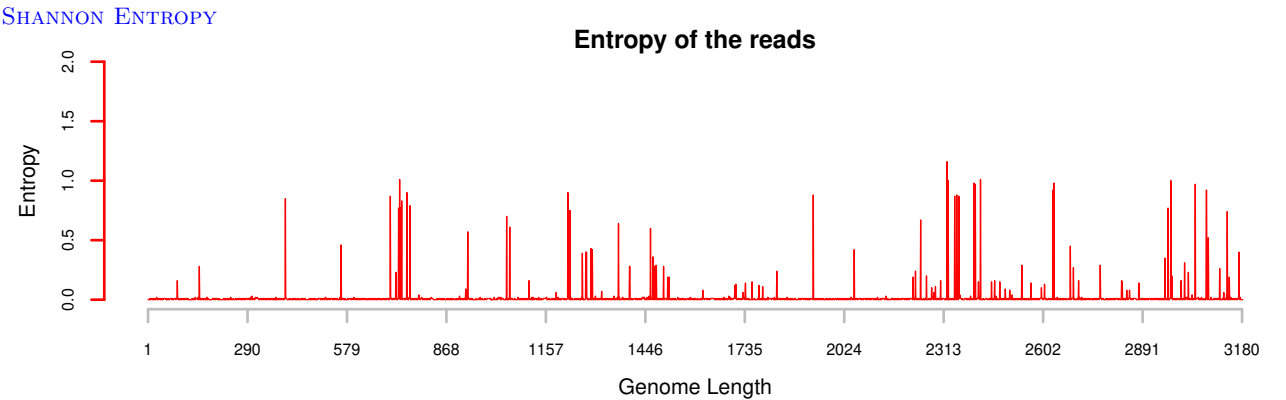
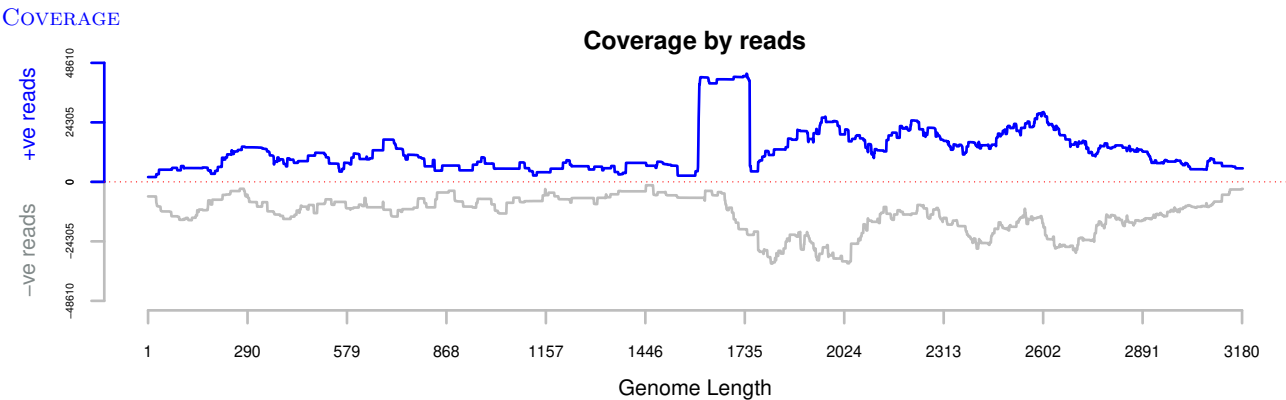


HBV-RYD-41

| | |
|-----------------------|---|
| File name | HBV-RYD-41.sam |
| Ref name | KX357637.1 Hepatitis B virus isolate MK20ETH, complete genome |
| Ref len | 3182 |
| Program used | Tanoti Assembler 1.0 |
| Total reads | 789098 |
| Mapped reads | 556493 (70.52%) |
| Unmapped reads | 232605 |
| Mapped loan pairs | 3612 |
| Average read length | 148nt |
| Coverage | 3182nt (100.00%) |
| Average depth | 25718 reads/site |
| Average insert length | 170nt |



