:H	2:K:1603:PHE:HB2	1.67	0.60
2:B:2427:LEU:CD1	2:K:143:LEU:HD12	2.31	0.60
2:E:195:SER:HB3	2:E:202:HIS:HB2	1.82	0.60
2:E:3663:ASP:OD2	2:E:3735:ARG:NH2	2.35	0.60
2:H:1249:MET:H	2:H:1603:PHE:HB2	1.67	0.60
2:B:3663:ASP:OD2	2:B:3735:ARG:NH2	2.35	0.60
2:E:674:TYR:HB3	2:E:821:PRO:HA	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:3663:ASP:OD2	2:K:3735:ARG:NH2	2.35	0.60
2:H:3663:ASP:OD2	2:H:3735:ARG:NH2	2.35	0.60
2:K:4022:LEU:HA	2:K:4089:HIS:HE1	1.66	0.60
2:E:143:LEU:HD12	2:H:2427:LEU:CD1	2.32	0.60
2:H:191:TYR:CE2	2:K:2327:ARG:NH2	2.70	0.60
2:B:1272:ARG:NH1	2:B:1587:HIS:O	2.34	0.60
2:K:694:ARG:HB2	2:K:793:SER:HB2	1.83	0.60
2:B:930:ASN:HA	2:B:933:LEU:HB2	1.83	0.59
2:H:674:TYR:HB3	2:H:821:PRO:HA	1.84	0.59
2:E:1249:MET:H	2:E:1603:PHE:HB2	1.67	0.59
2:H:143:LEU:HD12	2:K:2427:LEU:CD1	2.32	0.59
2:H:1114:ARG:HB3	2:H:1128:LEU:HD22	1.83	0.59
2:H:4022:LEU:HA	2:H:4089:HIS:HE1	1.66	0.59
2:B:1171:HIS:ND1	2:B:1195:PHE:O	2.36	0.59
2:B:2327:ARG:NH2	2:K:191:TYR:CE2	2.70	0.59
2:E:191:TYR:CE2	2:H:2327:ARG:NH2	2.71	0.59
2:B:674:TYR:HB3	2:B:821:PRO:HA	1.84	0.59
2:B:1249:MET:H	2:B:1603:PHE:HB2	1.67	0.59
2:K:1090:ALA:HA	2:K:1249:MET:HG2	1.85	0.59
2:B:626:ARG:HD2	2:B:1669:ASN:HD21	1.68	0.59
2:B:1090:ALA:HA	2:B:1249:MET:HG2	1.85	0.59
2:E:930:ASN:HA	2:E:933:LEU:HB2	1.83	0.59
2:K:674:TYR:HB3	2:K:821:PRO:HA	1.84	0.59
2:K:3799:GLN:O	2:K:3881:ARG:NH1	2.35	0.59
2:B:76:ARG:NH2	2:E:3806:LEU:CD1	2.58	0.59
2:B:4791:ARG:HB3	2:B:4808:ASP:HB2	1.83	0.59
2:E:1090:ALA:HA	2:E:1249:MET:HG2	1.85	0.59
2:H:1754:SER:HB2	2:H:1758:ARG:HH12	1.68	0.58
2:B:3799:GLN:O	2:B:3881:ARG:NH1	2.35	0.58
2:E:76:ARG:NH2	2:H:3806:LEU:CD1	2.59	0.58
2:H:1090:ALA:HA	2:H:1249:MET:HG2	1.85	0.58
2:K:25:THR:HG22	2:K:34:LYS:HG2	1.85	0.58
2:B:25:THR:HG22	2:B:34:LYS:HG2	1.85	0.58
2:E:1154:ARG:HH21	2:E:1177:LEU:HD23	1.68	0.58
2:K:1171:HIS:ND1	2:K:1195:PHE:O	2.36	0.58
2:K:1754:SER:HB2	2:K:1758:ARG:HH12	1.69	0.58
2:K:2770:GLU:HA	2:K:2773:ARG:HB2	1.85	0.58
2:B:4124:GLU:HG3	2:B:4128:ASN:HD21	1.69	0.58
2:E:480:ARG:NH2	2:E:3679:GLU:OE2	2.36	0.58
2:H:25:THR:HG22	2:H:34:LYS:HG2	1.85	0.58
2:B:191:TYR:CE2	2:E:2327:ARG:NH2	2.70	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:21:THR:HG1	1:D:49:ARG:HH21	1.48	0.58
2:H:4124:GLU:HG3	2:H:4128:ASN:HD21	1.69	0.58
2:B:1754:SER:HB2	2:B:1758:ARG:HH12	1.69	0.58
2:E:1754:SER:HB2	2:E:1758:ARG:HH12	1.69	0.58
2:E:2770:GLU:HA	2:E:2773:ARG:HB2	1.85	0.58
2:H:2770:GLU:HA	2:H:2773:ARG:HB2	1.85	0.58
2:K:1154:ARG:HH21	2:K:1177:LEU:HD23	1.68	0.58
2:E:943:LEU:HB3	2:E:950:VAL:HG21	1.86	0.58
2:E:4124:GLU:HG3	2:E:4128:ASN:HD21	1.69	0.58
2:H:1154:ARG:HH21	2:H:1177:LEU:HD23	1.68	0.58
2:H:270:HIS:ND1	2:H:491:GLU:OE1	2.37	0.58
2:H:480:ARG:NH2	2:H:3679:GLU:OE2	2.36	0.58
2:K:480:ARG:NH2	2:K:3679:GLU:OE2	2.36	0.58
2:K:626:ARG:HD2	2:K:1669:ASN:HD21	1.68	0.58
2:E:626:ARG:HD2	2:E:1669:ASN:HD21	1.68	0.58
2:K:4124:GLU:HG3	2:K:4128:ASN:HD21	1.69	0.58
2:K:706:TYR:OH	2:K:1086:ARG:NH2	2.37	0.58
2:B:270:HIS:ND1	2:B:491:GLU:OE1	2.37	0.57
2:B:943:LEU:HB3	2:B:950:VAL:HG21	1.86	0.57
2:B:2275:LEU:H	2:B:2293:PRO:HD3	1.69	0.57
2:E:3799:GLN:O	2:E:3881:ARG:NH1	2.35	0.57
2:E:3805:ASP:OD2	2:E:3809:PHE:N	2.37	0.57
2:H:943:LEU:HB3	2:H:950:VAL:HG11	1.86	0.57
2:K:248:PRO:HD3	2:K:261:HIS:HD2	1.69	0.57
2:B:1146:HIS:HB2	2:B:1192:PHE:HE1	1.70	0.57
2:E:270:HIS:ND1	2:E:491:GLU:OE1	2.37	0.57
2:E:1171:HIS:ND1	2:E:1195:PHE:O	2.36	0.57
2:H:626:ARG:HD2	2:H:1669:ASN:HD21	1.68	0.57
2:K:300:VAL:O	2:K:420:ARG:NH2	2.37	0.57
2:B:2770:GLU:HA	2:B:2773:ARG:HB2	1.85	0.57
2:K:375:GLN:HE21	2:K:392:ILE:HD13	1.69	0.57
2:E:706:TYR:OH	2:E:1086:ARG:NH2	2.37	0.57
2:H:2436:VAL:O	2:H:2466:LYS:NZ	2.38	0.57
2:E:1628:MET:HB2	2:E:1687:TYR:HE2	1.70	0.57
2:H:300:VAL:O	2:H:420:ARG:NH2	2.37	0.57
2:B:300:VAL:O	2:B:420:ARG:NH2	2.37	0.57
2:B:375:GLN:HE21	2:B:392:ILE:HD13	1.69	0.57
2:E:248:PRO:HD3	2:E:261:HIS:HD2	1.69	0.57
2:E:375:GLN:HE21	2:E:392:ILE:HD13	1.69	0.57
2:E:2436:VAL:O	2:E:2466:LYS:NZ	2.38	0.57
2:B:2436:VAL:O	2:B:2466:LYS:NZ	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:867:VAL:O	2:E:1002:ASN:ND2	2.38	0.57
2:H:1171:HIS:ND1	2:H:1195:PHE:O	2.36	0.57
2:H:1628:MET:HB2	2:H:1687:TYR:HE2	1.70	0.57
2:H:3799:GLN:O	2:H:3881:ARG:NH1	2.35	0.57
2:K:1146:HIS:HB2	2:K:1192:PHE:HE1	1.70	0.57
2:B:248:PRO:HD3	2:B:261:HIS:HD2	1.69	0.57
2:E:25:THR:HG22	2:E:34:LYS:HG2	1.85	0.57
2:E:2275:LEU:H	2:E:2293:PRO:HD3	1.69	0.57
2:K:270:HIS:ND1	2:K:491:GLU:OE1	2.37	0.57
2:K:3805:ASP:OD2	2:K:3809:PHE:N	2.37	0.57
2:E:300:VAL:O	2:E:420:ARG:NH2	2.37	0.57
2:E:954:ASP:HB2	2:E:1061:GLY:HA3	1.87	0.57
2:H:706:TYR:OH	2:H:1086:ARG:NH2	2.37	0.57
2:K:4192:ASN:OD1	2:K:4605:LYS:NZ	2.29	0.57
2:K:4890:PHE:H	7:K:6003:ATP:HN61	1.53	0.57
2:B:278:GLU:HB2	2:B:296:ARG:HB2	1.87	0.56
2:B:480:ARG:NH2	2:B:3679:GLU:OE2	2.36	0.56
2:B:1154:ARG:HH21	2:B:1177:LEU:HD23	1.68	0.56
2:H:375:GLN:HE21	2:H:392:ILE:HD13	1.69	0.56
1:J:23:VAL:HB	1:J:105:ASN:H	1.70	0.56
2:B:867:VAL:O	2:B:1002:ASN:ND2	2.38	0.56
2:B:3901:GLU:OE1	2:B:3902:GLN:NE2	2.39	0.56
2:B:3919:ASN:O	2:B:3922:THR:OG1	2.23	0.56
2:H:3805:ASP:OD2	2:H:3809:PHE:N	2.37	0.56
2:K:1628:MET:HB2	2:K:1687:TYR:HE2	1.70	0.56
2:K:2275:LEU:H	2:K:2293:PRO:HD3	1.69	0.56
2:B:954:ASP:HB2	2:B:1061:GLY:HA3	1.87	0.56
2:B:3805:ASP:OD2	2:B:3809:PHE:N	2.37	0.56
2:E:1146:HIS:HB2	2:E:1192:PHE:HE1	1.70	0.56
2:E:2834:LEU:HD11	2:E:2894:LEU:HB3	1.88	0.56
2:E:4159:THR:O	2:E:4163:LYS:NZ	2.37	0.56
1:G:23:VAL:HB	1:G:105:ASN:H	1.70	0.56
2:H:248:PRO:HD3	2:H:261:HIS:HD2	1.69	0.56
2:H:867:VAL:O	2:H:1002:ASN:ND2	2.38	0.56
2:H:4890:PHE:H	7:H:6003:ATP:HN61	1.53	0.56
2:K:867:VAL:O	2:K:1002:ASN:ND2	2.38	0.56
2:K:3901:GLU:OE1	2:K:3902:GLN:NE2	2.39	0.56
2:B:2464:ASP:OD1	2:B:2464:ASP:N	2.36	0.56
2:E:2521:LEU:HD22	2:E:2565:ALA:HB2	1.88	0.56
2:E:2707:VAL:HG21	2:E:2786:TRP:HE1	1.71	0.56
2:H:954:ASP:HB2	2:H:1061:GLY:HA3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:3901:GLU:OE1	2:H:3902:GLN:NE2	2.39	0.56
2:H:4159:THR:O	2:H:4163:LYS:NZ	2.37	0.56
2:K:943:LEU:HB3	2:K:950:VAL:HG11	1.86	0.56
2:B:4791:ARG:CB	2:B:4808:ASP:CB	2.84	0.56
2:B:4890:PHE:H	7:B:6003:ATP:HN61	1.53	0.56
2:E:3901:GLU:OE1	2:E:3902:GLN:NE2	2.39	0.56
2:H:2275:LEU:H	2:H:2293:PRO:HD3	1.69	0.56
2:H:2707:VAL:HG21	2:H:2786:TRP:HE1	1.71	0.56
2:K:954:ASP:HB2	2:K:1061:GLY:HA3	1.87	0.56
1:D:23:VAL:HB	1:D:105:ASN:H	1.70	0.56
2:E:1144:ARG:NH2	2:E:1150:GLU:OE1	2.39	0.56
2:K:2436:VAL:O	2:K:2466:LYS:NZ	2.38	0.56
2:B:4168:GLU:HB2	2:B:4171:ARG:NH1	2.20	0.56
2:E:278:GLU:HB2	2:E:296:ARG:HB2	1.87	0.56
2:H:2521:LEU:HD22	2:H:2565:ALA:HB2	1.87	0.56
2:K:1144:ARG:NH2	2:K:1150:GLU:OE1	2.39	0.56
1:A:23:VAL:HB	1:A:105:ASN:H	1.70	0.56
2:B:1628:MET:HB2	2:B:1687:TYR:HE2	1.70	0.56
2:B:2834:LEU:HD11	2:B:2894:LEU:HB3	1.88	0.56
2:H:1303:ARG:HH22	2:H:1595:LEU:HD13	1.71	0.56
2:K:833:LYS:HA	2:K:1614:ARG:HH12	1.71	0.56
2:H:1144:ARG:NH2	2:H:1150:GLU:OE1	2.39	0.56
2:B:706:TYR:OH	2:B:1086:ARG:NH2	2.37	0.56
2:B:1303:ARG:HH22	2:B:1595:LEU:HD13	1.71	0.56
2:H:278:GLU:HB2	2:H:296:ARG:HB2	1.87	0.56
2:H:1146:HIS:HB2	2:H:1192:PHE:HE1	1.70	0.56
2:B:2426:SER:HG	2:K:143:LEU:HD13	1.70	0.55
2:K:278:GLU:HB2	2:K:296:ARG:HB2	1.87	0.55
2:K:4085:VAL:O	2:K:4089:HIS:N	2.40	0.55
2:B:1144:ARG:NH2	2:B:1150:GLU:OE1	2.39	0.55
2:B:2521:LEU:HD22	2:B:2565:ALA:HB2	1.87	0.55
2:E:4890:PHE:H	7:E:6003:ATP:HN61	1.54	0.55
2:K:417:ARG:HH11	2:K:420:ARG:HH11	1.55	0.55
2:B:289:ILE:HG22	2:B:354:ILE:HD12	1.88	0.55
2:B:417:ARG:HH11	2:B:420:ARG:HH11	1.54	0.55
2:H:2834:LEU:HD11	2:H:2894:LEU:HB3	1.88	0.55
2:H:289:ILE:HG22	2:H:354:ILE:HD12	1.88	0.55
2:H:298:ARG:HE	2:H:303:GLY:HA2	1.72	0.55
2:K:1303:ARG:HH22	2:K:1595:LEU:HD13	1.71	0.55
2:E:833:LYS:HA	2:E:1614:ARG:HH12	1.71	0.55
2:H:231:GLY:O	2:H:276:ARG:NH1	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:289:ILE:HG22	2:K:354:ILE:HD12	1.88	0.55
2:K:2521:LEU:HD22	2:K:2565:ALA:HB2	1.87	0.55
2:B:833:LYS:HA	2:B:1614:ARG:HH12	1.71	0.55
2:E:1303:ARG:HH22	2:E:1595:LEU:HD13	1.71	0.55
2:E:3919:ASN:O	2:E:3922:THR:OG1	2.23	0.55
2:B:2707:VAL:HG21	2:B:2786:TRP:HE1	1.71	0.54
2:E:289:ILE:HG22	2:E:354:ILE:HD12	1.88	0.54
2:H:833:LYS:HA	2:H:1614:ARG:HH12	1.71	0.54
2:K:231:GLY:O	2:K:276:ARG:NH1	2.40	0.54
2:K:298:ARG:HE	2:K:303:GLY:HA2	1.72	0.54
2:K:2834:LEU:HD11	2:K:2894:LEU:HB3	1.88	0.54
2:B:841:LYS:HB2	2:B:848:ARG:HD3	1.90	0.54
2:E:1572:LYS:HE2	2:E:1585:ARG:HB3	1.90	0.54
2:K:288:HIS:ND1	2:K:349:MET:O	2.40	0.54
2:K:841:LYS:HB2	2:K:848:ARG:HD3	1.90	0.54
2:B:1572:LYS:HE2	2:B:1585:ARG:HB3	1.90	0.54
2:H:1242:ASN:HB2	2:H:1807:ARG:HG2	1.90	0.54
2:K:2707:VAL:HG21	2:K:2786:TRP:HE1	1.71	0.54
2:H:1303:ARG:HB2	2:H:1593:HIS:HB2	1.90	0.54
2:B:288:HIS:ND1	2:B:349:MET:O	2.40	0.54
2:B:3800:SER:OG	2:B:3801:CYS:N	2.41	0.54
2:B:4791:ARG:HB2	2:B:4808:ASP:CB	2.38	0.54
2:E:231:GLY:O	2:E:276:ARG:NH1	2.40	0.54
2:B:626:ARG:NH2	2:B:1667:LEU:O	2.41	0.54
2:H:143:LEU:CD1	2:K:2427:LEU:CD1	2.86	0.54
2:H:841:LYS:HB2	2:H:848:ARG:HD3	1.90	0.54
2:K:626:ARG:NH2	2:K:1667:LEU:O	2.41	0.54
2:K:1242:ASN:HB2	2:K:1807:ARG:HG2	1.90	0.54
2:E:674:TYR:OH	2:E:676:GLU:OE2	2.21	0.54
2:H:288:HIS:ND1	2:H:349:MET:O	2.40	0.54
2:B:231:GLY:O	2:B:276:ARG:NH1	2.40	0.54
2:H:417:ARG:HH11	2:H:420:ARG:HH11	1.55	0.54
2:H:1272:ARG:HG3	2:H:1586:LEU:HD13	1.90	0.54
2:B:756:SER:HB3	2:B:769:ARG:H	1.73	0.54
2:B:2413:ALA:HB1	2:B:2418:ILE:HD11	1.90	0.54
2:E:841:LYS:HB2	2:E:848:ARG:HD3	1.90	0.54
2:E:4497:ALA:HB1	2:E:4594:LEU:HD13	1.90	0.54
2:H:626:ARG:NH2	2:H:1667:LEU:O	2.41	0.54
2:H:681:HIS:HB2	2:H:799:LYS:HG2	1.90	0.54
2:B:4085:VAL:O	2:B:4089:HIS:N	2.40	0.53
2:B:156:GLU:OE1	2:E:2419:ARG:NH1	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:4159:THR:O	2:B:4163:LYS:NZ	2.37	0.53
2:E:417:ARG:HH11	2:E:420:ARG:HH11	1.55	0.53
2:E:844:ARG:HG2	2:E:846:TYR:H	1.74	0.53
2:H:207:PHE:CE1	2:K:2326:ILE:HG23	2.43	0.53
2:K:1572:LYS:HE2	2:K:1585:ARG:HB3	1.90	0.53
2:K:2464:ASP:OD1	2:K:2464:ASP:N	2.36	0.53
2:B:1429:SER:HA	2:B:1507:ILE:HG12	1.90	0.53
2:E:288:HIS:ND1	2:E:349:MET:O	2.40	0.53
2:K:309:MET:O	2:K:313:SER:N	2.42	0.53
2:E:298:ARG:HE	2:E:303:GLY:HA2	1.72	0.53
2:E:626:ARG:NH2	2:E:1667:LEU:O	2.41	0.53
2:E:2413:ALA:HB1	2:E:2418:ILE:HD11	1.91	0.53
2:E:1242:ASN:HB2	2:E:1807:ARG:HG2	1.90	0.53
2:E:1303:ARG:HB2	2:E:1593:HIS:HB2	1.90	0.53
2:H:1572:LYS:HE2	2:H:1585:ARG:HB3	1.90	0.53
2:K:1429:SER:HA	2:K:1507:ILE:HG12	1.91	0.53
2:B:681:HIS:HB2	2:B:799:LYS:HG2	1.90	0.53
2:E:1272:ARG:HG3	2:E:1586:LEU:HD13	1.90	0.53
2:K:1272:ARG:NH2	2:K:1590:PHE:O	2.42	0.53
2:B:1242:ASN:HB2	2:B:1807:ARG:HG2	1.90	0.53
2:B:4020:MET:CE	2:B:4067:LEU:HD13	2.39	0.53
2:B:4497:ALA:HB1	2:B:4594:LEU:HD13	1.90	0.53
2:E:66:THR:HG1	2:E:124:SER:HG	1.53	0.53
2:E:143:LEU:CD1	2:H:2427:LEU:CD1	2.86	0.53
2:H:309:MET:O	2:H:313:SER:N	2.42	0.53
2:H:756:SER:HB3	2:H:769:ARG:H	1.73	0.53
2:H:1272:ARG:NH2	2:H:1590:PHE:O	2.42	0.53
2:K:681:HIS:HB2	2:K:799:LYS:HG2	1.90	0.53
2:K:844:ARG:HG2	2:K:846:TYR:H	1.74	0.53
2:B:844:ARG:HG2	2:B:846:TYR:H	1.74	0.53
2:K:1272:ARG:HG3	2:K:1586:LEU:HD13	1.90	0.53
2:K:2413:ALA:HB1	2:K:2418:ILE:HD11	1.90	0.53
2:K:4020:MET:CE	2:K:4067:LEU:HD13	2.39	0.53
2:B:4787:PHE:CD1	2:B:4808:ASP:O	2.56	0.53
2:E:156:GLU:OE1	2:H:2419:ARG:NH1	2.42	0.53
2:E:681:HIS:HB2	2:E:799:LYS:HG2	1.90	0.53
2:K:674:TYR:OH	2:K:676:GLU:OE2	2.21	0.53
2:B:309:MET:O	2:B:313:SER:N	2.42	0.53
2:B:1303:ARG:HB2	2:B:1593:HIS:HB2	1.90	0.53
2:E:1429:SER:HA	2:E:1507:ILE:HG12	1.91	0.53
2:H:2413:ALA:HB1	2:H:2418:ILE:HD11	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:466:PRO:HB3	2:K:478:ARG:HD2	1.91	0.53
2:K:2406:GLU:O	2:K:2410:ILE:N	2.42	0.53
2:E:309:MET:O	2:E:313:SER:N	2.42	0.52
2:E:716:ASN:HA	2:E:722:LEU:HD13	1.91	0.52
2:E:4020:MET:CE	2:E:4067:LEU:HD13	2.39	0.52
2:E:4085:VAL:O	2:E:4089:HIS:N	2.40	0.52
2:E:4605:LYS:HG3	2:E:4645:TYR:HE1	1.73	0.52
2:H:466:PRO:HB3	2:H:478:ARG:HD2	1.91	0.52
2:H:1250:TRP:HB3	2:H:1600:PRO:HB2	1.91	0.52
2:H:4020:MET:CE	2:H:4067:LEU:HD13	2.39	0.52
2:K:2116:ASP:OD1	2:K:2153:ASN:ND2	2.43	0.52
2:K:4159:THR:O	2:K:4163:LYS:NZ	2.37	0.52
2:B:298:ARG:HE	2:B:303:GLY:HA2	1.72	0.52
2:B:1272:ARG:HG3	2:B:1586:LEU:HD13	1.90	0.52
2:B:4605:LYS:HG3	2:B:4645:TYR:HE1	1.73	0.52
2:E:756:SER:HB3	2:E:769:ARG:H	1.74	0.52
2:K:1250:TRP:HB3	2:K:1600:PRO:HB2	1.91	0.52
2:E:308:LEU:HD21	2:E:370:LEU:HD12	1.91	0.52
2:K:66:THR:OG1	2:K:124:SER:OG	2.25	0.52
2:K:756:SER:HB3	2:K:769:ARG:H	1.74	0.52
2:K:3800:SER:OG	2:K:3801:CYS:N	2.41	0.52
2:B:1272:ARG:NH2	2:B:1590:PHE:O	2.42	0.52
2:H:308:LEU:HD21	2:H:370:LEU:HD12	1.91	0.52
2:H:844:ARG:HG2	2:H:846:TYR:H	1.74	0.52
2:H:1114:ARG:NH1	2:H:1128:LEU:O	2.43	0.52
2:H:4085:VAL:O	2:H:4089:HIS:N	2.40	0.52
2:K:4605:LYS:HG3	2:K:4645:TYR:HE1	1.73	0.52
2:B:716:ASN:HA	2:B:722:LEU:HD13	1.91	0.52
2:B:2419:ARG:NH1	2:K:156:GLU:OE1	2.42	0.52
2:E:1250:TRP:HB3	2:E:1600:PRO:HB2	1.91	0.52
2:H:1429:SER:HA	2:H:1507:ILE:HG12	1.91	0.52
2:H:3919:ASN:O	2:H:3922:THR:OG1	2.23	0.52
2:K:3729:GLN:O	2:K:3733:HIS:ND1	2.43	0.52
2:H:716:ASN:HA	2:H:722:LEU:HD13	1.91	0.52
2:H:2116:ASP:OD1	2:H:2153:ASN:ND2	2.43	0.52
2:K:1114:ARG:NH1	2:K:1128:LEU:O	2.43	0.52
1:G:21:THR:HG1	1:G:49:ARG:HH21	1.54	0.52
2:H:4605:LYS:HG3	2:H:4645:TYR:HE1	1.73	0.52
2:K:644:LEU:HD22	2:K:1632:ILE:HG22	1.92	0.52
2:K:4497:ALA:HB1	2:K:4594:LEU:HD13	1.90	0.52
2:B:4192:ASN:OD1	2:B:4605:LYS:NZ	2.29	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:3800:SER:OG	2:E:3801:CYS:N	2.41	0.52
2:H:687:THR:HG23	2:H:1626:GLN:HE21	1.75	0.52
2:K:1303:ARG:HB2	2:K:1593:HIS:HB2	1.90	0.52
2:B:1114:ARG:NH1	2:B:1128:LEU:O	2.43	0.51
2:B:2406:GLU:O	2:B:2410:ILE:N	2.42	0.51
2:E:466:PRO:HB3	2:E:478:ARG:HD2	1.91	0.51
2:E:1114:ARG:NH1	2:E:1128:LEU:O	2.43	0.51
2:E:2116:ASP:OD1	2:E:2153:ASN:ND2	2.43	0.51
2:E:2730:HIS:NE2	2:E:2759:LYS:O	2.43	0.51
2:K:1260:GLN:HG2	2:K:1591:LEU:HD13	1.92	0.51
2:B:1250:TRP:HB3	2:B:1600:PRO:HB2	1.92	0.51
2:B:2427:LEU:CD1	2:K:143:LEU:CD1	2.86	0.51
2:E:279:THR:O	2:E:296:ARG:NH2	2.43	0.51
2:E:805:GLY:HA2	2:E:810:GLU:HB2	1.92	0.51
2:E:1272:ARG:NH2	2:E:1590:PHE:O	2.42	0.51
2:E:2406:GLU:O	2:E:2410:ILE:N	2.42	0.51
2:H:4497:ALA:HB1	2:H:4594:LEU:HD13	1.90	0.51
2:B:279:THR:O	2:B:296:ARG:NH2	2.43	0.51
2:K:559:ILE:HD13	2:K:593:HIS:HB3	1.93	0.51
2:B:176:ARG:N	2:B:179:ASP:OD2	2.44	0.51
2:B:559:ILE:HD13	2:B:593:HIS:HB3	1.93	0.51
2:B:2730:HIS:NE2	2:B:2759:LYS:O	2.43	0.51
2:E:559:ILE:HD13	2:E:593:HIS:HB3	1.93	0.51
2:K:1209:VAL:N	2:K:1211:GLN:OE1	2.44	0.51
2:B:687:THR:HG23	2:B:1626:GLN:HE21	1.75	0.51
2:B:1209:VAL:N	2:B:1211:GLN:OE1	2.44	0.51
2:K:1111:GLY:HA3	2:K:1211:GLN:HE21	1.76	0.51
2:B:466:PRO:HB3	2:B:478:ARG:HD2	1.91	0.51
2:E:20:VAL:HG12	2:E:216:PRO:HA	1.93	0.51
2:E:644:LEU:HD22	2:E:1632:ILE:HG22	1.92	0.51
2:H:20:VAL:HG12	2:H:216:PRO:HA	1.93	0.51
2:H:182:ILE:HD11	2:H:211:LEU:HD23	1.92	0.51
2:H:279:THR:O	2:H:296:ARG:NH2	2.43	0.51
2:H:559:ILE:HD13	2:H:593:HIS:HB3	1.93	0.51
2:K:308:LEU:HD21	2:K:370:LEU:HD12	1.91	0.51
2:B:644:LEU:HD22	2:B:1632:ILE:HG22	1.92	0.51
2:B:2116:ASP:OD1	2:B:2153:ASN:ND2	2.43	0.51
1:D:27:THR:HA	1:D:38:SER:HA	1.93	0.51
2:K:176:ARG:N	2:K:179:ASP:OD2	2.44	0.51
2:B:308:LEU:HD21	2:B:370:LEU:HD12	1.91	0.51
2:B:760:ASP:HB2	2:B:763:ALA:HB3	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:196:TYR:HA	2:E:201:LEU:HD23	1.92	0.51
2:E:4192:ASN:OD1	2:E:4605:LYS:NZ	2.29	0.51
2:H:176:ARG:N	2:H:179:ASP:OD2	2.44	0.51
2:H:196:TYR:HA	2:H:201:LEU:HD23	1.92	0.51
1:J:9:PRO:HA	1:J:70:GLN:HG3	1.92	0.51
2:K:805:GLY:HA2	2:K:810:GLU:HB2	1.92	0.51
1:D:9:PRO:HA	1:D:70:GLN:HG3	1.92	0.51
2:E:1209:VAL:N	2:E:1211:GLN:OE1	2.44	0.51
2:H:1209:VAL:N	2:H:1211:GLN:OE1	2.44	0.51
2:K:687:THR:HG23	2:K:1626:GLN:HE21	1.75	0.51
2:K:2730:HIS:NE2	2:K:2759:LYS:O	2.43	0.51
2:B:3729:GLN:O	2:B:3733:HIS:ND1	2.43	0.51
2:E:182:ILE:HD11	2:E:211:LEU:HD23	1.92	0.51
2:E:672:LYS:HA	2:E:760:ASP:HA	1.93	0.51
2:E:760:ASP:HB2	2:E:763:ALA:HB3	1.93	0.51
2:E:4020:MET:HE2	2:E:4063:GLU:HB3	1.93	0.51
2:H:1098:ALA:O	2:H:1101:TRP:NE1	2.38	0.51
2:H:1114:ARG:HB2	2:H:1206:SER:HB3	1.92	0.51
2:K:196:TYR:HA	2:K:201:LEU:HD23	1.92	0.51
2:K:672:LYS:HA	2:K:760:ASP:HA	1.93	0.51
2:K:716:ASN:HA	2:K:722:LEU:HD13	1.91	0.51
1:A:9:PRO:HA	1:A:70:GLN:HG3	1.92	0.50
2:B:143:LEU:CD1	2:E:2427:LEU:CD1	2.85	0.50
2:B:672:LYS:HA	2:B:760:ASP:HA	1.93	0.50
2:B:1114:ARG:HB2	2:B:1206:SER:HB3	1.92	0.50
3:C:27:THR:HA	3:C:63:THR:HB	1.94	0.50
2:E:1847:GLU:OE1	2:E:1849:SER:OG	2.25	0.50
2:E:4486:ILE:HG22	2:E:4489:GLN:H	1.77	0.50
2:H:156:GLU:OE1	2:K:2419:ARG:NH1	2.43	0.50
2:K:644:LEU:HB3	2:K:1630:LEU:HD12	1.94	0.50
2:K:1114:ARG:HB2	2:K:1206:SER:HB3	1.92	0.50
2:K:3919:ASN:O	2:K:3922:THR:OG1	2.23	0.50
2:B:196:TYR:HA	2:B:201:LEU:HD23	1.92	0.50
2:B:1038:LEU:HD12	2:B:1043:LYS:HE3	1.94	0.50
2:E:43:GLY:H	2:E:45:ARG:HH12	1.59	0.50
2:E:1038:LEU:HD12	2:E:1043:LYS:HE3	1.94	0.50
2:H:2114:VAL:O	2:H:2117:THR:OG1	2.28	0.50
2:K:4616:LEU:HA	2:K:4620:GLU:HB2	1.93	0.50
3:L:27:THR:HA	3:L:63:THR:HB	1.94	0.50
2:B:1303:ARG:O	2:B:1593:HIS:N	2.45	0.50
2:E:687:THR:HG23	2:E:1626:GLN:HE21	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1771:ILE:HG22	2:E:1773:ASN:H	1.76	0.50
2:H:1111:GLY:HA3	2:H:1211:GLN:HE21	1.76	0.50
1:J:27:THR:HA	1:J:38:SER:HA	1.93	0.50
2:B:43:GLY:H	2:B:45:ARG:HH12	1.59	0.50
2:E:644:LEU:HB3	2:E:1630:LEU:HD12	1.94	0.50
2:E:1114:ARG:HB2	2:E:1206:SER:HB3	1.92	0.50
2:H:43:GLY:H	2:H:45:ARG:HH12	1.59	0.50
2:H:805:GLY:HA2	2:H:810:GLU:HB2	1.92	0.50
2:K:279:THR:O	2:K:296:ARG:NH2	2.43	0.50
2:B:295:PHE:N	2:B:329:PHE:O	2.44	0.50
2:B:1111:GLY:HA3	2:B:1211:GLN:HE21	1.76	0.50
2:E:1260:GLN:HG2	2:E:1591:LEU:HD13	1.92	0.50
2:E:4167:LYS:NZ	7:E:6003:ATP:O2B	2.44	0.50
1:G:27:THR:HA	1:G:38:SER:HA	1.93	0.50
2:H:644:LEU:HD22	2:H:1632:ILE:HG22	1.92	0.50
2:H:672:LYS:HA	2:H:760:ASP:HA	1.92	0.50
2:H:1303:ARG:O	2:H:1593:HIS:N	2.45	0.50
2:H:4486:ILE:HG22	2:H:4489:GLN:H	1.77	0.50
2:K:182:ILE:HD11	2:K:211:LEU:HD23	1.92	0.50
2:K:295:PHE:N	2:K:329:PHE:O	2.44	0.50
2:K:760:ASP:HB2	2:K:763:ALA:HB3	1.93	0.50
2:K:1303:ARG:O	2:K:1593:HIS:N	2.45	0.50
2:B:805:GLY:HA2	2:B:810:GLU:HB2	1.92	0.50
2:E:176:ARG:N	2:E:179:ASP:OD2	2.44	0.50
3:F:27:THR:HA	3:F:63:THR:HB	1.94	0.50
1:G:9:PRO:HA	1:G:70:GLN:HG3	1.92	0.50
2:H:1038:LEU:HD12	2:H:1043:LYS:HE3	1.94	0.50
2:H:4616:LEU:HA	2:H:4620:GLU:HB2	1.93	0.50
2:K:20:VAL:HG12	2:K:216:PRO:HA	1.93	0.50
2:H:1171:HIS:HE1	2:H:1197:VAL:H	1.60	0.50
2:B:20:VAL:HG12	2:B:216:PRO:HA	1.93	0.50
2:B:182:ILE:HD11	2:B:211:LEU:HD23	1.92	0.50
2:B:1260:GLN:HG2	2:B:1591:LEU:HD13	1.92	0.50
2:B:2832:VAL:O	2:B:2895:LYS:NZ	2.38	0.50
2:B:3803:VAL:HG22	2:B:3881:ARG:HH21	1.77	0.50
2:E:1611:ILE:HB	2:E:1620:GLN:HB3	1.94	0.50
2:E:4616:LEU:HA	2:E:4620:GLU:HB2	1.93	0.50
2:H:1304:LEU:HB3	2:H:1541:PRO:HG2	1.94	0.50
2:H:2730:HIS:NE2	2:H:2759:LYS:O	2.43	0.50
2:K:1171:HIS:HE1	2:K:1197:VAL:H	1.60	0.50
2:B:693:LEU:HD13	2:B:749:LEU:HD22	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1304:LEU:HB3	2:B:1541:PRO:HG2	1.94	0.50
2:E:1111:GLY:HA3	2:E:1211:GLN:HE21	1.76	0.50
2:H:1847:GLU:OE1	2:H:1849:SER:OG	2.25	0.50
3:I:27:THR:HA	3:I:63:THR:HB	1.94	0.50
2:B:1184:ASP:OD2	2:B:1188:SER:OG	2.30	0.49
2:B:1611:ILE:HB	2:B:1620:GLN:HB3	1.94	0.49
2:B:1771:ILE:HG22	2:B:1773:ASN:H	1.76	0.49
2:B:4486:ILE:HG22	2:B:4489:GLN:H	1.77	0.49
2:B:4521:TYR:HB3	2:K:4787:PHE:CZ	2.47	0.49
2:H:1771:ILE:HG22	2:H:1773:ASN:H	1.76	0.49
2:K:3803:VAL:HG22	2:K:3881:ARG:HH21	1.77	0.49
2:H:693:LEU:HD13	2:H:749:LEU:HD22	1.94	0.49
2:H:4787:PHE:CZ	2:K:4521:TYR:HB3	2.46	0.49
2:K:4486:ILE:HG22	2:K:4489:GLN:H	1.77	0.49
2:B:1154:ARG:NH2	2:B:1180:GLU:OE1	2.46	0.49
2:B:4616:LEU:HA	2:B:4620:GLU:HB2	1.93	0.49
2:H:295:PHE:N	2:H:329:PHE:O	2.44	0.49
2:H:1443:VAL:HB	2:H:1489:CYS:HB2	1.94	0.49
2:K:693:LEU:HD13	2:K:749:LEU:HD22	1.94	0.49
2:K:748:LEU:HD22	2:K:750:ARG:HE	1.78	0.49
2:K:1038:LEU:HD12	2:K:1043:LYS:HE3	1.94	0.49
2:K:1304:LEU:HB3	2:K:1541:PRO:HG2	1.94	0.49
2:B:644:LEU:HB3	2:B:1630:LEU:HD12	1.94	0.49
2:B:4168:GLU:CB	2:B:4171:ARG:NH1	2.75	0.49
2:B:4722:TYR:OH	2:B:4746:ASP:OD1	2.23	0.49
2:H:760:ASP:HB2	2:H:763:ALA:HB3	1.93	0.49
2:K:2114:VAL:O	2:K:2117:THR:OG1	2.28	0.49
2:B:4167:LYS:NZ	7:B:6003:ATP:O2B	2.44	0.49
2:H:991:SER:OG	2:H:1064:LEU:O	2.30	0.49
2:H:1260:GLN:HG2	2:H:1591:LEU:HD13	1.92	0.49
2:H:1611:ILE:HB	2:H:1620:GLN:HB3	1.94	0.49
2:K:1443:VAL:HB	2:K:1489:CYS:HB2	1.94	0.49
2:K:1611:ILE:HB	2:K:1620:GLN:HB3	1.94	0.49
2:K:1771:ILE:HG22	2:K:1773:ASN:H	1.76	0.49
2:B:748:LEU:HD22	2:B:750:ARG:HE	1.78	0.49
2:B:1171:HIS:HE1	2:B:1197:VAL:H	1.60	0.49
2:E:1304:LEU:HB3	2:E:1541:PRO:HG2	1.94	0.49
2:H:1154:ARG:NH2	2:H:1180:GLU:OE1	2.46	0.49
2:B:991:SER:OG	2:B:1064:LEU:O	2.30	0.49
2:B:1242:ASN:HD22	2:B:1807:ARG:HD2	1.78	0.49
2:B:4787:PHE:CZ	2:E:4521:TYR:HB3	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:1184:ASP:N	2:E:1188:SER:O	2.45	0.49
2:H:3803:VAL:HG22	2:H:3881:ARG:HH21	1.77	0.49
2:K:1242:ASN:HD22	2:K:1807:ARG:HD2	1.78	0.49
2:K:1847:GLU:OE1	2:K:1849:SER:OG	2.25	0.49
1:A:27:THR:HA	1:A:38:SER:HA	1.93	0.49
2:E:3803:VAL:HG22	2:E:3881:ARG:HH21	1.77	0.49
2:E:4164:PRO:HB2	2:E:4165:GLN:HG3	1.95	0.49
2:E:4207:ILE:HD12	2:E:4494:ASN:HD22	1.78	0.49
2:E:295:PHE:N	2:E:329:PHE:O	2.44	0.49
2:E:991:SER:OG	2:E:1064:LEU:O	2.30	0.49
2:H:748:LEU:HD22	2:H:750:ARG:HE	1.77	0.49
2:H:2832:VAL:O	2:H:2895:LYS:NZ	2.38	0.49
2:H:4164:PRO:HB2	2:H:4165:GLN:HG3	1.95	0.49
2:B:76:ARG:NH2	2:E:3806:LEU:CD2	2.71	0.49
2:B:4207:ILE:HD12	2:B:4494:ASN:HD22	1.78	0.49
2:B:4910:THR:HG21	7:B:6003:ATP:C5	2.48	0.49
2:E:1154:ARG:NH2	2:E:1180:GLU:OE1	2.46	0.49
2:H:1589:GLN:NE2	2:H:1634:GLU:OE1	2.46	0.49
2:H:3977:LYS:HB2	2:H:4095:ILE:HG13	1.95	0.49
2:K:991:SER:OG	2:K:1064:LEU:O	2.30	0.49
2:B:1125:ASP:HA	2:B:1598:ARG:HH11	1.78	0.48
2:B:4791:ARG:HB2	2:B:4808:ASP:HB3	1.96	0.48
2:E:693:LEU:HD13	2:E:749:LEU:HD22	1.94	0.48
2:E:1171:HIS:HE1	2:E:1197:VAL:H	1.60	0.48
2:E:3729:GLN:O	2:E:3733:HIS:ND1	2.43	0.48
1:G:49:ARG:HB3	1:G:52:LYS:HE2	1.95	0.48
2:H:644:LEU:HB3	2:H:1630:LEU:HD12	1.94	0.48
2:H:1125:ASP:HA	2:H:1598:ARG:HH11	1.78	0.48
2:H:4207:ILE:HD12	2:H:4494:ASN:HD22	1.78	0.48
2:H:4655:MET:O	2:H:4664:ARG:NH1	2.46	0.48
2:K:43:GLY:H	2:K:45:ARG:HH12	1.59	0.48
2:K:2832:VAL:O	2:K:2895:LYS:NZ	2.38	0.48