CONSENSUS SEQUENCE

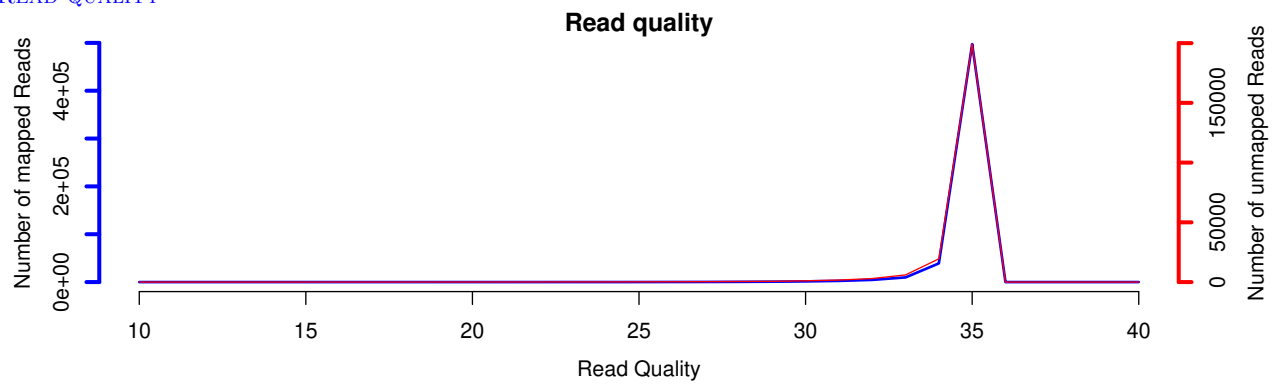
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70     AGTTCAGGAA CAGTAAACCC TGTTCGACT ACTGTCTCTC ACACATCGTC AATCTTCTCG AGGATTGGGG
140    ACCCTGCGCG GAACATGGAG AACATCACAT CAGGACTCCT AGGACCCCTG CTCGTGTTAC AGGCGGGGTT
210    TTTCTTGTG ACAAGAATCC TCACAATACC GCAGAGTCTA GACTCGTGGT GGACTTCTCT CAATTTTCTA
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350    CTCCAAC TTG TCCTGGTTAT CGCTGGATGT GTCTGCGGCG TTTTATCATC TTCCTCTTCA TCCTGCTGCT
420    ATGCTCATC TTCTTGTG TTCTTCTGGA CTATCAAGGT ATGTTGCCCC TTTGTCCTCT ACTTCCAGGA
490    TCTTCAACGA CCAGCACGGG ACCATGCAGA ACCTGCACGA CTCCTGCTCA AGGAACCTCT ATGTATCCCT
560    CATGTTGCTG TACCAAACCT TCGGACGGAA ATTGCACCTG TATTCCTATC CCATCATCCT GGGCTTTCGG
630    AAAATTCCTA TGGGAGTGGG CCTCAGCCCG TTTCTCCTGG CTCAGTTTAC TAGTGCCATT TGTTCACTGG
700    TTCGTAGGGC TTTCCCCCAC TGTTTGGCTT TCAGTTATAT GGATGATGTG GTTTTGGGGG CCAAGTCTGT
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840    AACAAAACAA AAAGATGGGG TTAATCTTTA CATTTTCATG GCTATGTCAT TGGATGTCAT GGGTCATTGC
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980    GAAAGTCTGT CAACGTATTG TGGGTCTTTT GGGTTTTGCT GCCCCTTTTA CACAATGTGG TTATCCTGCT
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1120   TGTGTAAACA ATACCTGAAC CTTTACCCCG TTGCCCGGCA ACGGCCAGGT CTGTGCCAAG TGTTTGTGTA
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1260   CCGATCCATA CTGCGGAACCT CCTAGCCGCT TGTTTTGTCT GCAGCAGGTC TGGAGCAAAC ATACTCGGGA
1330   CAGATACTC TGTGTCTCTC TCCCGCAAAT ATACATCTTA TCCATGGCTG CTAGGCTGTG CTGCCAACTG
1400   GATCCTGCGC GGGACGTCTT TTGTTACGT CCCGTGCGCG CTGAATCCTG CGGACGACCC TTCTCGGGGC
1470   CGCTTGGGAC TCTCTCGTCC CTTTCTCCGT CTGCCGTTTC GACCGACCAC GGGGCGCACC TCTCTTACG
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2240   CAGTCATAGA GTATTTGGTG TCTTTCGGAG TGTGGATTCT CACTCCTCCA GCTTATAGAC CACCAAATGC
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2520   CTCACTGGAA AACACCTTCT TTTCTTAATA TACATTTACA CCAAGACATT ATCAAAAAAT GTGAACAATT
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3010   GATTACCCCC ACCGCACGGA GGCCTTTTGG GGTGAGAGCC TCAGGCTCAG GGCATACTAC AAACCTTGCC
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3150   AGAGACACTC ATCCTCAGGC CATGCACTGG AA