1:A:49:ARG:HB3	1:A:52:LYS:HE2	1.95	0.48
2:B:674:TYR:OH	2:B:676:GLU:OE2	2.21	0.48
1:D:49:ARG:HB3	1:D:52:LYS:HE2	1.95	0.48
2:E:953:SER:OG	2:E:1061:GLY:O	2.32	0.48
2:E:1303:ARG:O	2:E:1593:HIS:N	2.45	0.48
2:E:3977:LYS:HB2	2:E:4095:ILE:HG13	1.95	0.48
2:H:4910:THR:HG21	7:H:6003:ATP:C5	2.48	0.48
1:J:49:ARG:HB3	1:J:52:LYS:HE2	1.95	0.48
2:B:218:SER:HB3	2:B:286:GLY:HA3	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:239:GLY:O	2:B:243:GLU:N	2.46	0.48
2:B:1589:GLN:NE2	2:B:1634:GLU:OE1	2.46	0.48
2:B:4164:PRO:HB2	2:B:4165:GLN:HG3	1.95	0.48
2:E:1251:LEU:O	2:E:1601:ASN:N	2.47	0.48
2:H:1242:ASN:HD22	2:H:1807:ARG:HD2	1.78	0.48
2:K:218:SER:HB3	2:K:286:GLY:HA3	1.96	0.48
2:K:1733:THR:HG22	2:K:1755:THR:HB	1.96	0.48
2:K:3593:SER:O	2:K:3597:LYS:NZ	2.42	0.48
2:K:4207:ILE:HD12	2:K:4494:ASN:HD22	1.78	0.48
2:E:1443:VAL:HB	2:E:1489:CYS:HB2	1.94	0.48
2:E:4910:THR:HG21	7:E:6003:ATP:C5	2.48	0.48
2:H:58:VAL:HG22	2:H:320:GLU:HA	1.96	0.48
2:H:673:TRP:HE3	2:H:822:CYS:HA	1.78	0.48
3:I:37:MET:HB3	3:I:42:GLN:HB2	1.96	0.48
2:H:218:SER:HB3	2:H:286:GLY:HA3	1.96	0.48
2:K:1154:ARG:NH2	2:K:1180:GLU:OE1	2.46	0.48
2:B:718:VAL:HA	2:B:736:CYS:N	2.29	0.48
2:B:4891:ILE:HD13	2:B:4914:HIS:HB3	1.95	0.48
2:H:799:LYS:HB3	2:H:1620:GLN:HG3	1.95	0.48
2:K:673:TRP:HE3	2:K:822:CYS:HA	1.78	0.48
2:K:4891:ILE:HD13	2:K:4914:HIS:HB3	1.95	0.48
2:K:4910:THR:HG21	7:K:6003:ATP:C5	2.48	0.48
2:B:1733:THR:HG22	2:B:1755:THR:HB	1.96	0.48
2:E:673:TRP:HE3	2:E:822:CYS:HA	1.78	0.48
2:E:748:LEU:HD22	2:E:750:ARG:HE	1.78	0.48
2:H:674:TYR:OH	2:H:676:GLU:OE2	2.21	0.48
2:H:1733:THR:HG22	2:H:1755:THR:HB	1.96	0.48
1:J:62:GLY:HA3	1:J:74:LEU:HD21	1.96	0.48
2:K:239:GLY:O	2:K:243:GLU:N	2.47	0.48
2:E:1242:ASN:HD22	2:E:1807:ARG:HD2	1.78	0.48
2:E:1733:THR:HG22	2:E:1755:THR:HB	1.96	0.48
2:E:4022:LEU:HD12	2:E:4089:HIS:CE1	2.49	0.48
2:H:239:GLY:O	2:H:243:GLU:N	2.46	0.48
2:H:4891:ILE:HD13	2:H:4914:HIS:HB3	1.95	0.48
2:K:718:VAL:HA	2:K:736:CYS:N	2.29	0.48
2:K:1589:GLN:NE2	2:K:1634:GLU:OE1	2.46	0.48
2:K:4164:PRO:HB2	2:K:4165:GLN:HG3	1.95	0.48
2:B:58:VAL:HG22	2:B:320:GLU:HA	1.96	0.48
2:B:1443:VAL:HB	2:B:1489:CYS:HB2	1.94	0.48
2:E:218:SER:HB3	2:E:286:GLY:HA3	1.96	0.48
2:E:1589:GLN:NE2	2:E:1634:GLU:OE1	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:62:GLY:HA3	1:G:74:LEU:HD21	1.96	0.48
2:K:847:THR:OG1	2:K:1215:MET:O	2.32	0.48
2:K:3977:LYS:HB2	2:K:4095:ILE:HG13	1.95	0.48
2:B:1106:GLU:O	2:B:1214:ARG:N	2.47	0.48
2:B:4655:MET:O	2:B:4664:ARG:NH1	2.46	0.48
2:E:239:GLY:O	2:E:243:GLU:N	2.46	0.48
2:E:4722:TYR:OH	2:E:4746:ASP:OD1	2.23	0.48
2:K:799:LYS:HB3	2:K:1620:GLN:HG3	1.95	0.48
2:K:1445:TRP:H	2:K:1487:MET:HB2	1.79	0.48
2:K:4655:MET:O	2:K:4664:ARG:NH1	2.46	0.48
3:L:37:MET:HB3	3:L:42:GLN:HB2	1.96	0.48
2:B:799:LYS:HB3	2:B:1620:GLN:HG3	1.95	0.47
2:B:3977:LYS:HB2	2:B:4095:ILE:HG13	1.95	0.47
2:E:541:ILE:HG23	2:E:548:CYS:HB3	1.96	0.47
2:E:1106:GLU:O	2:E:1214:ARG:N	2.47	0.47
2:E:2114:VAL:O	2:E:2117:THR:OG1	2.28	0.47
3:F:37:MET:HB3	3:F:42:GLN:HB2	1.96	0.47
2:H:1251:LEU:O	2:H:1601:ASN:N	2.47	0.47
2:H:2464:ASP:OD1	2:H:2464:ASP:N	2.36	0.47
2:K:1106:GLU:O	2:K:1214:ARG:N	2.47	0.47
2:K:1143:GLN:HA	2:K:1151:HIS:HA	1.96	0.47
2:K:4167:LYS:NZ	7:K:6003:ATP:O2B	2.44	0.47
2:B:4791:ARG:HB3	2:B:4808:ASP:CB	2.43	0.47
1:D:62:GLY:HA3	1:D:74:LEU:HD21	1.96	0.47
2:E:4848:ASP:CB	2:H:4819:TYR:CE1	2.93	0.47
2:H:143:LEU:HD12	2:K:2427:LEU:HD13	1.93	0.47
2:H:1106:GLU:O	2:H:1214:ARG:N	2.47	0.47
2:H:1143:GLN:HA	2:H:1151:HIS:HA	1.96	0.47
2:H:1184:ASP:N	2:H:1188:SER:O	2.45	0.47
2:B:235:ARG:NH2	2:B:269:VAL:O	2.39	0.47
2:E:433:LEU:HD12	2:E:447:LEU:HD11	1.97	0.47
2:H:847:THR:OG1	2:H:1215:MET:O	2.32	0.47
2:H:2072:GLN:NE2	2:H:3647:LYS:O	2.47	0.47
2:H:4621:GLN:HE22	2:H:4633:ARG:HH12	1.62	0.47
2:K:58:VAL:HG22	2:K:320:GLU:HA	1.96	0.47
2:K:953:SER:OG	2:K:1061:GLY:O	2.32	0.47
2:K:3936:LEU:HD21	2:K:3941:LEU:HD22	1.96	0.47
2:K:4621:GLN:HE22	2:K:4633:ARG:HH12	1.62	0.47
1:A:62:GLY:HA3	1:A:74:LEU:HD21	1.96	0.47
2:B:953:SER:OG	2:B:1061:GLY:O	2.32	0.47
2:B:1445:TRP:H	2:B:1487:MET:HB2	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:4655:MET:O	2:E:4664:ARG:NH1	2.46	0.47
2:E:4845:ILE:HG23	2:H:4819:TYR:HB2	1.97	0.47
2:H:2029:ARG:O	2:H:2032:SER:OG	2.28	0.47
2:K:1125:ASP:HA	2:K:1598:ARG:HH11	1.78	0.47
2:K:3904:GLN:NE2	2:K:3965:GLN:OE1	2.48	0.47
2:B:731:HIS:CG	2:B:740:THR:HA	2.50	0.47
2:B:1218:GLY:HA3	2:B:1240:ALA:H	1.79	0.47
2:E:1218:GLY:HA3	2:E:1240:ALA:H	1.78	0.47
2:E:2832:VAL:O	2:E:2895:LYS:NZ	2.38	0.47
2:E:4891:ILE:HD13	2:E:4914:HIS:HB3	1.95	0.47
2:H:143:LEU:HD13	2:K:2426:SER:O	2.13	0.47
2:H:1218:GLY:HA3	2:H:1240:ALA:H	1.78	0.47
2:H:1445:TRP:H	2:H:1487:MET:HB2	1.79	0.47
2:H:4020:MET:HE2	2:H:4063:GLU:HB3	1.96	0.47
2:H:4022:LEU:HD12	2:H:4089:HIS:CE1	2.49	0.47
2:B:433:LEU:HD12	2:B:447:LEU:HD11	1.97	0.47
2:B:673:TRP:HE3	2:B:822:CYS:HA	1.78	0.47
2:B:1143:GLN:HA	2:B:1151:HIS:HA	1.96	0.47
2:B:3904:GLN:NE2	2:B:3965:GLN:OE1	2.48	0.47
2:B:4621:GLN:HE22	2:B:4633:ARG:HH12	1.62	0.47
3:C:78:LYS:HA	3:C:81:ASP:HB2	1.97	0.47
2:E:188:SER:HB2	2:E:190:ARG:HH21	1.80	0.47
2:E:1125:ASP:HA	2:E:1598:ARG:HH11	1.78	0.47
2:E:1445:TRP:H	2:E:1487:MET:HB2	1.79	0.47
2:H:3729:GLN:O	2:H:3733:HIS:ND1	2.43	0.47
2:K:4010:ASN:OD1	2:K:4010:ASN:N	2.48	0.47
2:B:1184:ASP:N	2:B:1188:SER:O	2.45	0.47
2:B:1602:GLN:HE22	2:B:1642:LEU:HB3	1.80	0.47
2:B:2072:GLN:NE2	2:B:3647:LYS:O	2.47	0.47
2:B:4022:LEU:HD12	2:B:4089:HIS:CE1	2.49	0.47
3:C:37:MET:HB3	3:C:42:GLN:HB2	1.96	0.47
1:D:26:TYR:N	1:D:39:SER:OG	2.47	0.47
2:E:731:HIS:CG	2:E:740:THR:HA	2.50	0.47
2:E:1602:GLN:HE22	2:E:1642:LEU:HB3	1.80	0.47
2:E:4193:PHE:O	2:E:4197:THR:OG1	2.25	0.47
2:E:4787:PHE:CZ	2:H:4521:TYR:HB3	2.49	0.47
1:G:26:TYR:N	1:G:39:SER:OG	2.47	0.47
2:H:1602:GLN:HE22	2:H:1642:LEU:HB3	1.80	0.47
2:K:731:HIS:CG	2:K:740:THR:HA	2.50	0.47
2:K:2029:ARG:O	2:K:2032:SER:OG	2.28	0.47
2:K:2072:GLN:NE2	2:K:3647:LYS:O	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:156:GLU:HB2	2:B:187:SER:HB3	1.97	0.47
2:B:1847:GLU:OE1	2:B:1849:SER:OG	2.25	0.47
2:E:306:LEU:HD11	2:E:314:LEU:HG	1.97	0.47
2:E:3904:GLN:NE2	2:E:3965:GLN:OE1	2.48	0.47
2:H:953:SER:OG	2:H:1061:GLY:O	2.32	0.47
2:H:995:MET:HG2	2:H:998:LYS:HD2	1.97	0.47
2:K:541:ILE:HG23	2:K:548:CYS:HB3	1.96	0.47
2:K:995:MET:HG2	2:K:998:LYS:HD2	1.97	0.47
2:K:1167:ASP:OD2	2:K:1172:THR:OG1	2.32	0.47
2:B:2029:ARG:O	2:B:2032:SER:OG	2.27	0.47
2:B:3936:LEU:HD21	2:B:3941:LEU:HD22	1.96	0.47
2:E:4621:GLN:HE22	2:E:4633:ARG:HH12	1.62	0.47
2:H:262:TYR:HB2	2:H:389:ARG:HB3	1.96	0.47
2:H:433:LEU:HD12	2:H:447:LEU:HD11	1.97	0.47
2:H:541:ILE:HG23	2:H:548:CYS:HB3	1.96	0.47
2:K:4022:LEU:HD12	2:K:4089:HIS:CE1	2.49	0.47
2:B:4010:ASN:OD1	2:B:4010:ASN:N	2.48	0.47
1:G:40:ARG:NH2	1:G:102:GLU:OE1	2.48	0.47
2:H:306:LEU:HD11	2:H:314:LEU:HG	1.97	0.47
2:H:4010:ASN:OD1	2:H:4010:ASN:N	2.48	0.47
2:E:799:LYS:HB3	2:E:1620:GLN:HG3	1.95	0.46
2:E:2072:GLN:NE2	2:E:3647:LYS:O	2.47	0.46
2:H:731:HIS:CG	2:H:740:THR:HA	2.50	0.46
2:H:2406:GLU:O	2:H:2410:ILE:N	2.42	0.46
2:K:1218:GLY:HA3	2:K:1240:ALA:H	1.79	0.46
2:B:204:ASP:N	2:B:204:ASP:OD1	2.48	0.46
2:B:268:SER:O	2:B:273:SER:OG	2.31	0.46
2:B:541:ILE:HG23	2:B:548:CYS:HB3	1.96	0.46
2:B:995:MET:HG2	2:B:998:LYS:HD2	1.97	0.46
2:B:1132:GLU:HB3	2:B:1147:GLN:HE21	1.80	0.46
2:E:262:TYR:HB2	2:E:389:ARG:HB3	1.96	0.46
2:E:718:VAL:HA	2:E:736:CYS:N	2.29	0.46
2:E:836:HIS:CE1	2:E:1610:ARG:HD2	2.51	0.46
2:E:1608:VAL:HG12	2:E:1610:ARG:HB2	1.97	0.46
2:H:718:VAL:HA	2:H:736:CYS:N	2.29	0.46
2:K:188:SER:HB2	2:K:190:ARG:HH21	1.80	0.46
2:K:1602:GLN:HE22	2:K:1642:LEU:HB3	1.80	0.46
1:A:40:ARG:NH2	1:A:102:GLU:OE1	2.48	0.46
2:B:188:SER:HB2	2:B:190:ARG:HH21	1.80	0.46
2:E:204:ASP:OD1	2:E:204:ASP:N	2.48	0.46
2:E:1132:GLU:HB3	2:E:1147:GLN:HE21	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:78:LYS:HA	3:F:81:ASP:HB2	1.97	0.46
2:H:836:HIS:CE1	2:H:1610:ARG:HD2	2.51	0.46
1:A:26:TYR:N	1:A:39:SER:OG	2.47	0.46
2:B:1676:LEU:O	2:B:1680:VAL:N	2.47	0.46
2:E:58:VAL:HG22	2:E:320:GLU:HA	1.96	0.46
2:E:156:GLU:HB2	2:E:187:SER:HB3	1.97	0.46
1:G:92:PRO:HG2	1:G:95:ALA:HB2	1.98	0.46
2:H:679:VAL:HA	2:H:800:VAL:HG12	1.97	0.46
2:H:1676:LEU:O	2:H:1680:VAL:N	2.47	0.46
2:H:1912:GLN:HB2	2:H:2088:LEU:HD11	1.98	0.46
2:H:3680:LYS:NZ	2:H:3684:GLU:OE2	2.47	0.46
2:H:3904:GLN:NE2	2:H:3965:GLN:OE1	2.48	0.46
2:K:433:LEU:HD12	2:K:447:LEU:HD11	1.97	0.46
1:A:21:THR:HG1	1:A:49:ARG:HH21	1.59	0.46
1:D:92:PRO:HG2	1:D:95:ALA:HB2	1.98	0.46
2:E:1143:GLN:HA	2:E:1151:HIS:HA	1.96	0.46
2:E:2319:ASN:OD1	2:E:2323:ARG:NH2	2.49	0.46
2:E:3936:LEU:HD21	2:E:3941:LEU:HD22	1.96	0.46
2:H:1608:VAL:HG12	2:H:1610:ARG:HB2	1.97	0.46
2:H:3683:LEU:HD12	2:H:3748:SER:HB3	1.98	0.46
2:K:1184:ASP:OD2	2:K:1188:SER:OG	2.30	0.46
2:K:4000:MET:HA	2:K:4003:MET:HG2	1.98	0.46
2:K:4808:ASP:OD1	2:K:4808:ASP:N	2.47	0.46
3:L:78:LYS:HA	3:L:81:ASP:HB2	1.97	0.46
2:B:1608:VAL:HG12	2:B:1610:ARG:HB2	1.96	0.46
2:B:2114:VAL:O	2:B:2117:THR:OG1	2.28	0.46
2:B:3607:ALA:HB3	3:C:85:GLU:HG2	1.98	0.46
2:B:3808:ALA:O	2:B:3812:GLN:HB2	2.16	0.46
2:E:995:MET:HG2	2:E:998:LYS:HD2	1.97	0.46
2:E:3683:LEU:HD12	2:E:3748:SER:HB3	1.98	0.46
2:H:122:ARG:HH21	2:H:127:GLY:HA2	1.81	0.46
2:H:288:HIS:N	2:H:349:MET:O	2.47	0.46
2:H:1184:ASP:OD2	2:H:1188:SER:OG	2.30	0.46
2:H:4167:LYS:NZ	7:H:6003:ATP:O2B	2.44	0.46
1:J:92:PRO:HG2	1:J:95:ALA:HB2	1.98	0.46
2:K:306:LEU:HD11	2:K:314:LEU:HG	1.97	0.46
2:E:4757:ILE:HG23	2:E:4871:PHE:HZ	1.81	0.46
2:H:1470:GLY:HA2	2:H:1474:GLY:HA2	1.98	0.46
2:H:4000:MET:HA	2:H:4003:MET:HG2	1.98	0.46
2:H:4192:ASN:OD1	2:H:4605:LYS:NZ	2.29	0.46
2:K:3680:LYS:NZ	2:K:3684:GLU:OE2	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1912:GLN:HB2	2:B:2088:LEU:HD11	1.97	0.46
2:B:2319:ASN:OD1	2:B:2323:ARG:NH2	2.49	0.46
2:E:394:HIS:HD2	2:E:397:GLY:H	1.63	0.46
2:E:1098:ALA:O	2:E:1101:TRP:NE1	2.38	0.46
2:E:1756:SER:OG	2:E:1757:LEU:N	2.49	0.46
2:E:1912:GLN:HB2	2:E:2088:LEU:HD11	1.98	0.46
2:E:3607:ALA:HB3	3:F:85:GLU:HG2	1.98	0.46
2:H:156:GLU:HB2	2:H:187:SER:HB3	1.97	0.46
2:H:204:ASP:OD1	2:H:204:ASP:N	2.48	0.46
2:H:2117:THR:HG22	2:H:2155:VAL:HG11	1.98	0.46
2:H:3607:ALA:HB3	3:I:85:GLU:HG2	1.98	0.46
2:K:288:HIS:N	2:K:349:MET:O	2.47	0.46
2:K:836:HIS:CE1	2:K:1610:ARG:HD2	2.51	0.46
2:K:1132:GLU:HB3	2:K:1147:GLN:HE21	1.80	0.46
2:K:3683:LEU:HD12	2:K:3748:SER:HB3	1.98	0.46
1:A:92:PRO:HG2	1:A:95:ALA:HB2	1.98	0.46
2:B:122:ARG:HH21	2:B:127:GLY:HA2	1.81	0.46
2:B:836:HIS:CE1	2:B:1610:ARG:HD2	2.51	0.46
2:H:188:SER:HB2	2:H:190:ARG:HH21	1.80	0.46
2:H:2252:ASN:HD22	2:H:3595:GLN:HG3	1.81	0.46
2:H:3936:LEU:HD21	2:H:3941:LEU:HD22	1.96	0.46
2:K:262:TYR:HB2	2:K:389:ARG:HB3	1.96	0.46
2:K:1098:ALA:O	2:K:1101:TRP:NE1	2.38	0.46
2:K:2252:ASN:HD22	2:K:3595:GLN:HG3	1.81	0.46
2:B:262:TYR:HB2	2:B:389:ARG:HB3	1.96	0.46
2:B:306:LEU:HD11	2:B:314:LEU:HG	1.97	0.46
2:K:235:ARG:NH2	2:K:269:VAL:O	2.39	0.46
2:K:894:VAL:HG11	2:K:976:TYR:HD2	1.81	0.46
2:K:897:LYS:HE2	2:K:915:HIS:CG	2.51	0.46
2:K:1608:VAL:HG12	2:K:1610:ARG:HB2	1.96	0.46
2:K:1912:GLN:HB2	2:K:2088:LEU:HD11	1.98	0.46
2:K:3607:ALA:HB3	3:L:85:GLU:HG2	1.98	0.46
2:B:986:ILE:HB	2:B:1058:LEU:HB3	1.98	0.45
2:B:3806:LEU:CD2	2:K:76:ARG:NH2	2.72	0.45
2:E:2252:ASN:HD22	2:E:3595:GLN:HG3	1.81	0.45
2:E:2425:ARG:HH12	2:E:2477:TYR:HA	1.81	0.45
2:E:3993:ASN:HD22	2:E:4110:MET:HG3	1.81	0.45
2:H:894:VAL:HG11	2:H:976:TYR:HD2	1.81	0.45
2:H:1132:GLU:HB3	2:H:1147:GLN:HE21	1.80	0.45
1:J:26:TYR:N	1:J:39:SER:OG	2.47	0.45
2:K:3993:ASN:HD22	2:K:4110:MET:HG3	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:4147:GLU:OE1	2:K:4937:GLN:NE2	2.49	0.45
2:B:894:VAL:HG11	2:B:976:TYR:HD2	1.81	0.45
2:B:2252:ASN:HD22	2:B:3595:GLN:HG3	1.81	0.45
2:E:288:HIS:N	2:E:349:MET:O	2.47	0.45
2:E:986:ILE:HB	2:E:1058:LEU:HB3	1.98	0.45
2:E:1511:VAL:HA	2:E:1517:LEU:H	1.81	0.45
2:E:2464:ASP:OD1	2:E:2464:ASP:N	2.36	0.45
2:H:1763:PHE:HB3	2:H:1781:GLU:HB3	1.98	0.45
3:I:78:LYS:HA	3:I:81:ASP:HB2	1.97	0.45
2:K:679:VAL:HA	2:K:800:VAL:HG12	1.97	0.45
2:K:769:ARG:HA	2:K:775:VAL:HG23	1.99	0.45
2:K:1251:LEU:O	2:K:1601:ASN:N	2.47	0.45
2:K:1763:PHE:HB3	2:K:1781:GLU:HB3	1.98	0.45
2:K:4757:ILE:HG23	2:K:4871:PHE:HZ	1.81	0.45
2:B:80:GLU:HG3	2:E:3891:TRP:CZ3	2.49	0.45
2:B:769:ARG:HA	2:B:775:VAL:HG23	1.99	0.45
2:B:4147:GLU:OE1	2:B:4937:GLN:NE2	2.49	0.45
2:E:76:ARG:HH21	2:H:3806:LEU:CG	2.29	0.45
2:E:897:LYS:HE2	2:E:915:HIS:CG	2.52	0.45
2:E:2117:THR:HG22	2:E:2155:VAL:HG11	1.98	0.45
2:E:3808:ALA:O	2:E:3812:GLN:HB2	2.16	0.45
2:H:66:THR:OG1	2:H:124:SER:OG	2.25	0.45
2:H:4722:TYR:OH	2:H:4746:ASP:OD1	2.23	0.45
2:H:4845:ILE:HG23	2:K:4819:TYR:HB2	1.99	0.45
2:K:156:GLU:HB2	2:K:187:SER:HB3	1.97	0.45
2:K:4722:TYR:OH	2:K:4746:ASP:OD1	2.23	0.45
2:K:4733:GLY:HA3	2:K:4740:PHE:HD1	1.82	0.45
2:B:394:HIS:HD2	2:B:397:GLY:H	1.63	0.45
2:B:4020:MET:HE2	2:B:4063:GLU:HB3	1.98	0.45
2:E:76:ARG:HH22	2:H:3806:LEU:HD11	1.75	0.45
2:E:268:SER:O	2:E:273:SER:OG	2.31	0.45
2:E:1763:PHE:HB3	2:E:1781:GLU:HB3	1.98	0.45
2:H:394:HIS:HD2	2:H:397:GLY:H	1.63	0.45
2:H:3984:LEU:HB2	2:H:4102:LEU:HD12	1.99	0.45
2:H:4147:GLU:OE1	2:H:4937:GLN:NE2	2.49	0.45
2:K:1710:HIS:HB2	2:K:1711:LEU:HD12	1.99	0.45
2:B:847:THR:OG1	2:B:1215:MET:O	2.32	0.45
2:B:1251:LEU:O	2:B:1601:ASN:N	2.47	0.45
2:B:1470:GLY:HA2	2:B:1474:GLY:HA2	1.98	0.45
2:B:1511:VAL:HA	2:B:1517:LEU:H	1.81	0.45
2:B:1726:ILE:HG13	2:B:1757:LEU:HD23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1763:PHE:HB3	2:B:1781:GLU:HB3	1.98	0.45
2:B:2425:ARG:HH12	2:B:2477:TYR:HA	1.81	0.45
2:B:3993:ASN:HD22	2:B:4110:MET:HG3	1.81	0.45
2:E:770:ILE:HG12	2:E:775:VAL:HG21	1.99	0.45
2:E:847:THR:OG1	2:E:1215:MET:O	2.32	0.45
2:E:1710:HIS:HB2	2:E:1711:LEU:HD12	1.99	0.45
2:H:643:LEU:H	2:H:643:LEU:HG	1.60	0.45
2:K:3808:ALA:O	2:K:3812:GLN:HB2	2.16	0.45
2:B:897:LYS:HE2	2:B:915:HIS:CG	2.51	0.45
2:B:1710:HIS:HB2	2:B:1711:LEU:HD12	1.99	0.45
2:B:2117:THR:HG22	2:B:2155:VAL:HG11	1.98	0.45
2:B:2426:SER:O	2:K:143:LEU:HD13	2.13	0.45
2:B:3683:LEU:HD12	2:B:3748:SER:HB3	1.98	0.45
2:B:4819:TYR:CE1	2:K:4848:ASP:CB	2.95	0.45
2:E:1986:GLU:N	2:E:1989:CYS:SG	2.73	0.45
2:H:76:ARG:HH22	2:K:3806:LEU:HD11	1.76	0.45
2:H:1726:ILE:HG13	2:H:1757:LEU:HD23	1.98	0.45
2:H:3993:ASN:HD22	2:H:4110:MET:HG3	1.81	0.45
2:K:305:TYR:HE2	2:K:319:LYS:HG2	1.81	0.45
2:K:394:HIS:HD2	2:K:397:GLY:H	1.63	0.45
2:K:1470:GLY:HA2	2:K:1474:GLY:HA2	1.98	0.45
2:K:1756:SER:OG	2:K:1757:LEU:N	2.49	0.45
2:B:1756:SER:OG	2:B:1757:LEU:N	2.49	0.45
2:B:4897:ASP:N	2:B:4897:ASP:OD1	2.50	0.45
2:E:122:ARG:HH21	2:E:127:GLY:HA2	1.81	0.45
2:E:3844:LEU:HD23	2:E:3844:LEU:HA	1.79	0.45
2:H:1511:VAL:HA	2:H:1517:LEU:H	1.81	0.45
2:H:2425:ARG:HH12	2:H:2477:TYR:HA	1.81	0.45
2:H:4733:GLY:HA3	2:H:4740:PHE:HD1	1.82	0.45
2:K:308:LEU:N	2:K:326:SER:O	2.49	0.45
2:K:1184:ASP:N	2:K:1188:SER:O	2.45	0.45
2:K:1640:ASP:OD1	2:K:1640:ASP:N	2.44	0.45
2:K:4897:ASP:OD1	2:K:4897:ASP:N	2.50	0.45
2:B:16:THR:OG1	2:B:111:ARG:O	2.29	0.45
2:B:4000:MET:HA	2:B:4003:MET:HG2	1.98	0.45
2:B:4168:GLU:HA	2:B:4171:ARG:CZ	2.46	0.45
2:E:679:VAL:HA	2:E:800:VAL:HG12	1.97	0.45
2:E:769:ARG:HA	2:E:775:VAL:HG23	1.99	0.45
2:E:3984:LEU:HB2	2:E:4102:LEU:HD12	1.99	0.45
2:H:235:ARG:NH2	2:H:269:VAL:O	2.39	0.45
2:H:769:ARG:HA	2:H:775:VAL:HG23	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:1756:SER:OG	2:H:1757:LEU:N	2.49	0.45
2:H:3808:ALA:O	2:H:3812:GLN:HB2	2.16	0.45
2:H:3921:LEU:HD23	2:H:3921:LEU:HA	1.73	0.45
2:K:204:ASP:OD1	2:K:204:ASP:N	2.48	0.45
2:K:986:ILE:HB	2:K:1058:LEU:HB3	1.98	0.45
2:K:2319:ASN:OD1	2:K:2323:ARG:NH2	2.49	0.45
2:B:76:ARG:HH21	2:E:3806:LEU:CG	2.30	0.45
2:B:770:ILE:HG12	2:B:775:VAL:HG21	1.99	0.45
2:B:3680:LYS:NZ	2:B:3684:GLU:OE2	2.47	0.45
2:B:4733:GLY:HA3	2:B:4740:PHE:HD1	1.82	0.45
2:B:4757:ILE:HG23	2:B:4871:PHE:HZ	1.81	0.45
2:E:1184:ASP:OD2	2:E:1188:SER:OG	2.30	0.45
2:E:4897:ASP:N	2:E:4897:ASP:OD1	2.50	0.45
2:H:305:TYR:HE2	2:H:319:LYS:HG2	1.81	0.45
2:H:4022:LEU:HA	2:H:4089:HIS:CE1	2.50	0.45
2:K:122:ARG:HH21	2:K:127:GLY:HA2	1.81	0.45
2:K:4022:LEU:HA	2:K:4089:HIS:CE1	2.50	0.45
2:B:660:PHE:HB3	2:B:787:LEU:HD22	1.99	0.45
2:B:679:VAL:HA	2:B:800:VAL:HG12	1.97	0.45
2:B:695:VAL:HA	2:B:792:VAL:HG22	1.99	0.45
2:E:80:GLU:HG3	2:H:3891:TRP:CZ3	2.49	0.45
2:E:3970:LYS:HB3	2:E:3970:LYS:HE2	1.82	0.45
2:E:4733:GLY:HA3	2:E:4740:PHE:HD1	1.82	0.45
2:K:54:ASN:HB3	2:K:57:ASN:HB3	1.99	0.45
2:K:394:HIS:CD2	2:K:396:GLU:H	2.35	0.45
3:L:130:ASP:O	3:L:137:VAL:HG22	2.17	0.45
2:B:1167:ASP:OD2	2:B:1172:THR:OG1	2.32	0.44
2:E:1470:GLY:HA2	2:E:1474:GLY:HA2	1.98	0.44
2:E:4000:MET:HA	2:E:4003:MET:HG2	1.98	0.44
2:E:4022:LEU:HA	2:E:4089:HIS:CE1	2.50	0.44
2:E:4147:GLU:OE1	2:E:4937:GLN:NE2	2.49	0.44
2:E:4808:ASP:OD1	2:E:4808:ASP:N	2.47	0.44
2:H:986:ILE:HB	2:H:1058:LEU:HB3	1.98	0.44
2:H:1710:HIS:HB2	2:H:1711:LEU:HD12	1.98	0.44
2:H:4897:ASP:OD1	2:H:4897:ASP:N	2.50	0.44
2:K:1726:ILE:HG13	2:K:1757:LEU:HD23	1.98	0.44
2:K:2117:THR:HG22	2:K:2155:VAL:HG11	1.98	0.44
2:B:54:ASN:HB3	2:B:57:ASN:HB3	1.99	0.44
2:B:143:LEU:HD12	2:E:2427:LEU:HD11	2.00	0.44
2:B:288:HIS:N	2:B:349:MET:O	2.47	0.44
2:B:643:LEU:H	2:B:643:LEU:HG	1.60	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1210:ALA:N	2:B:1211:GLN:OE1	2.50	0.44
2:B:4022:LEU:HA	2:B:4089:HIS:CE1	2.50	0.44
3:C:130:ASP:O	3:C:137:VAL:HG22	2.17	0.44
2:E:305:TYR:HE2	2:E:319:LYS:HG2	1.81	0.44
2:E:660:PHE:HB3	2:E:787:LEU:HD22	2.00	0.44
2:E:894:VAL:HG11	2:E:976:TYR:HD2	1.81	0.44
2:E:1726:ILE:HG13	2:E:1757:LEU:HD23	1.98	0.44
2:E:2891:GLN:HG2	2:E:2894:LEU:HD12	1.99	0.44
2:H:695:VAL:HA	2:H:792:VAL:HG22	1.99	0.44
2:H:748:LEU:HB2	2:H:750:ARG:HG3	1.99	0.44
2:H:2319:ASN:OD1	2:H:2323:ARG:NH2	2.48	0.44
2:K:1258:PHE:HB3	2:K:1303:ARG:NH1	2.33	0.44
2:K:3642:ILE:HG22	2:K:3731:ARG:HD3	1.99	0.44
2:K:3844:LEU:HD23	2:K:3844:LEU:HA	1.79	0.44
2:B:76:ARG:HH22	2:E:3806:LEU:HD11	1.74	0.44
2:B:394:HIS:CD2	2:B:396:GLU:H	2.35	0.44
2:B:2760:PRO:HD2	2:B:2763:LEU:HD12	1.99	0.44
2:E:750:ARG:N	2:E:753:ASP:OD2	2.46	0.44
2:E:4010:ASN:OD1	2:E:4010:ASN:N	2.48	0.44
3:F:130:ASP:O	3:F:137:VAL:HG22	2.17	0.44
2:H:191:TYR:OH	2:K:2327:ARG:CZ	2.66	0.44
2:H:2891:GLN:HG2	2:H:2894:LEU:HD12	1.99	0.44
3:I:130:ASP:O	3:I:137:VAL:HG22	2.17	0.44
2:K:1162:VAL:O	2:K:1176:THR:OG1	2.33	0.44
2:K:1511:VAL:HA	2:K:1517:LEU:H	1.81	0.44
2:K:2425:ARG:HH12	2:K:2477:TYR:HA	1.81	0.44
2:K:2760:PRO:HD2	2:K:2763:LEU:HD12	1.99	0.44
2:B:1640:ASP:OD1	2:B:1640:ASP:N	2.44	0.44
2:B:2891:GLN:HG2	2:B:2894:LEU:HD12	1.99	0.44
2:B:3806:LEU:HD11	2:K:76:ARG:HH22	1.75	0.44
2:B:4175:PHE:O	2:B:4179:ASN:ND2	2.51	0.44
2:E:294:PRO:HB3	2:E:366:ILE:HD11	1.99	0.44
2:E:3642:ILE:HG22	2:E:3731:ARG:HD3	1.99	0.44
2:H:308:LEU:N	2:H:326:SER:O	2.49	0.44
2:H:1601:ASN:ND2	2:H:1643:GLU:OE2	2.36	0.44
2:H:3760:LEU:HD23	2:H:3760:LEU:HA	1.81	0.44
2:H:4757:ILE:HG23	2:H:4871:PHE:HZ	1.81	0.44
2:K:3984:LEU:HB2	2:K:4102:LEU:HD12	1.99	0.44
2:B:674:TYR:HE2	2:B:814:LEU:HB2	1.83	0.44
2:B:2880:ALA:O	2:B:2884:ALA:N	2.49	0.44
2:E:394:HIS:CD2	2:E:396:GLU:H	2.35	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:2398:ASP:OD1	2:E:2402:ARG:NH2	2.50	0.44
2:H:394:HIS:CD2	2:H:396:GLU:H	2.35	0.44
2:H:660:PHE:HB3	2:H:787:LEU:HD22	1.99	0.44
2:H:3844:LEU:HD23	2:H:3844:LEU:HA	1.79	0.44
2:H:4175:PHE:O	2:H:4179:ASN:ND2	2.51	0.44
1:J:40:ARG:NH2	1:J:102:GLU:OE1	2.48	0.44
2:K:1121:GLY:O	2:K:1133:ARG:NH1	2.51	0.44
2:B:305:TYR:HE2	2:B:319:LYS:HG2	1.82	0.44
2:B:1258:PHE:HB3	2:B:1303:ARG:NH1	2.33	0.44
2:B:2327:ARG:CZ	2:K:191:TYR:OH	2.66	0.44
2:E:238:HIS:N	2:E:243:GLU:O	2.43	0.44
2:E:674:TYR:HE2	2:E:814:LEU:HB2	1.83	0.44
2:E:4136:ARG:HH21	2:E:4148:ARG:CZ	2.31	0.44
2:H:2770:GLU:O	2:H:2774:TRP:HB2	2.18	0.44
2:H:4136:ARG:HH21	2:H:4148:ARG:CZ	2.31	0.44
2:K:4601:PHE:HD1	2:K:4644:ASN:HB3	1.83	0.44
2:B:506:HIS:NE2	2:B:564:ARG:HG2	2.33	0.44
2:B:1121:GLY:O	2:B:1133:ARG:NH1	2.51	0.44
2:E:76:ARG:NH2	2:H:3806:LEU:CD2	2.70	0.44
2:E:1121:GLY:O	2:E:1133:ARG:NH1	2.51	0.44
2:E:1167:ASP:OD2	2:E:1172:THR:OG1	2.32	0.44
2:E:1258:PHE:HB3	2:E:1303:ARG:NH1	2.33	0.44
2:E:2880:ALA:O	2:E:2884:ALA:N	2.49	0.44
2:H:76:ARG:HH21	2:K:3806:LEU:CG	2.31	0.44
2:H:1305:SER:HB2	2:H:1591:LEU:HB2	2.00	0.44
2:K:32:GLN:O	2:K:53:SER:OG	2.28	0.44
2:K:4136:ARG:HH21	2:K:4148:ARG:CZ	2.31	0.44
2:K:4175:PHE:O	2:K:4179:ASN:ND2	2.51	0.44
2:B:308:LEU:N	2:B:326:SER:O	2.49	0.44
2:B:3806:LEU:CG	2:K:76:ARG:HH21	2.30	0.44
2:B:3984:LEU:HB2	2:B:4102:LEU:HD12	1.99	0.44
2:B:4791:ARG:CB	2:B:4808:ASP:HB3	2.47	0.44
1:D:30:LEU:HD12	1:D:34:LYS:HB2	2.00	0.44
1:D:40:ARG:NH2	1:D:102:GLU:OE1	2.48	0.44
2:H:294:PRO:HB3	2:H:366:ILE:HD11	2.00	0.44
2:H:770:ILE:HG12	2:H:775:VAL:HG21	1.99	0.44
2:H:897:LYS:HE2	2:H:915:HIS:CG	2.52	0.44
2:K:660:PHE:HB3	2:K:787:LEU:HD22	1.99	0.44
2:K:770:ILE:HG12	2:K:775:VAL:HG21	1.99	0.44
2:K:3921:LEU:HD23	2:K:3921:LEU:HA	1.73	0.44
2:K:4020:MET:HE2	2:K:4063:GLU:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:191:TYR:OH	2:E:2327:ARG:CZ	2.65	0.44
2:B:1274:ASP:HB2	2:B:1286:THR:HA	2.00	0.44
2:E:54:ASN:HB3	2:E:57:ASN:HB3	1.99	0.44
2:E:695:VAL:HA	2:E:792:VAL:HG22	1.99	0.44
2:E:3680:LYS:NZ	2:E:3684:GLU:OE2	2.47	0.44
2:H:3642:ILE:HG22	2:H:3731:ARG:HD3	1.99	0.44
2:H:4601:PHE:HD1	2:H:4644:ASN:HB3	1.83	0.44
2:K:748:LEU:HB2	2:K:750:ARG:HG3	1.99	0.44
2:K:2891:GLN:HG2	2:K:2894:LEU:HD12	1.99	0.44
2:E:228:LEU:HD11	2:E:405:LEU:HD13	2.00	0.43
2:E:769:ARG:HG2	2:E:774:PRO:HA	2.00	0.43
2:E:2856:LYS:O	2:E:2860:GLU:HB2	2.18	0.43
2:H:694:ARG:HG2	2:H:716:ASN:HB3	2.00	0.43
2:H:750:ARG:N	2:H:753:ASP:OD2	2.46	0.43
2:H:769:ARG:HG2	2:H:774:PRO:HA	2.00	0.43
2:K:1305:SER:HB2	2:K:1591:LEU:HB2	2.00	0.43
2:K:2770:GLU:O	2:K:2774:TRP:HB2	2.18	0.43
2:K:3880:LEU:HD23	2:K:3944:ALA:HB2	2.00	0.43
2:B:694:ARG:HG2	2:B:716:ASN:HB3	2.00	0.43
2:B:3593:SER:O	2:B:3597:LYS:NZ	2.42	0.43
2:B:4020:MET:HE1	2:B:4063:GLU:HB3	2.00	0.43
2:B:4819:TYR:HB2	2:K:4845:ILE:HG23	2.00	0.43
2:E:506:HIS:NE2	2:E:564:ARG:HG2	2.33	0.43
2:E:748:LEU:HB2	2:E:750:ARG:HG3	1.99	0.43
1:J:30:LEU:HD12	1:J:34:LYS:HB2	2.00	0.43
2:K:1757:LEU:HD13	2:K:1757:LEU:HA	1.88	0.43
2:B:2241:LEU:HD12	2:B:2298:ARG:HG3	2.01	0.43
2:B:4845:ILE:HG23	2:E:4819:TYR:HB2	2.00	0.43
2:E:143:LEU:HD13	2:H:2426:SER:O	2.14	0.43
2:E:898:ILE:HD13	2:E:973:THR:HG22	2.00	0.43
2:H:2241:LEU:HD12	2:H:2298:ARG:HG3	2.00	0.43