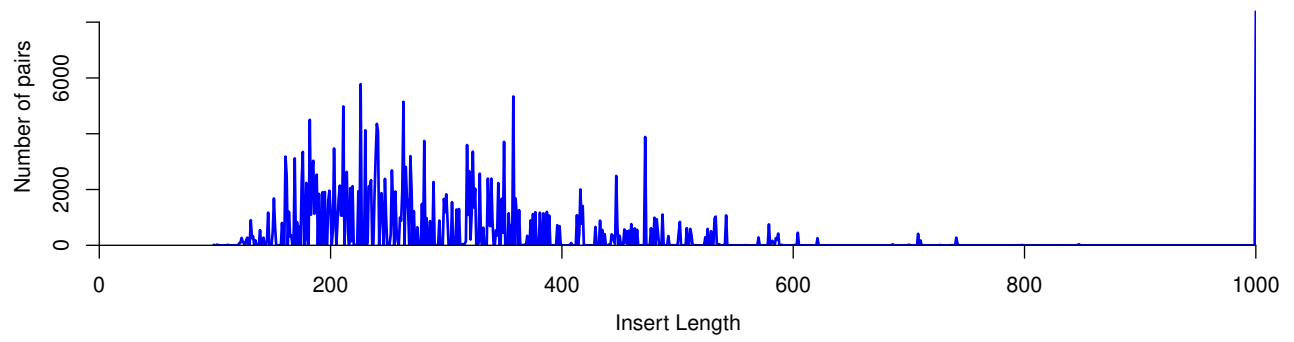
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| Genome Composition | |
|--------------------|--------------|
| A | 726 (22.82%) |
| T | 892 (28.03%) |
| G | 695 (21.84%) |
| C | 869 (27.31%) |
| N | 0 (0.00%) |
| Total Nucleotides | 3182 |
| GC% | 49.15 |