2:H:2856:LYS:O	2:H:2860:GLU:HB2	2.18	0.43
2:K:694:ARG:HG2	2:K:716:ASN:HB3	2.00	0.43
2:K:2856:LYS:O	2:K:2860:GLU:HB2	2.18	0.43
2:B:769:ARG:HG2	2:B:774:PRO:HA	2.00	0.43
2:B:4601:PHE:HD1	2:B:4644:ASN:HB3	1.83	0.43
2:E:2241:LEU:HD12	2:E:2298:ARG:HG3	2.01	0.43
2:H:54:ASN:HB3	2:H:57:ASN:HB3	1.99	0.43
2:H:718:VAL:HA	2:H:736:CYS:H	1.83	0.43
2:H:1057:LEU:O	2:H:1062:TYR:N	2.51	0.43
2:H:1121:GLY:O	2:H:1133:ARG:NH1	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:1258:PHE:HB3	2:H:1303:ARG:NH1	2.33	0.43
2:K:674:TYR:HE2	2:K:814:LEU:HB2	1.83	0.43
2:K:695:VAL:HA	2:K:792:VAL:HG22	1.99	0.43
2:B:1098:ALA:O	2:B:1101:TRP:NE1	2.38	0.43
2:E:4011:VAL:HA	2:E:4014:ILE:HG12	2.00	0.43
2:H:674:TYR:HE2	2:H:814:LEU:HB2	1.83	0.43
2:H:1734:LYS:HE2	2:H:1931:ASP:HB3	2.00	0.43
2:H:2397:ILE:HD12	2:H:2397:ILE:HA	1.94	0.43
2:H:2760:PRO:HD2	2:H:2763:LEU:HD12	1.99	0.43
2:H:2880:ALA:O	2:H:2884:ALA:N	2.49	0.43
2:H:3800:SER:OG	2:H:3801:CYS:N	2.41	0.43
2:H:4848:ASP:CB	2:K:4819:TYR:CE1	2.95	0.43
2:K:718:VAL:HA	2:K:736:CYS:H	1.83	0.43
2:K:2241:LEU:HD12	2:K:2298:ARG:HG3	2.00	0.43
2:K:2463:PRO:HB3	2:K:2516:ALA:HB2	2.01	0.43
2:B:4523:VAL:HG21	2:K:4791:ARG:HD2	2.00	0.43
2:B:4780:TYR:OH	2:E:4515:ASN:HB3	2.19	0.43
2:E:2760:PRO:HD2	2:E:2763:LEU:HD12	1.99	0.43
2:E:4175:PHE:O	2:E:4179:ASN:ND2	2.51	0.43
2:E:4601:PHE:HD1	2:E:4644:ASN:HB3	1.83	0.43
1:G:30:LEU:HD12	1:G:34:LYS:HB2	2.00	0.43
2:H:1274:ASP:HB2	2:H:1286:THR:HA	2.00	0.43
2:H:2252:ASN:HB2	2:H:2310:ASN:HD21	1.84	0.43
2:K:769:ARG:HG2	2:K:774:PRO:HA	2.00	0.43
2:K:1305:SER:HA	2:K:1593:HIS:HD2	1.84	0.43
2:K:2398:ASP:OD1	2:K:2402:ARG:NH2	2.50	0.43
2:K:2731:ASP:HB3	2:K:2826:ALA:HB2	2.01	0.43
2:K:4020:MET:HE1	2:K:4063:GLU:HB3	2.01	0.43
2:B:294:PRO:HB3	2:B:366:ILE:HD11	1.99	0.43
2:B:601:LEU:HG	2:B:642:LEU:HD23	2.01	0.43
2:B:1734:LYS:HE2	2:B:1931:ASP:HB3	2.00	0.43
2:B:3921:LEU:HD23	2:B:3921:LEU:HA	1.73	0.43
2:E:601:LEU:HG	2:E:642:LEU:HD23	2.01	0.43
2:E:1057:LEU:O	2:E:1062:TYR:N	2.51	0.43
2:E:1305:SER:HA	2:E:1593:HIS:HD2	1.84	0.43
2:E:2252:ASN:HB2	2:E:2310:ASN:HD21	1.84	0.43
2:H:425:LEU:HD21	2:H:452:VAL:HG13	2.01	0.43
2:H:1228:THR:HA	2:H:1232:LEU:HD12	2.01	0.43
2:H:1785:ASP:OD1	2:H:1788:LYS:NZ	2.51	0.43
2:H:1986:GLU:N	2:H:1989:CYS:SG	2.73	0.43
2:K:652:VAL:HG11	2:K:715:GLY:HA2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:1310:CYS:HB2	2:K:1536:SER:HA	2.01	0.43
2:K:1785:ASP:OD1	2:K:1788:LYS:NZ	2.50	0.43
2:B:228:LEU:HD11	2:B:405:LEU:HD13	2.00	0.43
2:B:1714:TYR:CD1	2:B:1761:MET:HB3	2.54	0.43
2:B:2463:PRO:HB3	2:B:2516:ALA:HB2	2.01	0.43
2:B:3642:ILE:HG22	2:B:3731:ARG:HD3	1.99	0.43
2:B:4136:ARG:HH21	2:B:4148:ARG:CZ	2.31	0.43
2:E:308:LEU:N	2:E:326:SER:O	2.49	0.43
2:E:1601:ASN:ND2	2:E:1643:GLU:OE2	2.36	0.43
2:H:2759:LYS:HA	2:H:2760:PRO:HD3	1.92	0.43
2:H:3986:MET:HG2	2:H:3996:ILE:HD11	2.01	0.43
2:K:898:ILE:HD13	2:K:973:THR:HG22	2.00	0.43
2:K:1676:LEU:O	2:K:1680:VAL:N	2.47	0.43
2:K:4787:PHE:HD1	2:K:4808:ASP:O	2.02	0.43
2:B:898:ILE:HD13	2:B:973:THR:HG22	2.00	0.43
2:B:2770:GLU:O	2:B:2774:TRP:HB2	2.18	0.43
2:B:3891:TRP:CZ3	2:K:80:GLU:HG3	2.50	0.43
2:E:3612:LEU:HD23	2:E:3617:ALA:HB2	2.01	0.43
2:H:228:LEU:HD11	2:H:405:LEU:HD13	2.00	0.43
2:H:506:HIS:NE2	2:H:564:ARG:HG2	2.33	0.43
2:H:898:ILE:HD13	2:H:973:THR:HG22	2.00	0.43
2:K:506:HIS:NE2	2:K:564:ARG:HG2	2.33	0.43
2:K:1274:ASP:HB2	2:K:1286:THR:HA	2.00	0.43
2:K:3612:LEU:HD23	2:K:3617:ALA:HB2	2.01	0.43
2:B:718:VAL:HA	2:B:736:CYS:H	1.83	0.43
2:B:1305:SER:HB2	2:B:1591:LEU:HB2	2.00	0.43
2:B:2252:ASN:HB2	2:B:2310:ASN:HD21	1.84	0.43
2:B:2427:LEU:HD11	2:K:143:LEU:HD12	2.01	0.43
2:B:3760:LEU:HD23	2:B:3760:LEU:HA	1.81	0.43
2:E:425:LEU:HD21	2:E:452:VAL:HG13	2.01	0.43
2:E:940:LEU:HD23	2:E:940:LEU:HA	1.89	0.43
2:E:1274:ASP:HB2	2:E:1286:THR:HA	2.00	0.43
2:E:2770:GLU:O	2:E:2774:TRP:HB2	2.18	0.43
2:H:601:LEU:HG	2:H:642:LEU:HD23	2.01	0.43
2:H:1305:SER:HA	2:H:1593:HIS:HD2	1.84	0.43
2:H:1310:CYS:HB2	2:H:1536:SER:HA	2.01	0.43
2:H:1836:ASN:HA	2:H:1839:LEU:HB2	2.01	0.43
2:H:2076:ILE:HG21	2:H:2081:LEU:HD22	2.00	0.43
2:H:2731:ASP:HB3	2:H:2826:ALA:HB2	2.01	0.43
2:K:601:LEU:HG	2:K:642:LEU:HD23	2.01	0.43
2:K:1601:ASN:ND2	2:K:1643:GLU:OE2	2.36	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:LEU:HD12	1:A:34:LYS:HB2	2.00	0.42
2:B:243:GLU:HA	2:B:264:GLY:HA2	2.01	0.42
2:B:4011:VAL:HA	2:B:4014:ILE:HG12	2.00	0.42
2:B:4515:ASN:HB3	2:K:4780:TYR:OH	2.19	0.42
1:D:9:PRO:HD2	2:E:748:LEU:HD11	2.01	0.42
2:E:64:ILE:H	2:E:64:ILE:HG13	1.74	0.42
2:E:191:TYR:OH	2:H:2327:ARG:CZ	2.67	0.42
2:E:235:ARG:NH2	2:E:269:VAL:O	2.39	0.42
2:E:243:GLU:HA	2:E:264:GLY:HA2	2.00	0.42
2:E:1228:THR:HA	2:E:1232:LEU:HD12	2.01	0.42
2:E:1310:CYS:HB2	2:E:1536:SER:HA	2.01	0.42
2:E:1714:TYR:CD1	2:E:1761:MET:HB3	2.54	0.42
2:E:2076:ILE:HG21	2:E:2081:LEU:HD22	2.01	0.42
2:E:2716:GLU:HA	2:E:2719:GLU:HB2	2.01	0.42
2:E:2731:ASP:HB3	2:E:2826:ALA:HB2	2.01	0.42
2:E:3880:LEU:HD23	2:E:3944:ALA:HB2	2.00	0.42
2:E:4787:PHE:HD1	2:E:4808:ASP:O	2.02	0.42
2:H:1466:THR:HG22	2:H:1482:ARG:HG2	2.01	0.42
2:H:3777:LYS:HE3	2:H:3777:LYS:HB2	1.87	0.42
2:H:3871:ILE:O	2:H:3874:SER:OG	2.26	0.42
2:K:238:HIS:N	2:K:243:GLU:O	2.43	0.42
2:K:1210:ALA:N	2:K:1211:GLN:OE1	2.50	0.42
2:K:1836:ASN:HA	2:K:1839:LEU:HB2	2.01	0.42
2:K:4635:VAL:O	2:K:4638:THR:OG1	2.33	0.42
2:B:1057:LEU:O	2:B:1062:TYR:N	2.51	0.42
2:B:1305:SER:HA	2:B:1593:HIS:HD2	1.84	0.42
2:B:1310:CYS:HB2	2:B:1536:SER:HA	2.01	0.42
2:B:2759:LYS:HA	2:B:2760:PRO:HD3	1.92	0.42
2:B:4168:GLU:HB2	2:B:4171:ARG:HH12	1.84	0.42
2:B:4193:PHE:O	2:B:4197:THR:OG1	2.25	0.42
1:D:77:THR:HB	1:D:80:VAL:HG23	2.01	0.42
2:E:694:ARG:HG2	2:E:716:ASN:HB3	2.00	0.42
2:E:2834:LEU:HD13	2:E:2838:LEU:HB3	2.01	0.42
2:H:243:GLU:HA	2:H:264:GLY:HA2	2.01	0.42
2:H:3605:ARG:HH12	3:I:82:SER:HB3	1.85	0.42
2:H:3612:LEU:HD23	2:H:3617:ALA:HB2	2.01	0.42
2:H:4787:PHE:HD1	2:H:4808:ASP:O	2.02	0.42
2:H:4890:PHE:H	7:H:6003:ATP:N6	2.17	0.42
2:K:243:GLU:HA	2:K:264:GLY:HA2	2.01	0.42
2:K:425:LEU:HD21	2:K:452:VAL:HG13	2.01	0.42
2:K:1714:TYR:CD1	2:K:1761:MET:HB3	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:2252:ASN:HB2	2:K:2310:ASN:HD21	1.84	0.42
2:K:2834:LEU:HD13	2:K:2838:LEU:HB3	2.01	0.42
2:K:4011:VAL:HA	2:K:4014:ILE:HG12	2.00	0.42
2:B:143:LEU:HD13	2:E:2426:SER:O	2.13	0.42
2:B:237:LEU:HB2	2:B:404:ASN:HB3	2.02	0.42
2:B:675:TYR:CE1	2:B:790:PRO:HB3	2.54	0.42
2:B:676:GLU:HG3	2:B:814:LEU:HB3	2.01	0.42
2:B:748:LEU:HB2	2:B:750:ARG:HG3	1.99	0.42
2:B:2731:ASP:HB3	2:B:2826:ALA:HB2	2.01	0.42
2:B:2856:LYS:O	2:B:2860:GLU:HB2	2.18	0.42
2:B:3612:LEU:HD23	2:B:3617:ALA:HB2	2.01	0.42
2:E:2433:LEU:HD22	2:E:2488:LEU:HD22	2.01	0.42
2:E:4597:PRO:HA	2:E:4600:ILE:HG22	2.01	0.42
1:G:77:THR:HB	1:G:80:VAL:HG23	2.01	0.42
2:H:652:VAL:HG11	2:H:715:GLY:HA2	2.01	0.42
2:H:1092:LYS:H	2:H:1250:TRP:HZ3	1.67	0.42
2:H:2463:PRO:HB3	2:H:2516:ALA:HB2	2.00	0.42
1:J:21:THR:HG1	1:J:49:ARG:HH21	1.59	0.42
2:K:1730:THR:O	2:K:1733:THR:OG1	2.28	0.42
2:K:1734:LYS:HE2	2:K:1931:ASP:HB3	2.00	0.42
2:K:3986:MET:HG2	2:K:3996:ILE:HD11	2.01	0.42
2:B:294:PRO:HD3	2:B:344:LYS:HE3	2.02	0.42
2:B:1228:THR:HA	2:B:1232:LEU:HD12	2.01	0.42
2:B:3605:ARG:HH12	3:C:82:SER:HB3	1.85	0.42
2:E:143:LEU:HD12	2:H:2427:LEU:HD11	2.01	0.42
2:E:294:PRO:HD3	2:E:344:LYS:HE3	2.02	0.42
2:E:652:VAL:HG11	2:E:715:GLY:HA2	2.01	0.42
2:E:1734:LYS:HE2	2:E:1931:ASP:HB3	2.00	0.42
2:E:3987:LEU:HG	2:E:3990:ASN:HD21	1.85	0.42
2:H:1167:ASP:OD2	2:H:1172:THR:OG1	2.32	0.42
2:K:294:PRO:HB3	2:K:366:ILE:HD11	1.99	0.42
2:K:675:TYR:CE1	2:K:790:PRO:HB3	2.54	0.42
2:K:4020:MET:HE2	2:K:4067:LEU:HD13	2.01	0.42
2:B:394:HIS:CD2	2:B:397:GLY:H	2.38	0.42
2:B:745:ASN:HB3	2:B:747:HIS:HB2	2.02	0.42
2:B:2076:ILE:HG21	2:B:2081:LEU:HD22	2.00	0.42
2:B:2433:LEU:HD22	2:B:2488:LEU:HD22	2.01	0.42
2:B:2716:GLU:HA	2:B:2719:GLU:HB2	2.01	0.42
2:B:3986:MET:HG2	2:B:3996:ILE:HD11	2.01	0.42
2:E:439:LYS:HE3	2:E:439:LYS:HB3	1.91	0.42
2:E:618:CYS:SG	2:E:629:GLN:NE2	2.93	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:718:VAL:HA	2:E:736:CYS:H	1.83	0.42
2:E:745:ASN:HB3	2:E:747:HIS:HB2	2.02	0.42
2:E:755:ILE:HA	2:E:770:ILE:HD13	2.02	0.42
2:E:1305:SER:HB2	2:E:1591:LEU:HB2	2.00	0.42
2:H:3880:LEU:HD23	2:H:3944:ALA:HB2	2.00	0.42
2:H:4791:ARG:HD2	2:K:4523:VAL:HG21	2.00	0.42
2:K:618:CYS:SG	2:K:629:GLN:NE2	2.93	0.42
2:K:1092:LYS:H	2:K:1250:TRP:HZ3	1.67	0.42
2:K:3605:ARG:HH12	3:L:82:SER:HB3	1.85	0.42
2:B:1836:ASN:HA	2:B:1839:LEU:HB2	2.01	0.42
2:B:1986:GLU:N	2:B:1989:CYS:SG	2.73	0.42
2:B:3880:LEU:HD23	2:B:3944:ALA:HB2	2.00	0.42
2:B:4635:VAL:O	2:B:4638:THR:OG1	2.33	0.42
2:E:3921:LEU:HD23	2:E:3921:LEU:HA	1.73	0.42
2:H:32:GLN:O	2:H:53:SER:OG	2.28	0.42
2:H:268:SER:O	2:H:273:SER:OG	2.31	0.42
2:H:676:GLU:HG3	2:H:814:LEU:HB3	2.01	0.42
2:H:1124:PRO:HG2	2:H:1598:ARG:HG3	2.01	0.42
2:H:2433:LEU:HD22	2:H:2488:LEU:HD22	2.01	0.42
2:H:3987:LEU:HG	2:H:3990:ASN:HD21	1.85	0.42
2:K:228:LEU:HD11	2:K:405:LEU:HD13	2.00	0.42
2:K:1466:THR:HG22	2:K:1482:ARG:HG2	2.01	0.42
2:K:1732:GLU:O	2:K:1735:SER:OG	2.32	0.42
2:B:73:LEU:HB3	2:B:77:ALA:HB3	2.02	0.42
2:B:675:TYR:CZ	2:B:790:PRO:HB3	2.55	0.42
2:B:983:LEU:HD23	2:B:1056:THR:HA	2.02	0.42
2:B:1124:PRO:HG2	2:B:1598:ARG:HG3	2.01	0.42
2:B:2834:LEU:HD13	2:B:2838:LEU:HB3	2.01	0.42
2:B:4020:MET:HE2	2:B:4067:LEU:HD13	2.01	0.42
2:E:16:THR:OG1	2:E:111:ARG:O	2.29	0.42
2:E:675:TYR:CE1	2:E:790:PRO:HB3	2.54	0.42
2:E:1676:LEU:O	2:E:1680:VAL:N	2.47	0.42
2:E:2463:PRO:HB3	2:E:2516:ALA:HB2	2.01	0.42
2:H:618:CYS:SG	2:H:629:GLN:NE2	2.93	0.42
2:H:675:TYR:CE1	2:H:790:PRO:HB3	2.54	0.42
2:H:1210:ALA:N	2:H:1211:GLN:OE1	2.51	0.42
2:H:1676:LEU:HD23	2:H:1676:LEU:HA	1.89	0.42
2:K:237:LEU:HB2	2:K:404:ASN:HB3	2.02	0.42
2:K:294:PRO:HD3	2:K:344:LYS:HE3	2.02	0.42
2:K:394:HIS:CD2	2:K:397:GLY:H	2.38	0.42
2:K:676:GLU:HG3	2:K:814:LEU:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:745:ASN:HB3	2:K:747:HIS:HB2	2.02	0.42
2:K:755:ILE:HA	2:K:770:ILE:HD13	2.02	0.42
2:K:2076:ILE:HG21	2:K:2081:LEU:HD22	2.01	0.42
2:B:652:VAL:HG11	2:B:715:GLY:HA2	2.01	0.42
2:B:4597:PRO:HA	2:B:4600:ILE:HG22	2.01	0.42
2:E:3986:MET:HG2	2:E:3996:ILE:HD11	2.01	0.42
2:H:294:PRO:HD3	2:H:344:LYS:HE3	2.02	0.42
2:H:2398:ASP:OD1	2:H:2402:ARG:NH2	2.50	0.42
1:J:9:PRO:HD2	2:K:748:LEU:HD11	2.01	0.42
2:K:372:LEU:HD23	2:K:403:LEU:HD11	2.02	0.42
2:K:2716:GLU:HA	2:K:2719:GLU:HB2	2.01	0.42
2:B:3777:LYS:HB2	2:B:3777:LYS:HE3	1.87	0.42
2:B:3804:LEU:HB3	2:B:3885:SER:OG	2.20	0.42
2:E:237:LEU:HB2	2:E:404:ASN:HB3	2.02	0.42
2:E:675:TYR:CZ	2:E:790:PRO:HB3	2.55	0.42
2:E:676:GLU:HG3	2:E:814:LEU:HB3	2.01	0.42
2:E:3683:LEU:HD11	2:E:3747:ALA:HB3	2.02	0.42
2:H:675:TYR:CZ	2:H:790:PRO:HB3	2.55	0.42
2:H:940:LEU:HD23	2:H:940:LEU:HA	1.89	0.42
2:H:1714:TYR:CD1	2:H:1761:MET:HB3	2.54	0.42
2:H:4597:PRO:HA	2:H:4600:ILE:HG22	2.01	0.42
2:K:2880:ALA:O	2:K:2884:ALA:N	2.49	0.42
2:K:3925:ILE:HD11	2:K:3936:LEU:HD13	2.02	0.42
1:A:77:THR:HB	1:A:80:VAL:HG23	2.01	0.42
2:B:1846:ILE:HG23	2:B:1894:LEU:HB3	2.02	0.42
2:E:195:SER:OG	2:E:196:TYR:N	2.53	0.42
2:E:881:ILE:O	2:E:885:LEU:HB2	2.20	0.42
2:E:1210:ALA:N	2:E:1211:GLN:OE1	2.51	0.42
2:E:1466:THR:HG22	2:E:1482:ARG:HG2	2.01	0.42
2:E:2029:ARG:O	2:E:2032:SER:OG	2.28	0.42
2:E:3605:ARG:HH12	3:F:82:SER:HB3	1.85	0.42
2:H:372:LEU:HD23	2:H:403:LEU:HD11	2.02	0.42
2:H:2213:LYS:HA	2:H:2254:LEU:HD21	2.02	0.42
2:H:2716:GLU:HA	2:H:2719:GLU:HB2	2.01	0.42
2:K:73:LEU:HB3	2:K:77:ALA:HB3	2.02	0.42
2:K:675:TYR:CZ	2:K:790:PRO:HB3	2.55	0.42
2:K:1118:SER:HB2	2:K:1122:CYS:SG	2.60	0.42
1:A:9:PRO:HD2	2:B:748:LEU:HD11	2.01	0.41
2:B:76:ARG:CZ	2:E:3806:LEU:HD21	2.50	0.41
2:B:425:LEU:HD21	2:B:452:VAL:HG13	2.01	0.41
2:B:755:ILE:HA	2:B:770:ILE:HD13	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:4521:TYR:HD1	2:B:4521:TYR:HA	1.72	0.41
2:E:394:HIS:CD2	2:E:397:GLY:H	2.38	0.41
2:E:4027:LEU:HD22	2:E:4056:HIS:HB3	2.02	0.41
2:H:73:LEU:HB3	2:H:77:ALA:HB3	2.02	0.41
2:H:195:SER:OG	2:H:196:TYR:N	2.53	0.41
2:H:1446:ILE:O	2:H:1540:PHE:N	2.42	0.41
2:H:4011:VAL:HA	2:H:4014:ILE:HG12	2.00	0.41
2:K:195:SER:OG	2:K:196:TYR:N	2.53	0.41
2:K:1683:PRO:HA	2:K:1686:LEU:HD12	2.02	0.41
2:K:1846:ILE:HG23	2:K:1894:LEU:HB3	2.02	0.41
2:K:3804:LEU:HB3	2:K:3885:SER:OG	2.20	0.41
2:K:3987:LEU:HG	2:K:3990:ASN:HD21	1.85	0.41
2:B:2773:ARG:HD3	2:B:2777:LYS:HE3	2.02	0.41
2:H:1683:PRO:HA	2:H:1686:LEU:HD12	2.02	0.41
2:H:3804:LEU:HB3	2:H:3885:SER:OG	2.20	0.41
2:H:3925:ILE:HD11	2:H:3936:LEU:HD13	2.02	0.41
2:H:4780:TYR:OH	2:K:4515:ASN:HB3	2.19	0.41
2:K:2433:LEU:HD22	2:K:2488:LEU:HD22	2.01	0.41
2:B:1683:PRO:HA	2:B:1686:LEU:HD12	2.02	0.41
2:E:983:LEU:HD23	2:E:1056:THR:HA	2.02	0.41
2:E:1705:LEU:HD23	2:E:1705:LEU:HA	1.90	0.41
2:E:1836:ASN:HA	2:E:1839:LEU:HB2	2.01	0.41
2:E:2213:LYS:HA	2:E:2254:LEU:HD21	2.02	0.41
2:E:2773:ARG:HD3	2:E:2777:LYS:HE3	2.03	0.41
2:E:3683:LEU:HD23	2:E:3683:LEU:HA	1.92	0.41
2:E:3804:LEU:HB3	2:E:3885:SER:OG	2.20	0.41
2:H:394:HIS:CD2	2:H:397:GLY:H	2.38	0.41
2:H:745:ASN:HB3	2:H:747:HIS:HB2	2.02	0.41
2:H:3804:LEU:HD22	2:H:3886:ILE:HD13	2.02	0.41
2:K:1057:LEU:O	2:K:1062:TYR:N	2.51	0.41
2:K:1228:THR:HA	2:K:1232:LEU:HD12	2.01	0.41
2:K:4027:LEU:HD22	2:K:4056:HIS:HB3	2.02	0.41
2:B:195:SER:OG	2:B:196:TYR:N	2.53	0.41
2:B:881:ILE:O	2:B:885:LEU:HB2	2.20	0.41
2:B:1268:ILE:HD11	2:B:1300:MET:HG3	2.01	0.41
2:B:3831:LEU:HD13	2:B:3831:LEU:HA	1.97	0.41
2:E:1739:PHE:HA	2:E:1740:PRO:HD3	1.91	0.41
1:G:9:PRO:HD2	2:H:748:LEU:HD11	2.01	0.41
2:H:16:THR:OG1	2:H:111:ARG:O	2.29	0.41
2:H:1118:SER:HB2	2:H:1122:CYS:SG	2.60	0.41
2:K:750:ARG:N	2:K:753:ASP:OD2	2.46	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1092:LYS:H	2:B:1250:TRP:HZ3	1.67	0.41
2:B:1466:THR:HG22	2:B:1482:ARG:HG2	2.02	0.41
2:B:1689:ILE:HA	2:B:1703:TYR:CE1	2.56	0.41
2:B:1730:THR:O	2:B:1733:THR:OG1	2.28	0.41
2:E:73:LEU:HB3	2:E:77:ALA:HB3	2.02	0.41
2:E:717:GLY:H	2:E:722:LEU:HB3	1.85	0.41
2:E:4891:ILE:HD11	2:E:4916:LEU:HD13	2.03	0.41
2:H:143:LEU:HD13	2:K:2426:SER:HG	1.83	0.41
2:H:237:LEU:HB2	2:H:404:ASN:HB3	2.02	0.41
2:H:1510:VAL:HG12	2:H:1511:VAL:HG23	2.03	0.41
2:H:1689:ILE:HA	2:H:1703:TYR:CE1	2.56	0.41
2:H:2349:GLU:HA	2:H:2352:ILE:HD11	2.03	0.41
1:J:77:THR:HB	1:J:80:VAL:HG23	2.01	0.41
2:K:1091:GLU:HB3	2:K:1094:TYR:HD2	1.86	0.41
2:K:1268:ILE:HD11	2:K:1300:MET:HG3	2.02	0.41
2:K:3677:LEU:HD23	2:K:3677:LEU:HA	1.90	0.41
2:B:1118:SER:HB2	2:B:1122:CYS:SG	2.60	0.41
2:B:3683:LEU:HD11	2:B:3747:ALA:HB3	2.02	0.41
2:B:4910:THR:HG21	7:B:6003:ATP:C4	2.55	0.41
2:E:1124:PRO:HG2	2:E:1598:ARG:HG3	2.01	0.41
2:E:1640:ASP:OD1	2:E:1640:ASP:N	2.44	0.41
2:E:1683:PRO:HA	2:E:1686:LEU:HD12	2.02	0.41
2:E:1689:ILE:HA	2:E:1703:TYR:CE1	2.56	0.41
2:E:3925:ILE:HD11	2:E:3936:LEU:HD13	2.02	0.41
2:E:4052:ALA:O	2:E:4056:HIS:ND1	2.54	0.41
2:H:432:GLY:HA3	2:H:447:LEU:HG	2.03	0.41
2:H:755:ILE:HA	2:H:770:ILE:HD13	2.02	0.41
2:H:2834:LEU:HD13	2:H:2838:LEU:HB3	2.01	0.41
2:H:4020:MET:HE2	2:H:4067:LEU:HD13	2.02	0.41
2:K:123:HIS:CD2	2:K:126:SER:H	2.23	0.41
2:K:983:LEU:HD23	2:K:1056:THR:HA	2.02	0.41
2:K:4597:PRO:HA	2:K:4600:ILE:HG22	2.01	0.41
2:B:1733:THR:HA	2:B:1755:THR:HG21	2.03	0.41
2:B:1757:LEU:HD13	2:B:1757:LEU:HA	1.88	0.41
2:B:3804:LEU:HD22	2:B:3886:ILE:HD13	2.02	0.41
2:B:4891:ILE:HD11	2:B:4916:LEU:HD13	2.03	0.41
2:E:150:GLN:NE2	2:E:158:CYS:SG	2.85	0.41
2:E:1091:GLU:HB3	2:E:1094:TYR:HD2	1.86	0.41
2:K:677:LEU:HD23	2:K:802:PHE:HA	2.03	0.41
2:K:1510:VAL:HG12	2:K:1511:VAL:HG23	2.03	0.41
2:B:372:LEU:HD23	2:B:403:LEU:HD11	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1601:ASN:ND2	2:B:1643:GLU:OE2	2.36	0.41
2:B:4848:ASP:CB	2:E:4819:TYR:CE1	2.95	0.41
2:E:1092:LYS:H	2:E:1250:TRP:HZ3	1.66	0.41
2:E:1306:MET:HB2	2:E:1575:HIS:HE2	1.86	0.41
2:E:1733:THR:HA	2:E:1755:THR:HG21	2.03	0.41
2:E:4793:PHE:HD1	2:E:4833:GLU:HB2	1.86	0.41
2:H:2416:GLU:HB3	2:H:2419:ARG:HH21	1.85	0.41
2:H:3911:ILE:HD13	2:H:3911:ILE:HA	1.94	0.41
2:K:643:LEU:H	2:K:643:LEU:HG	1.60	0.41
2:K:1124:PRO:HG2	2:K:1598:ARG:HG3	2.01	0.41
2:K:2213:LYS:HA	2:K:2254:LEU:HD21	2.02	0.41
2:K:4052:ALA:O	2:K:4056:HIS:ND1	2.54	0.41
2:K:4910:THR:HG21	7:K:6003:ATP:C4	2.56	0.41
2:B:227:TYR:HE1	2:B:355:LYS:HG2	1.86	0.41
2:B:750:ARG:N	2:B:753:ASP:OD2	2.46	0.41
2:B:2213:LYS:HA	2:B:2254:LEU:HD21	2.02	0.41
2:B:3806:LEU:HD21	2:K:76:ARG:CZ	2.50	0.41
2:B:3925:ILE:HD11	2:B:3936:LEU:HD13	2.02	0.41
2:B:3966:ILE:H	2:B:3966:ILE:HG13	1.70	0.41
2:B:3987:LEU:HG	2:B:3990:ASN:HD21	1.85	0.41
2:B:4806:LYS:O	2:B:4807:CYS:SG	2.73	0.41
2:B:4953:PHE:HA	2:B:4954:PRO:HD3	1.94	0.41
2:E:372:LEU:HD23	2:E:403:LEU:HD11	2.02	0.41
2:E:432:GLY:HA3	2:E:447:LEU:HG	2.03	0.41
2:E:530:LEU:HD23	2:E:530:LEU:HA	1.91	0.41
2:E:1268:ILE:HD11	2:E:1300:MET:HG3	2.01	0.41
2:E:1846:ILE:HG23	2:E:1894:LEU:HB3	2.02	0.41
2:E:3677:LEU:HD23	2:E:3677:LEU:HA	1.91	0.41
2:E:4809:ASP:HB2	2:E:4812:THR:CG2	2.51	0.41
2:H:80:GLU:HG3	2:K:3891:TRP:CZ3	2.51	0.41
2:H:143:LEU:HD12	2:K:2427:LEU:HD11	2.01	0.41
2:H:238:HIS:N	2:H:243:GLU:O	2.43	0.41
2:H:506:HIS:CE1	2:H:564:ARG:HG2	2.56	0.41
2:H:657:PRO:HB3	2:H:834:VAL:HG22	2.03	0.41
2:H:1733:THR:HA	2:H:1755:THR:HG21	2.03	0.41
2:H:4027:LEU:HD22	2:H:4056:HIS:HB3	2.02	0.41
2:H:4100:ALA:O	2:H:4104:THR:OG1	2.33	0.41
2:H:4910:THR:HG21	7:H:6003:ATP:C4	2.55	0.41
2:K:506:HIS:CE1	2:K:564:ARG:HG2	2.56	0.41
2:K:717:GLY:H	2:K:722:LEU:HB3	1.85	0.41
2:K:881:ILE:O	2:K:885:LEU:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:1689:ILE:HA	2:K:1703:TYR:CE1	2.56	0.41
2:K:1986:GLU:N	2:K:1989:CYS:SG	2.73	0.41
2:K:2349:GLU:HA	2:K:2352:ILE:HD11	2.03	0.41
2:K:3804:LEU:HD22	2:K:3886:ILE:HD13	2.02	0.41
2:K:4891:ILE:HD11	2:K:4916:LEU:HD13	2.03	0.41
2:B:618:CYS:SG	2:B:629:GLN:NE2	2.93	0.41
2:B:717:GLY:H	2:B:722:LEU:HB3	1.85	0.41
2:B:1306:MET:HB2	2:B:1575:HIS:HE2	1.85	0.41
2:B:4027:LEU:HD22	2:B:4056:HIS:HB3	2.02	0.41
2:B:4127:LEU:O	2:B:4131:GLN:N	2.54	0.41
2:E:1118:SER:HB2	2:E:1122:CYS:SG	2.60	0.41
1:G:27:THR:HG23	1:G:100:ASP:HB3	2.03	0.41
2:H:717:GLY:H	2:H:722:LEU:HB3	1.85	0.41
2:H:881:ILE:O	2:H:885:LEU:HB2	2.20	0.41
2:H:1846:ILE:HG23	2:H:1894:LEU:HB3	2.02	0.41
2:K:1057:LEU:HB3	2:K:1062:TYR:HB2	2.03	0.41
2:K:4127:LEU:O	2:K:4131:GLN:N	2.54	0.41
2:B:432:GLY:HA3	2:B:447:LEU:HG	2.03	0.40
2:E:1644:LEU:HD21	2:E:1651:LEU:HA	2.03	0.40
2:E:3804:LEU:HD22	2:E:3886:ILE:HD13	2.02	0.40
2:E:3831:LEU:HD23	2:E:3906:ASN:HD21	1.86	0.40
2:H:227:TYR:HE1	2:H:355:LYS:HG2	1.86	0.40
2:H:983:LEU:HD23	2:H:1056:THR:HA	2.02	0.40
2:H:2201:LEU:HD23	2:H:2201:LEU:HA	1.92	0.40
2:H:2773:ARG:HD3	2:H:2777:LYS:HE3	2.02	0.40
2:H:3683:LEU:HD11	2:H:3747:ALA:HB3	2.02	0.40
2:H:4809:ASP:HB2	2:H:4812:THR:CG2	2.51	0.40
2:K:150:GLN:NE2	2:K:158:CYS:SG	2.85	0.40
2:K:228:LEU:HB3	2:K:289:ILE:HB	2.04	0.40
2:K:432:GLY:HA3	2:K:447:LEU:HG	2.03	0.40
2:K:1177:LEU:N	2:K:1180:GLU:O	2.55	0.40
2:K:1644:LEU:HD21	2:K:1651:LEU:HA	2.04	0.40
2:K:1733:THR:HA	2:K:1755:THR:HG21	2.03	0.40
2:K:2416:GLU:HB3	2:K:2419:ARG:HH21	1.85	0.40
2:K:2759:LYS:HA	2:K:2760:PRO:HD3	1.92	0.40
2:K:3683:LEU:HD11	2:K:3747:ALA:HB3	2.02	0.40
2:K:3777:LYS:HE3	2:K:3777:LYS:HB2	1.87	0.40
2:B:1091:GLU:HB3	2:B:1094:TYR:HD2	1.86	0.40
2:B:1785:ASP:OD1	2:B:1788:LYS:NZ	2.50	0.40
2:B:2398:ASP:OD1	2:B:2402:ARG:NH2	2.50	0.40
2:B:4793:PHE:HD1	2:B:4833:GLU:HB2	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:145:PHE:HD1	2:E:145:PHE:HA	1.76	0.40
2:E:506:HIS:CE1	2:E:564:ARG:HG2	2.56	0.40
2:E:1057:LEU:HB3	2:E:1062:TYR:HB2	2.03	0.40
2:E:1445:TRP:N	2:E:1487:MET:HB2	2.36	0.40
2:E:4020:MET:HE2	2:E:4067:LEU:HD13	2.03	0.40
2:H:228:LEU:HB3	2:H:289:ILE:HB	2.04	0.40
2:H:608:HIS:HB2	2:H:1656:HIS:CD2	2.57	0.40
2:H:1177:LEU:N	2:H:1180:GLU:O	2.55	0.40
2:H:1268:ILE:HD11	2:H:1300:MET:HG3	2.01	0.40
2:H:4582:VAL:O	2:H:4586:PHE:HB2	2.21	0.40
2:H:4793:PHE:HD1	2:H:4833:GLU:HB2	1.86	0.40
2:K:1445:TRP:N	2:K:1487:MET:HB2	2.36	0.40
2:B:1177:LEU:N	2:B:1180:GLU:O	2.55	0.40
2:B:1510:VAL:HG12	2:B:1511:VAL:HG23	2.03	0.40
2:B:4168:GLU:HG3	2:B:4171:ARG:HH11	1.85	0.40
2:E:1162:VAL:O	2:E:1176:THR:OG1	2.33	0.40
2:H:236:LEU:HD12	2:H:236:LEU:HA	1.92	0.40
2:H:1445:TRP:N	2:H:1487:MET:HB2	2.36	0.40
2:H:1644:LEU:HD21	2:H:1651:LEU:HA	2.04	0.40
2:H:4052:ALA:O	2:H:4056:HIS:ND1	2.54	0.40
2:H:4891:ILE:HD11	2:H:4916:LEU:HD13	2.03	0.40
1:J:27:THR:HG23	1:J:100:ASP:HB3	2.03	0.40
2:K:1306:MET:HB2	2:K:1575:HIS:HE2	1.85	0.40
2:K:1446:ILE:O	2:K:1540:PHE:N	2.42	0.40
2:K:2168:MET:H	2:K:2168:MET:HG3	1.74	0.40
2:K:2773:ARG:HD3	2:K:2777:LYS:HE3	2.02	0.40
2:B:163:HIS:HA	2:B:164:PRO:HD3	1.93	0.40
2:B:227:TYR:CE1	2:B:355:LYS:HG2	2.57	0.40
2:B:1014:GLN:HA	2:B:1029:ASN:HB2	2.03	0.40
2:B:2103:LEU:HD23	2:B:2103:LEU:HA	1.92	0.40
2:B:4052:ALA:O	2:B:4056:HIS:ND1	2.54	0.40
2:E:643:LEU:H	2:E:643:LEU:HG	1.60	0.40
2:E:1014:GLN:HA	2:E:1029:ASN:HB2	2.03	0.40
2:E:4780:TYR:OH	2:H:4515:ASN:HB3	2.22	0.40
2:E:4910:THR:HG21	7:E:6003:ATP:C4	2.55	0.40
2:E:4945:TYR:OH	6:E:6002:CFF:H81	2.22	0.40
2:H:76:ARG:CZ	2:K:3806:LEU:HD21	2.51	0.40
2:H:123:HIS:CD2	2:H:126:SER:H	2.23	0.40
2:H:227:TYR:CE1	2:H:355:LYS:HG2	2.57	0.40
2:B:228:LEU:HB3	2:B:289:ILE:HB	2.04	0.40
2:B:657:PRO:HB3	2:B:834:VAL:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1809:PRO:O	2:B:1812:GLY:N	2.55	0.40
2:B:1993:ILE:HG23	3:C:112:ASN:HA	2.03	0.40
2:B:4945:TYR:OH	6:B:6002:CFF:H81	2.22	0.40
2:E:228:LEU:HB3	2:E:289:ILE:HB	2.04	0.40
2:E:608:HIS:HB2	2:E:1656:HIS:CD2	2.57	0.40
2:E:2088:LEU:HD23	2:E:2088:LEU:HA	1.89	0.40
2:E:2349:GLU:HA	2:E:2352:ILE:HD11	2.03	0.40
2:E:4668:SER:O	2:E:4672:GLY:N	2.54	0.40
2:H:1446:ILE:HB	2:H:1540:PHE:HB2	2.04	0.40
2:H:1993:ILE:HG23	3:I:112:ASN:HA	2.03	0.40
2:H:3804:LEU:HD13	2:H:3910:ALA:HB2	2.04	0.40
2:H:3831:LEU:HD23	2:H:3906:ASN:HD21	1.86	0.40
2:H:4923:LEU:HD12	2:H:4923:LEU:HA	1.93	0.40
2:K:64:ILE:H	2:K:64:ILE:HG13	1.74	0.40
2:K:439:LYS:HE3	2:K:439:LYS:HB3	1.91	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	105/108 (97%)	94 (90%)	11 (10%)	0	100	100
1	D	105/108 (97%)	94 (90%)	11 (10%)	0	100	100
1	G	105/108 (97%)	94 (90%)	11 (10%)	0	100	100
1	J	105/108 (97%)	94 (90%)	11 (10%)	0	100	100
2	B	3386/4968 (68%)	2990 (88%)	383 (11%)	13 (0%)	34	72
2	E	3386/4968 (68%)	2986 (88%)	387 (11%)	13 (0%)	34	72
2	H	3386/4968 (68%)	2989 (88%)	384 (11%)	13 (0%)	34	72
2	K	3386/4968 (68%)	2989 (88%)	384 (11%)	13 (0%)	34	72

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	C	132/149 (89%)	119 (90%)	12 (9%)	1 (1%)	19	60
3	F	132/149 (89%)	119 (90%)	12 (9%)	1 (1%)	19	60
3	I	132/149 (89%)	119 (90%)	12 (9%)	1 (1%)	19	60
3	L	132/149 (89%)	119 (90%)	12 (9%)	1 (1%)	19	60
All	All	14492/20900 (69%)	12806 (88%)	1630 (11%)	56 (0%)	38	72

All (56) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	1477	HIS
2	E	1477	HIS
2	H	1477	HIS
2	K	1477	HIS
2	B	1580	PRO
2	B	4916	LEU
3	C	130	ASP
2	E	1580	PRO
2	E	4916	LEU
3	F	130	ASP
2	H	1580	PRO
2	H	4916	LEU
3	I	130	ASP
2	K	1580	PRO
2	K	4916	LEU
3	L	130	ASP
2	B	730	LEU
2	B	1581	GLN
2	B	4071	ALA
2	E	730	LEU
2	E	1581	GLN
2	E	4071	ALA
2	H	730	LEU
2	H	1581	GLN
2	H	4071	ALA
2	K	730	LEU
2	K	1581	GLN
2	K	4071	ALA
2	B	3802	SER
2	E	3802	SER
2	H	3802	SER
2	K	3802	SER

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Mol	Chain	Res	Type
2	B	853	PRO
2	E	853	PRO
2	H	853	PRO
2	K	853	PRO
2	B	3801	CYS
2	B	4164	PRO
2	E	3801	CYS
2	E	4164	PRO
2	H	3801	CYS
2	H	4164	PRO
2	K	3801	CYS
2	K	4164	PRO
2	B	1535	PRO
2	E	1535	PRO
2	H	1535	PRO
2	K	1535	PRO
2	B	828	PRO
2	B	1848	PRO
2	E	828	PRO
2	E	1848	PRO
2	H	828	PRO
2	H	1848	PRO
2	K	828	PRO
2	K	1848	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	88/89 (99%)	86 (98%)	2 (2%)	50 70
1	D	88/89 (99%)	86 (98%)	2 (2%)	50 70
1	G	88/89 (99%)	86 (98%)	2 (2%)	50 70
1	J	88/89 (99%)	86 (98%)	2 (2%)	50 70
2	B	2698/4355 (62%)	2670 (99%)	28 (1%)	76 86

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	E	2698/4355 (62%)	2670 (99%)	28 (1%)	76 86
2	H	2699/4355 (62%)	2670 (99%)	29 (1%)	73 84
2	K	2699/4355 (62%)	2670 (99%)	29 (1%)	73 84
3	C	115/123 (94%)	114 (99%)	1 (1%)	78 87
3	F	115/123 (94%)	114 (99%)	1 (1%)	78 87
3	I	115/123 (94%)	114 (99%)	1 (1%)	78 87
3	L	115/123 (94%)	114 (99%)	1 (1%)	78 87
All	All	11606/18268 (64%)	11480 (99%)	126 (1%)	74 84

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	ARG
1	A	42	ARG
2	B	44	ASN
2	B	57	ASN
2	B	439	LYS
2	B	487	ASN
2	B	531	ASN
2	B	658	ASN
2	B	841	LYS
2	B	881	ILE
2	B	925	PRO
2	B	990	PRO
2	B	1042	THR
2	B	1054	VAL
2	B	1089	ARG
2	B	1760	ARG
2	B	1761	MET
2	B	2196	ASN
2	B	2199	ARG
2	B	2211	ASN
2	B	2328	ARG
2	B	2420	ILE
2	B	3726	LEU
2	B	3906	ASN
2	B	4136	ARG
2	B	4206	GLN
2	B	4499	ASN
2	B	4521	TYR

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Mol	Chain	Res	Type
2	B	4652	ARG
2	B	4788	ASN
3	C	116	LYS
1	D	13	ARG
1	D	42	ARG
2	E	44	ASN
2	E	57	ASN
2	E	439	LYS
2	E	487	ASN
2	E	531	ASN
2	E	658	ASN
2	E	841	LYS
2	E	881	ILE
2	E	925	PRO
2	E	990	PRO
2	E	1042	THR
2	E	1054	VAL
2	E	1089	ARG
2	E	1760	ARG
2	E	1761	MET
2	E	2196	ASN
2	E	2199	ARG
2	E	2211	ASN
2	E	2328	ARG
2	E	2420	ILE
2	E	3726	LEU
2	E	3906	ASN
2	E	4136	ARG
2	E	4206	GLN
2	E	4499	ASN
2	E	4521	TYR
2	E	4652	ARG
2	E	4788	ASN
3	F	116	LYS
1	G	13	ARG
1	G	42	ARG
2	H	44	ASN
2	H	57	ASN
2	H	439	LYS
2	H	487	ASN
2	H	531	ASN
2	H	658	ASN

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Mol	Chain	Res	Type
2	H	841	LYS
2	H	881	ILE
2	H	925	PRO
2	H	950	VAL
2	H	990	PRO
2	H	1042	THR
2	H	1054	VAL
2	H	1089	ARG
2	H	1760	ARG
2	H	1761	MET
2	H	2196	ASN
2	H	2199	ARG
2	H	2211	ASN
2	H	2328	ARG
2	H	2420	ILE
2	H	3726	LEU
2	H	3906	ASN
2	H	4136	ARG
2	H	4206	GLN
2	H	4499	ASN
2	H	4521	TYR
2	H	4652	ARG
2	H	4788	ASN
3	I	116	LYS
1	J	13	ARG
1	J	42	ARG
2	K	44	ASN
2	K	57	ASN
2	K	439	LYS
2	K	487	ASN
2	K	531	ASN
2	K	658	ASN
2	K	841	LYS
2	K	881	ILE
2	K	925	PRO
2	K	950	VAL
2	K	990	PRO
2	K	1042	THR
2	K	1054	VAL
2	K	1089	ARG
2	K	1760	ARG
2	K	1761	MET

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Mol	Chain	Res	Type
2	K	2196	ASN
2	K	2199	ARG
2	K	2211	ASN
2	K	2328	ARG
2	K	2420	ILE
2	K	3726	LEU
2	K	3906	ASN
2	K	4136	ARG
2	K	4206	GLN
2	K	4499	ASN
2	K	4521	TYR
2	K	4652	ARG
2	K	4788	ASN
3	L	116	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (184) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	44	ASN
2	B	57	ASN
2	B	123	HIS
2	B	252	HIS
2	B	261	HIS
2	B	293	GLN
2	B	375	GLN
2	B	394	HIS
2	B	476	GLN
2	B	486	GLN
2	B	487	ASN
2	B	531	ASN
2	B	544	ASN
2	B	621	HIS
2	B	635	ASN
2	B	776	GLN
2	B	1146	HIS
2	B	1147	GLN
2	B	1149	ASN
2	B	1242	ASN
2	B	1265	HIS
2	B	1587	HIS
2	B	1656	HIS
2	B	1669	ASN

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Mol	Chain	Res	Type
2	B	1722	ASN
2	B	1746	HIS
2	B	2090	HIS
2	B	2211	ASN
2	B	2212	GLN
2	B	2251	ASN
2	B	2310	ASN
2	B	2711	ASN
2	B	2820	HIS
2	B	3666	HIS
2	B	3902	GLN
2	B	3904	GLN
2	B	3954	HIS
2	B	3965	GLN
2	B	3976	GLN
2	B	3993	ASN
2	B	4089	HIS
2	B	4128	ASN
2	B	4494	ASN
2	B	4499	ASN
2	B	4621	GLN
2	E	44	ASN
2	E	57	ASN
2	E	123	HIS
2	E	150	GLN
2	E	252	HIS
2	E	261	HIS
2	E	293	GLN
2	E	375	GLN
2	E	394	HIS
2	E	476	GLN
2	E	486	GLN
2	E	487	ASN
2	E	531	ASN
2	E	544	ASN
2	E	621	HIS
2	E	635	ASN
2	E	776	GLN
2	E	1146	HIS
2	E	1147	GLN
2	E	1149	ASN
2	E	1242	ASN

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Mol	Chain	Res	Type
2	E	1265	HIS
2	E	1587	HIS
2	E	1656	HIS
2	E	1669	ASN
2	E	1722	ASN
2	E	1746	HIS
2	E	2090	HIS
2	E	2211	ASN
2	E	2212	GLN
2	E	2251	ASN
2	E	2310	ASN
2	E	2711	ASN
2	E	2820	HIS
2	E	3666	HIS
2	E	3902	GLN
2	E	3904	GLN
2	E	3954	HIS
2	E	3965	GLN
2	E	3976	GLN
2	E	3993	ASN
2	E	4089	HIS
2	E	4128	ASN
2	E	4494	ASN
2	E	4499	ASN
2	E	4559	HIS
2	E	4621	GLN
3	F	136	GLN
2	H	44	ASN
2	H	57	ASN
2	H	123	HIS
2	H	150	GLN
2	H	252	HIS
2	H	261	HIS
2	H	293	GLN
2	H	375	GLN
2	H	394	HIS
2	H	476	GLN
2	H	486	GLN
2	H	487	ASN
2	H	531	ASN
2	H	544	ASN
2	H	621	HIS

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Mol	Chain	Res	Type
2	H	635	ASN
2	H	1146	HIS
2	H	1147	GLN
2	H	1149	ASN
2	H	1242	ASN
2	H	1265	HIS
2	H	1587	HIS
2	H	1656	HIS
2	H	1669	ASN
2	H	1722	ASN
2	H	1746	HIS
2	H	2090	HIS
2	H	2211	ASN
2	H	2212	GLN
2	H	2251	ASN
2	H	2310	ASN
2	H	2711	ASN
2	H	2820	HIS
2	H	3666	HIS
2	H	3902	GLN
2	H	3904	GLN
2	H	3954	HIS
2	H	3965	GLN
2	H	3976	GLN
2	H	3993	ASN
2	H	4089	HIS
2	H	4128	ASN
2	H	4494	ASN
2	H	4499	ASN
2	H	4621	GLN
2	K	44	ASN
2	K	57	ASN
2	K	123	HIS
2	K	150	GLN
2	K	252	HIS
2	K	261	HIS
2	K	293	GLN
2	K	375	GLN
2	K	394	HIS
2	K	476	GLN
2	K	486	GLN
2	K	487	ASN

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Mol	Chain	Res	Type
2	K	531	ASN
2	K	544	ASN
2	K	621	HIS
2	K	635	ASN
2	K	1146	HIS
2	K	1147	GLN
2	K	1149	ASN
2	K	1242	ASN
2	K	1265	HIS
2	K	1587	HIS
2	K	1656	HIS
2	K	1669	ASN
2	K	1722	ASN
2	K	1746	HIS
2	K	2090	HIS
2	K	2211	ASN
2	K	2212	GLN
2	K	2251	ASN
2	K	2310	ASN
2	K	2711	ASN
2	K	2820	HIS
2	K	2891	GLN
2	K	3666	HIS
2	K	3902	GLN
2	K	3904	GLN
2	K	3954	HIS
2	K	3965	GLN
2	K	3976	GLN
2	K	3993	ASN
2	K	4089	HIS
2	K	4128	ASN
2	K	4494	ASN
2	K	4499	ASN
2	K	4621	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 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
7	ATP	E	6003	-	26,33,33	0.91	1 (3%)	31,52,52	1.55	4 (12%)
6	CFF	B	6002	-	8,15,15	2.74	4 (50%)	8,23,23	1.28	1 (12%)
7	ATP	K	6003	-	26,33,33	0.91	1 (3%)	31,52,52	1.55	4 (12%)
7	ATP	H	6003	-	26,33,33	0.90	1 (3%)	31,52,52	1.55	4 (12%)
6	CFF	K	6002	-	8,15,15	2.74	4 (50%)	8,23,23	1.27	1 (12%)
7	ATP	B	6003	-	26,33,33	0.91	1 (3%)	31,52,52	1.55	4 (12%)
6	CFF	H	6002	-	8,15,15	2.74	4 (50%)	8,23,23	1.28	1 (12%)
6	CFF	E	6002	-	8,15,15	2.74	4 (50%)	8,23,23	1.28	1 (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
7	ATP	E	6003	-	-	7/18/38/38	0/3/3/3
6	CFF	B	6002	-	-	-	0/2/2/2
7	ATP	K	6003	-	-	7/18/38/38	0/3/3/3
7	ATP	H	6003	-	-	7/18/38/38	0/3/3/3
6	CFF	K	6002	-	-	-	0/2/2/2
7	ATP	B	6003	-	-	7/18/38/38	0/3/3/3
6	CFF	H	6002	-	-	-	0/2/2/2
6	CFF	E	6002	-	-	-	0/2/2/2

All (20) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	6002	CFF	C5-C4	-4.92	1.32	1.39
6	E	6002	CFF	C5-C4	-4.91	1.32	1.39
6	H	6002	CFF	C5-C4	-4.91	1.32	1.39
6	K	6002	CFF	C5-C4	-4.91	1.32	1.39
6	E	6002	CFF	C6-N1	-4.82	1.31	1.38
6	B	6002	CFF	C6-N1	-4.79	1.31	1.38
6	H	6002	CFF	C6-N1	-4.79	1.31	1.38
6	K	6002	CFF	C6-N1	-4.79	1.31	1.38
6	B	6002	CFF	O13-C6	-2.33	1.18	1.24
6	E	6002	CFF	O13-C6	-2.33	1.18	1.24
6	H	6002	CFF	O13-C6	-2.33	1.18	1.24
6	K	6002	CFF	O13-C6	-2.33	1.18	1.24
6	K	6002	CFF	C5-C6	-2.19	1.37	1.41
6	B	6002	CFF	C5-C6	-2.16	1.37	1.41
6	H	6002	CFF	C5-C6	-2.16	1.37	1.41
6	E	6002	CFF	C5-C6	-2.13	1.37	1.41
7	B	6003	ATP	C5-C4	2.02	1.46	1.40
7	E	6003	ATP	C5-C4	2.02	1.46	1.40
7	H	6003	ATP	C5-C4	2.02	1.46	1.40
7	K	6003	ATP	C5-C4	2.02	1.46	1.40

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	B	6003	ATP	PA-O3A-PB	-3.41	121.14	132.83
7	H	6003	ATP	PA-O3A-PB	-3.41	121.14	132.83
7	E	6003	ATP	PA-O3A-PB	-3.40	121.14	132.83
7	K	6003	ATP	PA-O3A-PB	-3.40	121.16	132.83
7	B	6003	ATP	N3-C2-N1	-3.39	123.38	128.68
7	H	6003	ATP	N3-C2-N1	-3.38	123.39	128.68
7	E	6003	ATP	N3-C2-N1	-3.38	123.39	128.68
7	K	6003	ATP	N3-C2-N1	-3.38	123.40	128.68
7	B	6003	ATP	C3'-C2'-C1'	3.24	105.85	100.98
7	K	6003	ATP	C3'-C2'-C1'	3.24	105.85	100.98
7	H	6003	ATP	C3'-C2'-C1'	3.23	105.84	100.98
7	E	6003	ATP	C3'-C2'-C1'	3.22	105.82	100.98
6	B	6002	CFF	C14-N7-C8	-2.79	112.01	125.43
6	H	6002	CFF	C14-N7-C8	-2.79	112.01	125.43
6	E	6002	CFF	C14-N7-C8	-2.78	112.04	125.43
6	K	6002	CFF	C14-N7-C8	-2.78	112.04	125.43
7	K	6003	ATP	PB-O3B-PG	-2.51	124.20	132.83
7	H	6003	ATP	PB-O3B-PG	-2.51	124.20	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	B	6003	ATP	PB-O3B-PG	-2.51	124.20	132.83
7	E	6003	ATP	PB-O3B-PG	-2.51	124.20	132.83

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	B	6003	ATP	PB-O3B-PG-O2G
7	B	6003	ATP	PB-O3B-PG-O3G
7	B	6003	ATP	C5'-O5'-PA-O1A
7	B	6003	ATP	C5'-O5'-PA-O2A
7	E	6003	ATP	PB-O3B-PG-O2G
7	E	6003	ATP	PB-O3B-PG-O3G
7	E	6003	ATP	C5'-O5'-PA-O1A
7	E	6003	ATP	C5'-O5'-PA-O2A
7	H	6003	ATP	PB-O3B-PG-O2G
7	H	6003	ATP	PB-O3B-PG-O3G
7	H	6003	ATP	C5'-O5'-PA-O1A
7	H	6003	ATP	C5'-O5'-PA-O2A
7	K	6003	ATP	PB-O3B-PG-O2G
7	K	6003	ATP	PB-O3B-PG-O3G
7	K	6003	ATP	C5'-O5'-PA-O1A
7	K	6003	ATP	C5'-O5'-PA-O2A
7	B	6003	ATP	O4'-C4'-C5'-O5'
7	E	6003	ATP	O4'-C4'-C5'-O5'
7	H	6003	ATP	O4'-C4'-C5'-O5'
7	K	6003	ATP	O4'-C4'-C5'-O5'
7	B	6003	ATP	PB-O3A-PA-O1A
7	E	6003	ATP	PB-O3A-PA-O1A
7	H	6003	ATP	PB-O3A-PA-O1A
7	K	6003	ATP	PB-O3A-PA-O1A
7	B	6003	ATP	C5'-O5'-PA-O3A
7	E	6003	ATP	C5'-O5'-PA-O3A
7	H	6003	ATP	C5'-O5'-PA-O3A
7	K	6003	ATP	C5'-O5'-PA-O3A

There are no ring outliers.

6 monomers are involved in 19 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	E	6003	ATP	4	0

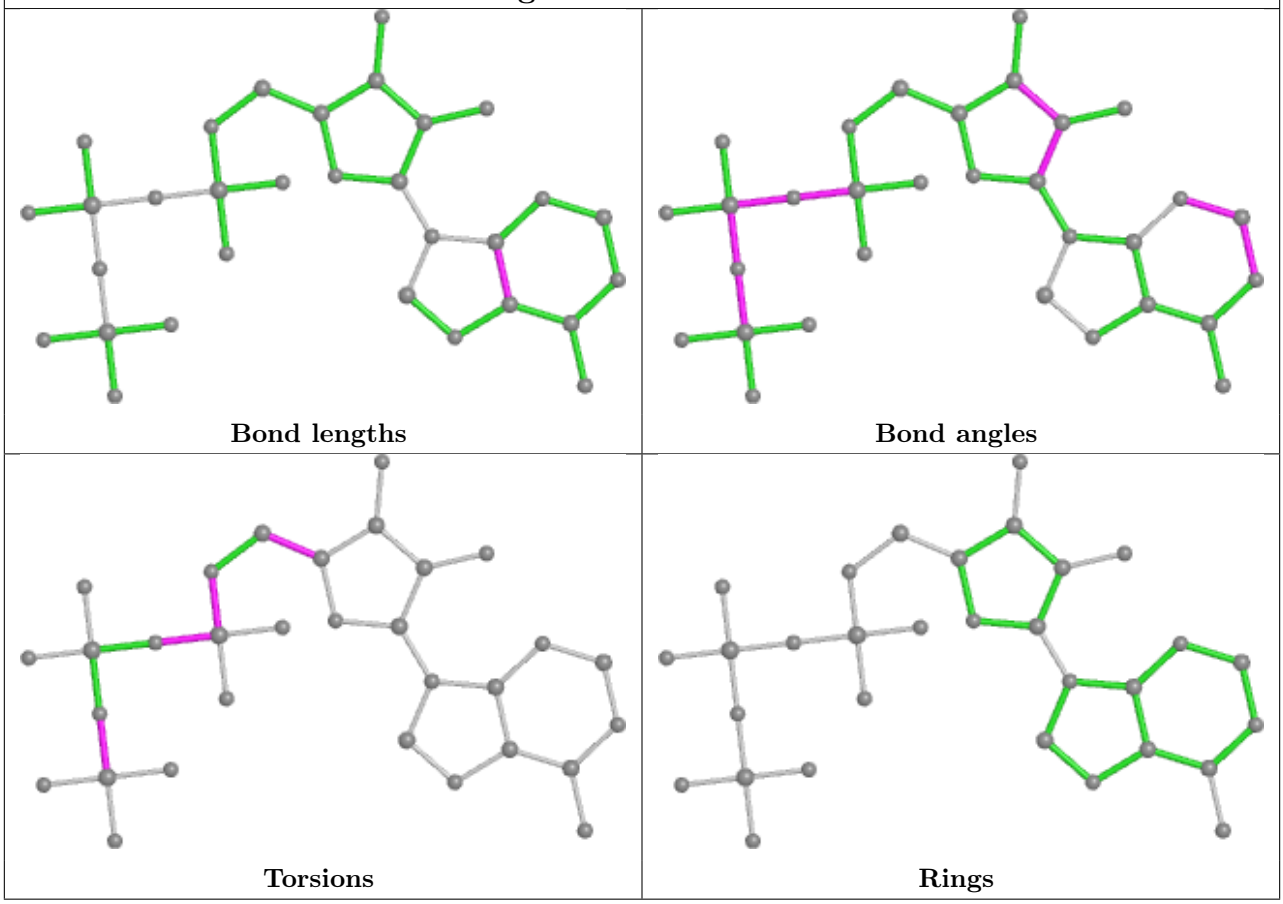
Continued on next page...

Continued from previous page...

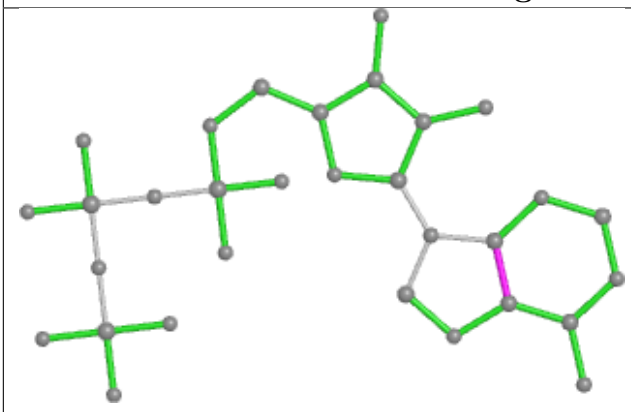
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	6002	CFF	1	0
7	K	6003	ATP	4	0
7	H	6003	ATP	5	0
7	B	6003	ATP	4	0
6	E	6002	CFF	1	0

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

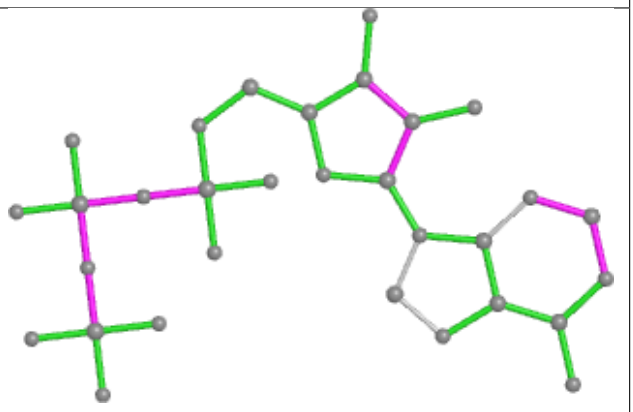
Ligand ATP E 6003



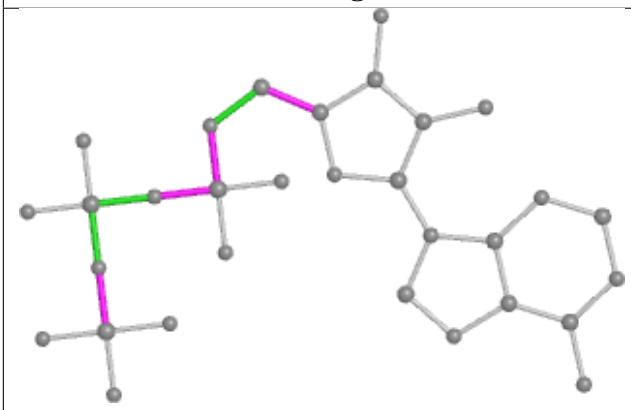
Ligand ATP K 6003



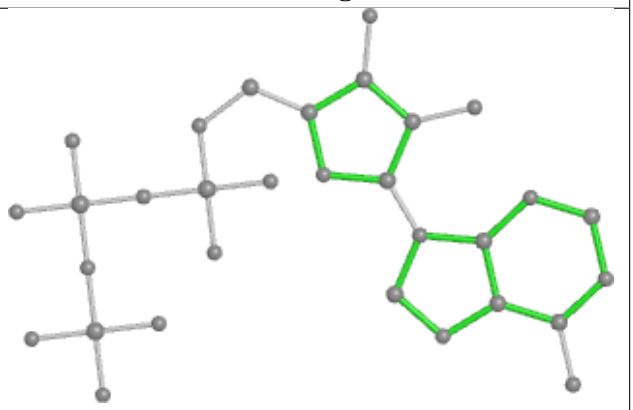
Bond lengths



Bond angles

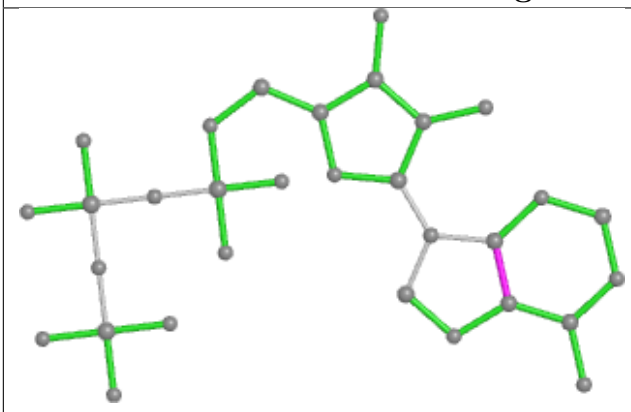


Torsions

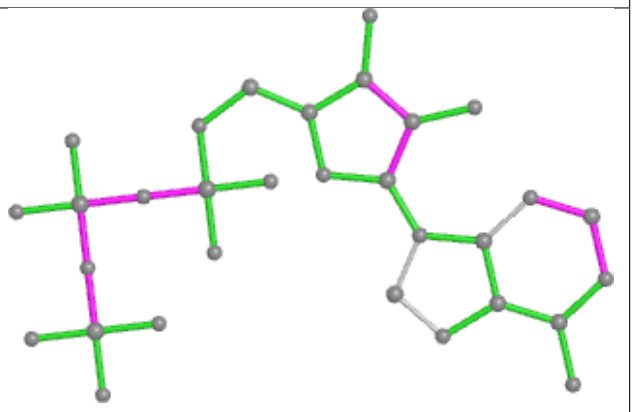


Rings

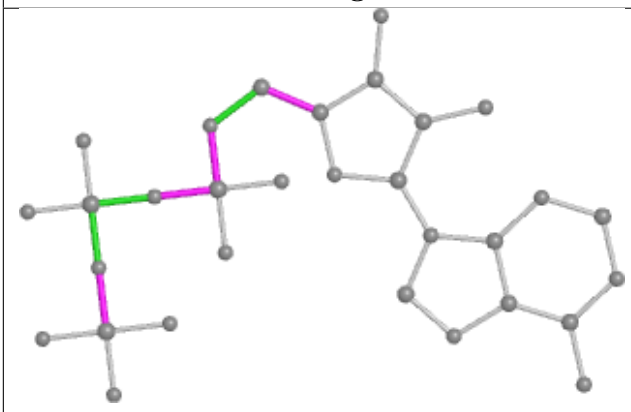
Ligand ATP H 6003



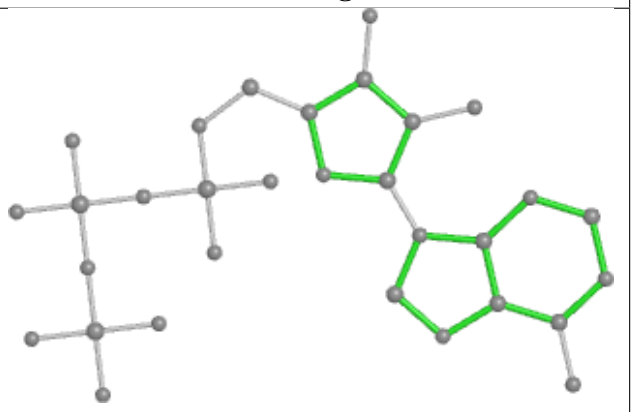
Bond lengths



Bond angles

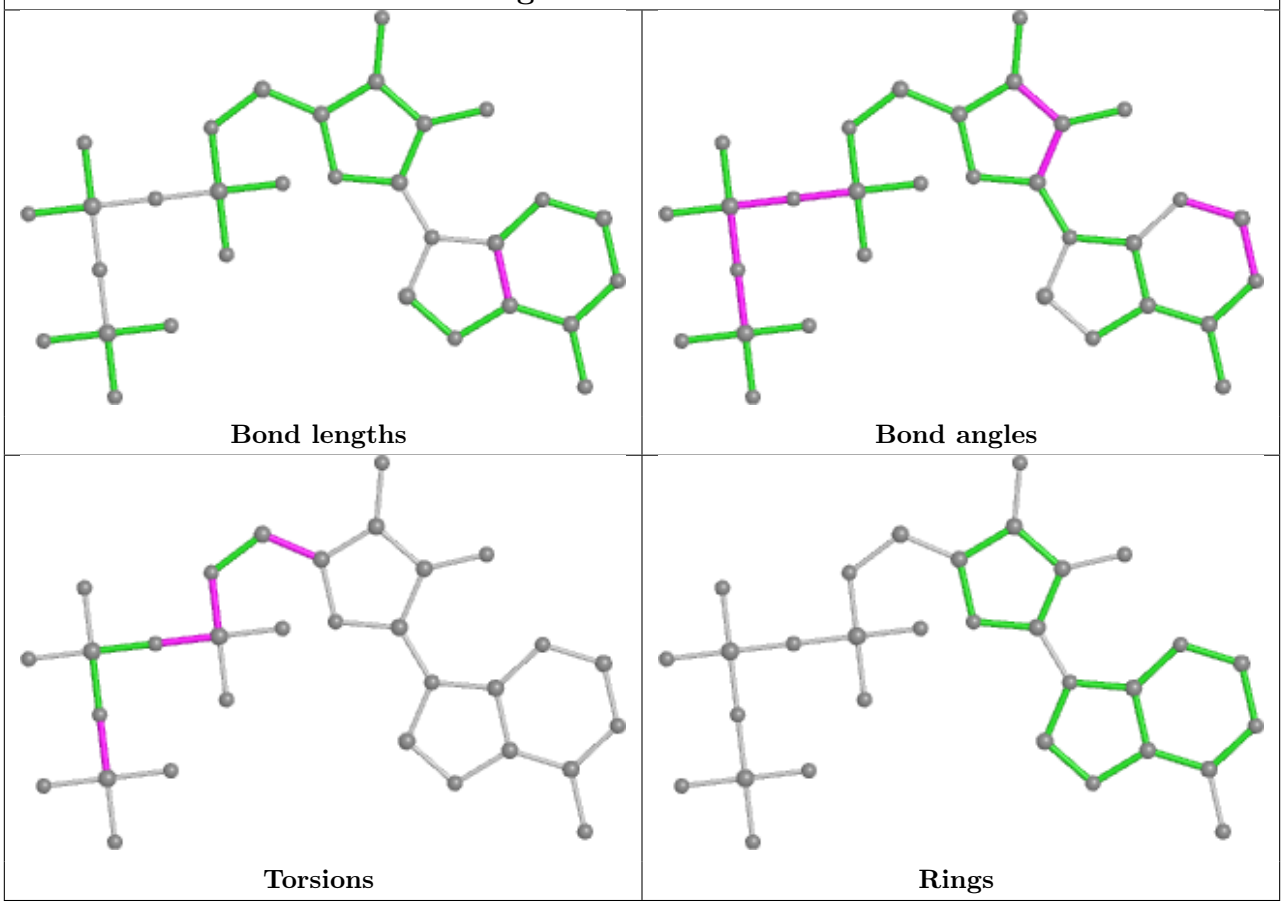


Torsions



Rings

Ligand ATP B 6003



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.

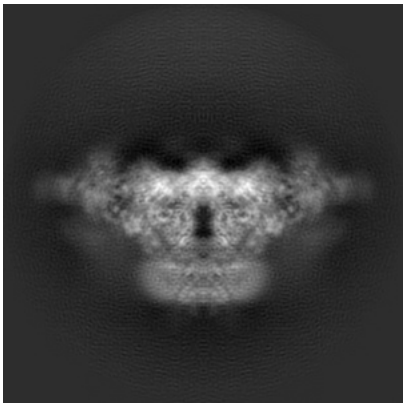
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-9834. These allow visual inspection of the internal detail of the map and identification of artifacts.

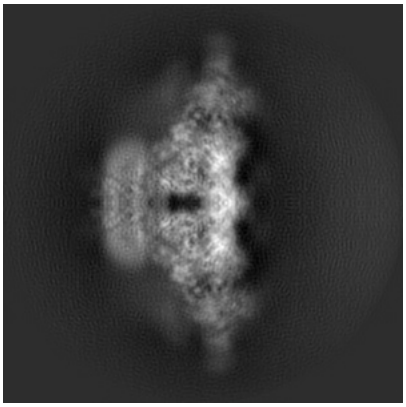
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

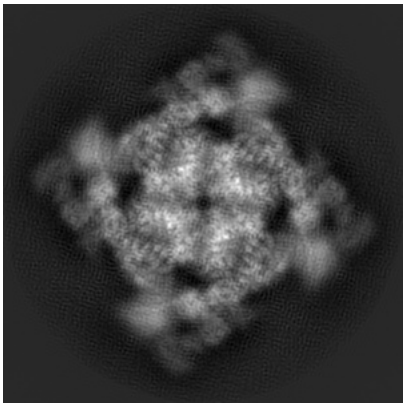
6.1.1 Primary map



X



Y

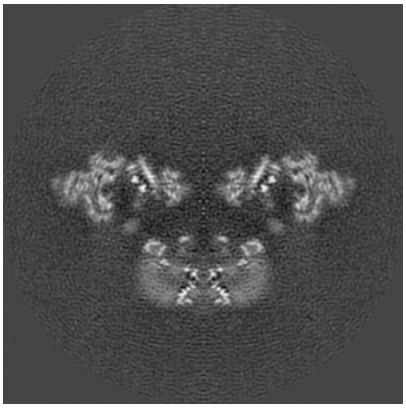


Z

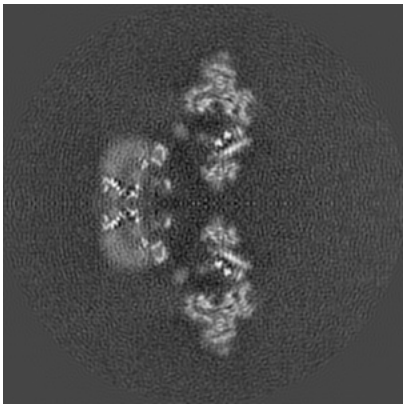
The images above show the map projected in three orthogonal directions.

6.2 Central slices

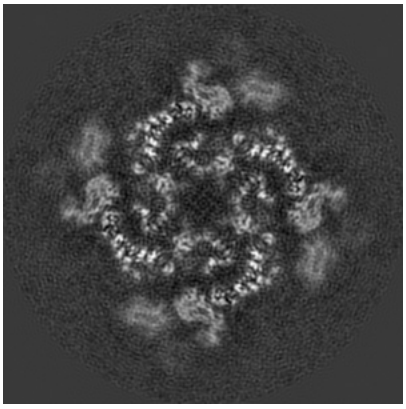
6.2.1 Primary map



X Index: 200



Y Index: 200

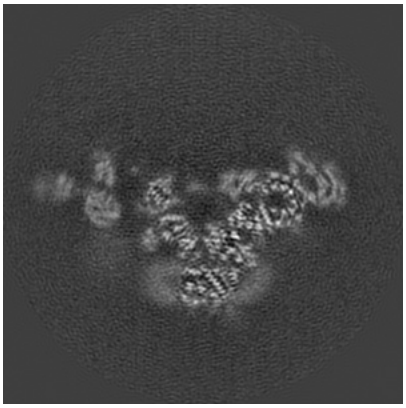


Z Index: 200

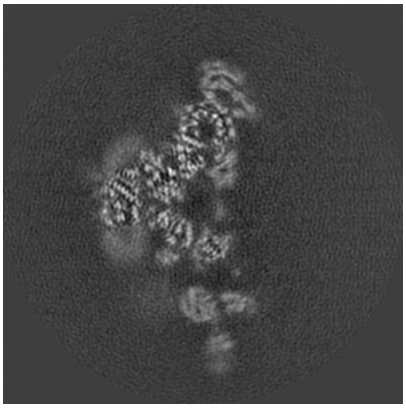
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

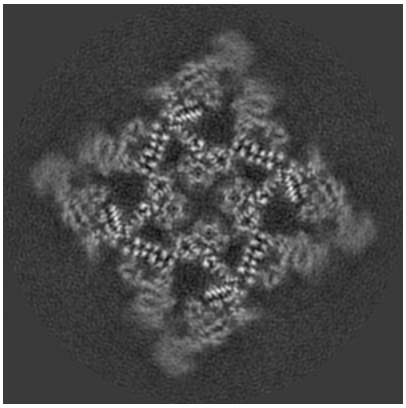
6.3.1 Primary map



X Index: 185



Y Index: 215

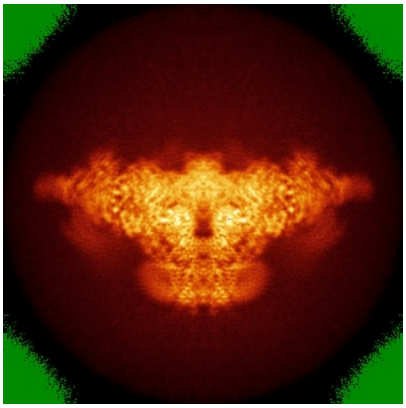


Z Index: 212

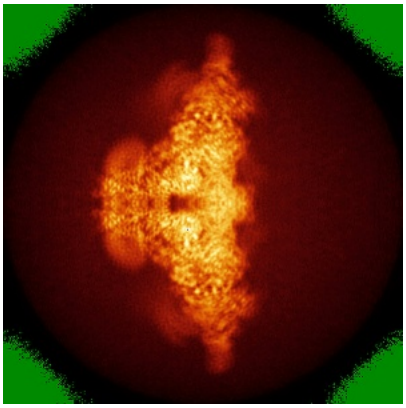
The images above show the largest variance slices of the map in three orthogonal directions.

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

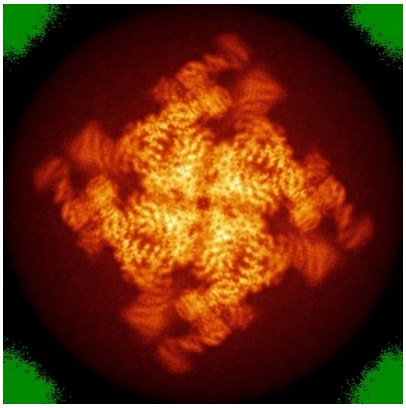
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.022. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

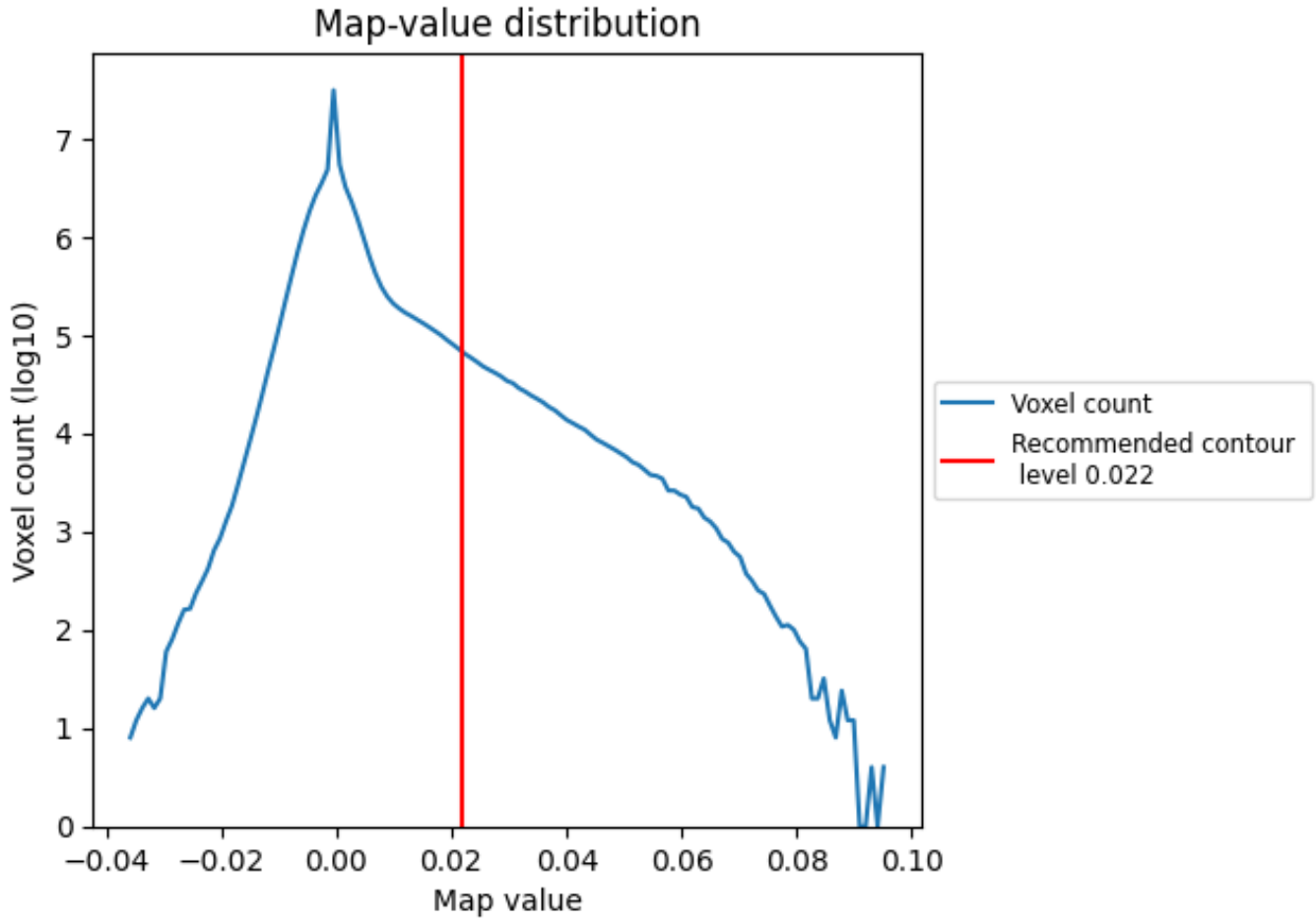
6.6 Mask visualisation (i)

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

7 Map analysis

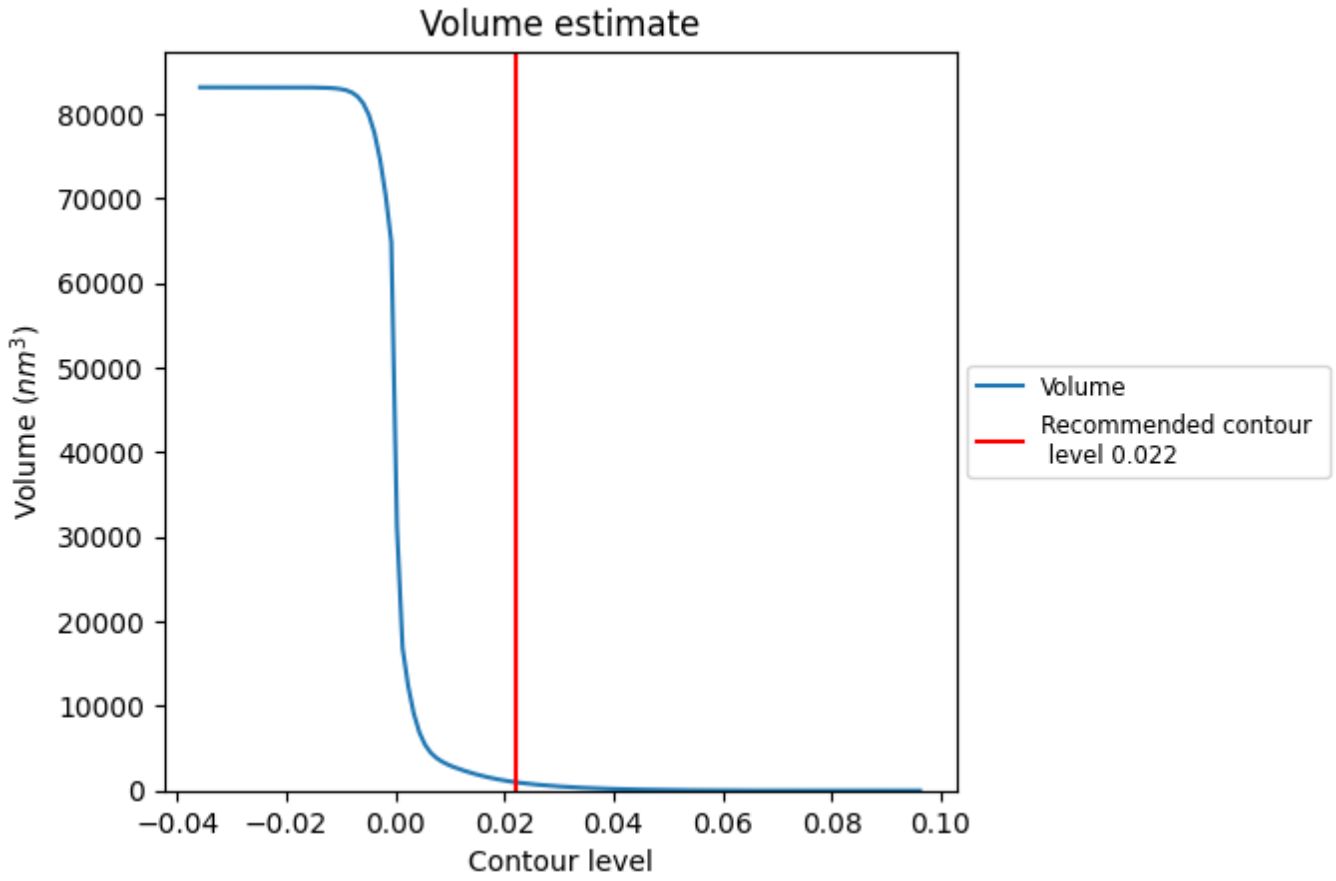
This section contains the results of statistical analysis of the map.

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.

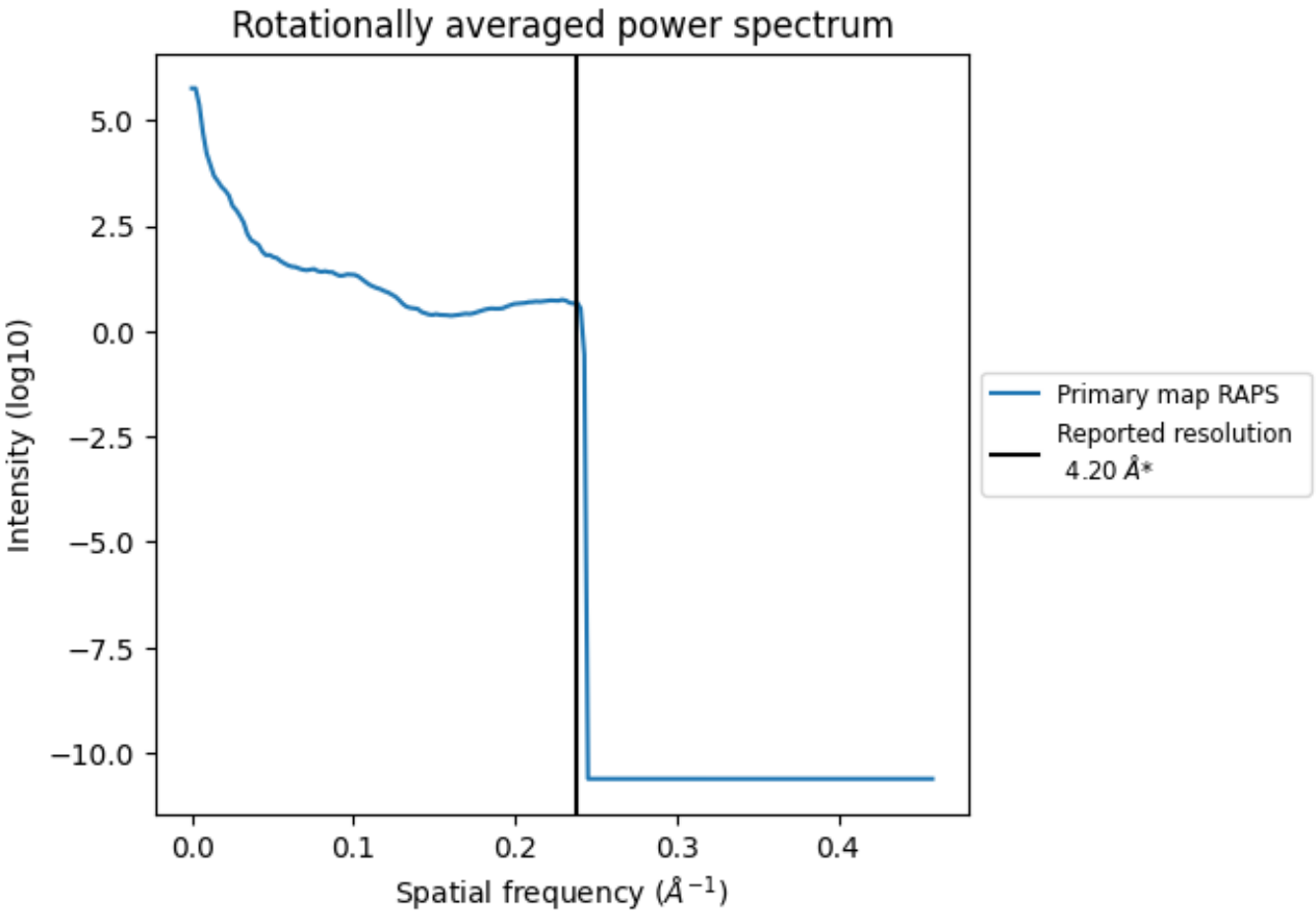
7.2 Volume estimate



The volume at the recommended contour level is 992 nm^3; this corresponds to an approximate mass of 896 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)

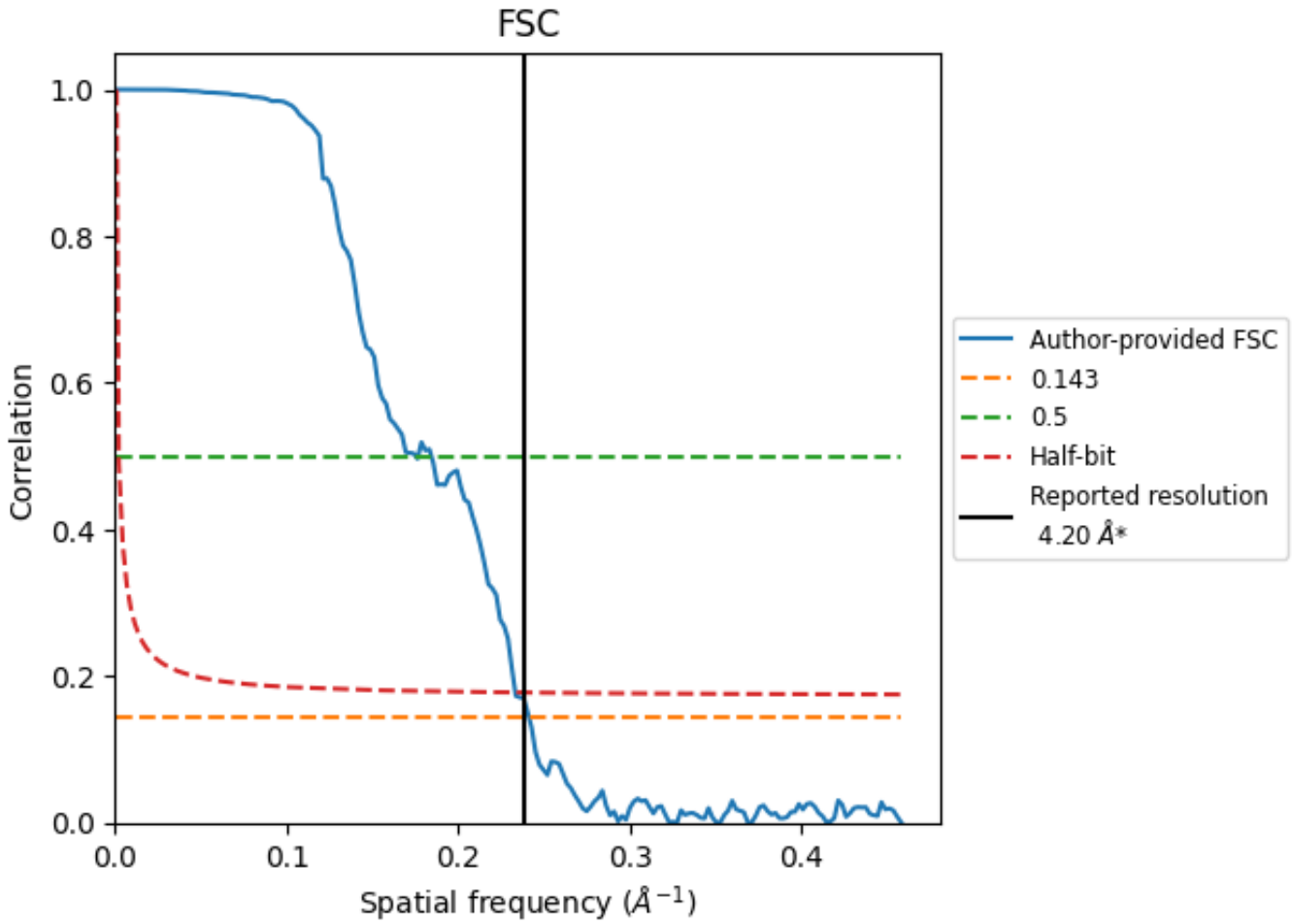


*Reported resolution corresponds to spatial frequency of 0.238 $Å^{-1}$

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 0.238 Å^{-1}

8.2 Resolution estimates (i)

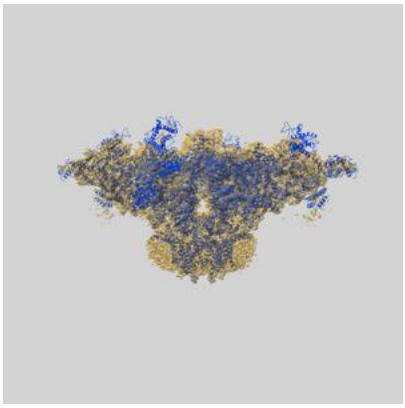
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	4.14	5.71	4.28
Unmasked-calculated*	-	-	-

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

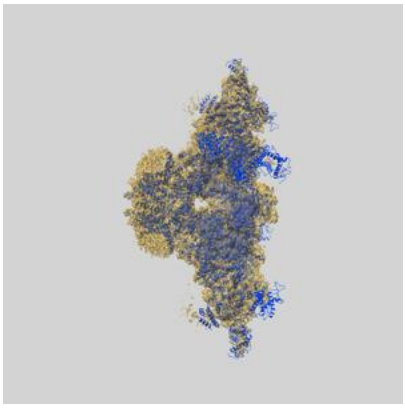
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-9834 and PDB model 6JII. Per-residue inclusion information can be found in section 3 on page 8.

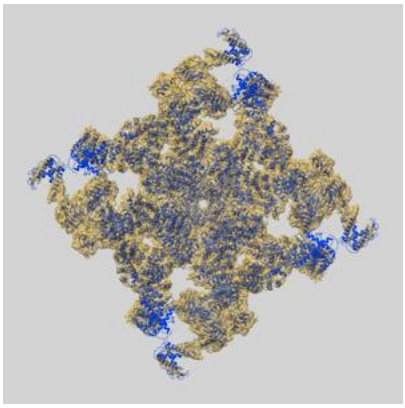
9.1 Map-model overlay



X



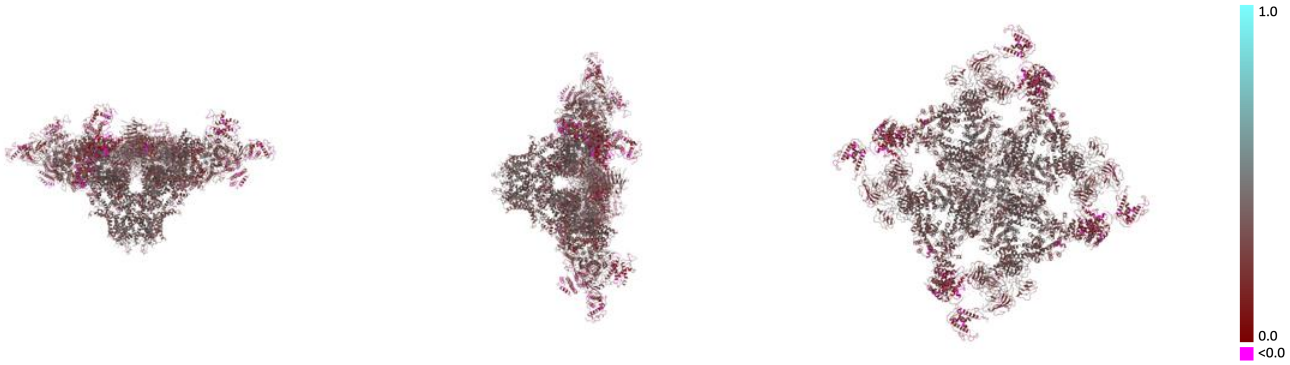
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.022 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.

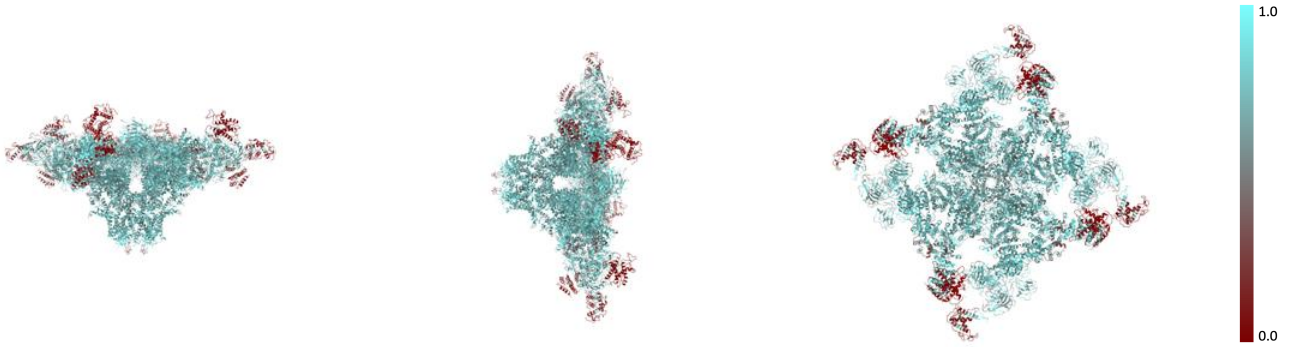
9.2 Q-score mapped to coordinate model (i)



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.

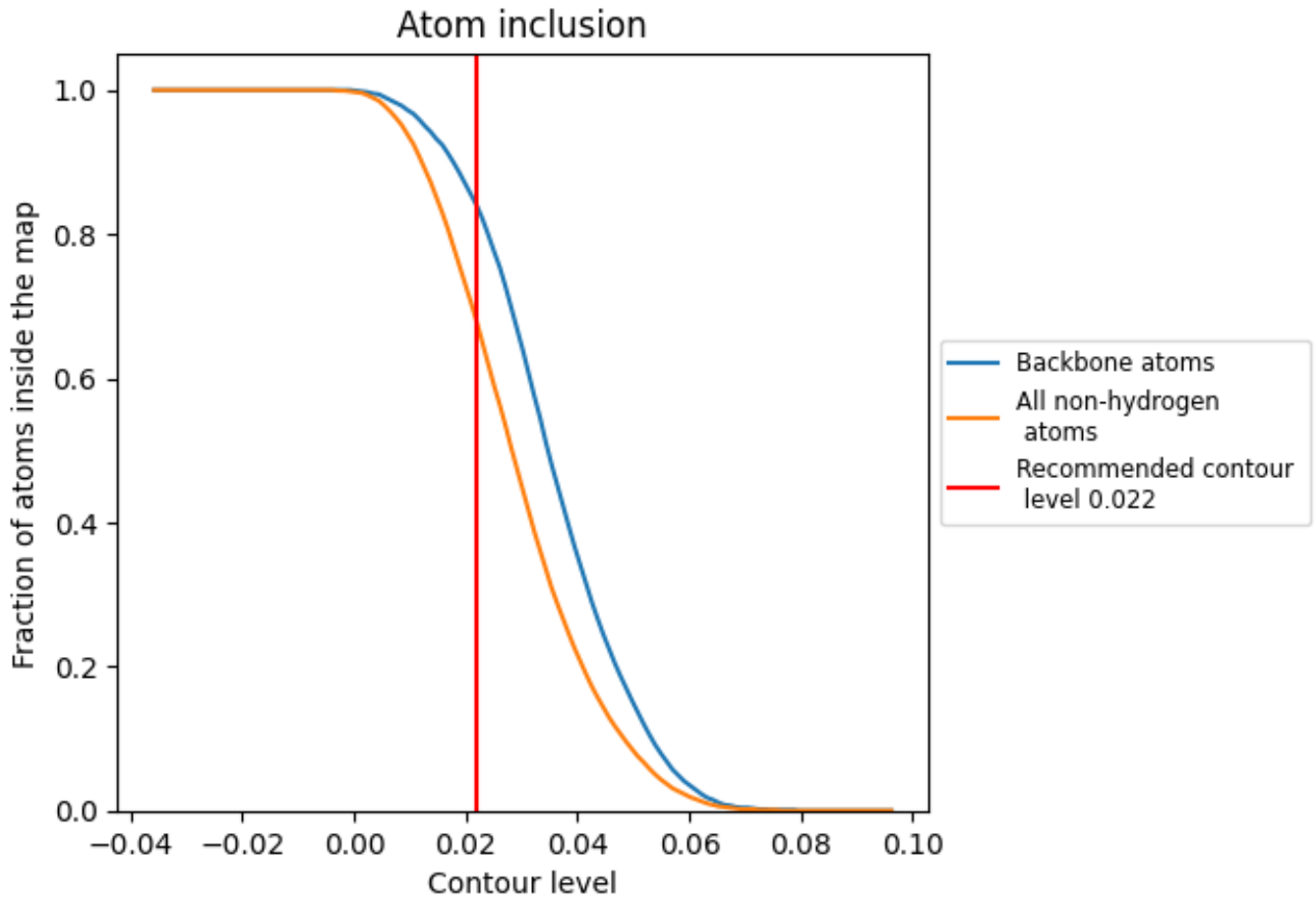
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.022).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 68% 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 (0.022) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6770	0.3190
A	0.7090	0.3340
B	0.6840	0.3210
C	0.4910	0.2490
D	0.7100	0.3380
E	0.6840	0.3220
F	0.4910	0.2470
G	0.7110	0.3370
H	0.6840	0.3220
I	0.4910	0.2480
J	0.7100	0.3360
K	0.6840	0.3210
L	0.4910	0.2490