READ QUALITY



INSERT LENGTH DISTRIBUTION



AMINO ACID VARIATIONS

| Protein | Position | Ref AA | Consensus AA | All AAs |
|---------|----------|--------|--------------|-----------------|
| P2 | 1 | F | H | H::99.97(7920) |
| P2 | 2 | F | N | N::99.95(7919) |
| P2 | 3 | F | L | L::99.89(7914) |
| P2 | 4 | F | P | P::99.92(7919) |
| P2 | 5 | F | P | P::99.90(7917) |
| P2 | 6 | F | N | N::99.94(7922) |
| P2 | 7 | F | S | S::99.92(7921) |
| P2 | 8 | F | A | A::99.78(11623) |
| P2 | 9 | F | R | R::99.94(13054) |
| P2 | 10 | F | S | S::99.94(13076) |
| P2 | 11 | F | Q | Q::99.88(15035) |
| P2 | 12 | F | S | S::99.95(15112) |
| P2 | 13 | F | E | E::99.93(16981) |
| P2 | 14 | F | R | R::99.93(17013) |
| P2 | 15 | F | P | P::99.91(17030) |
| P2 | 16 | F | V | V::99.84(17022) |
| P2 | 17 | F | S | S::99.95(17042) |
| P2 | 18 | F | P | P::99.93(17044) |
| P2 | 19 | F | C | C::99.95(17054) |
| P2 | 20 | F | W | W::99.94(17052) |
| P2 | 21 | F | W | W::99.80(17032) |
| P2 | 22 | F | L | L::99.92(17241) |
| P2 | 23 | F | Q | Q::99.89(18986) |
| P2 | 25 | F | R | R::99.85(19760) |
| P2 | 26 | F | N | N::99.87(19765) |
| P2 | 27 | F | S | S::99.89(19769) |
| P2 | 28 | F | K | K::97.66(18346) |
| P2 | 29 | F | P | P::99.95(18985) |
| P2 | 30 | F | C | C::99.93(19036) |
| P2 | 31 | F | S | S::99.96(20202) |
| P2 | 32 | F | D | D::99.86(21929) |
| P2 | 33 | F | Y | Y::99.95(21950) |
| P2 | 34 | F | C | C::99.88(20572) |
| P2 | 35 | F | L | L::99.94(20872) |
| P2 | 36 | F | S | S::99.91(20355) |
| P2 | 37 | F | H | H::99.91(20355) |
| P2 | 38 | F | I | I::99.90(20356) |
| P2 | 39 | F | V | V::99.91(21214) |
| P2 | 40 | F | N | N::99.95(21271) |
| P2 | 41 | F | L | L::99.99(21277) |
| P2 | 42 | F | L | L::99.96(20286) |
| P2 | 43 | F | E | E::99.90(20275) |
| P2 | 44 | F | D | D::99.94(20288) |
| P2 | 45 | F | W | W::99.81(20257) |
| P2 | 46 | F | G | G::99.93(19377) |
| P2 | 47 | F | P | P::99.90(17196) |

| | | | | |
|----|-----|---|---|-----------------|
| P2 | 48 | F | C | C::99.88(17874) |
| P2 | 49 | F | A | A::99.93(16921) |
| P2 | 50 | F | E | E::99.89(16914) |
| P2 | 51 | F | H | H::99.95(16922) |
| P2 | 52 | F | G | G::99.87(16890) |
| P2 | 53 | F | E | E::99.91(17427) |
| P2 | 54 | F | H | H::99.90(17429) |
| P2 | 55 | F | H | H::99.92(17413) |
| P2 | 56 | F | I | I::99.93(17389) |
| P2 | 57 | F | R | R::99.75(17246) |
| P2 | 58 | F | T | T::99.88(12264) |
| P2 | 59 | F | P | P::99.95(12281) |
| P2 | 60 | F | R | R::99.97(11727) |
| P2 | 61 | F | T | T::99.98(12551) |
| P2 | 62 | F | P | P::99.91(10567) |
| P2 | 63 | F | A | A::99.91(10567) |
| P2 | 64 | F | R | R::99.90(10568) |
| P2 | 65 | F | V | V::99.92(11756) |
| P2 | 66 | F | T | T::99.85(11750) |
| P2 | 67 | F | G | G::99.93(11762) |
| P2 | 68 | F | G | G::99.96(13391) |
| P2 | 69 | F | V | V::99.96(13388) |
| P2 | 71 | F | L | L::99.98(13196) |
| P2 | 72 | F | V | V::99.97(15174) |
| P2 | 73 | F | D | D::99.92(14425) |
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| P2 | 75 | F | N | N::99.94(15071) |
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| P2 | 79 | F | T | T::99.93(16108) |
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| P2 | 81 | F | E | E::99.96(16270) |
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| P2 | 83 | F | R | R::99.95(15124) |
| P2 | 84 | F | L | L::99.98(16157) |
| P2 | 85 | F | V | V::99.93(16151) |
| P2 | 86 | F | V | V::99.91(16187) |
| P2 | 87 | F | D | D::99.95(16789) |
| P2 | 89 | F | S | S::99.91(15854) |
| P2 | 90 | F | Q | Q::99.92(15856) |
| P2 | 92 | F | S | S::99.95(17201) |
| P2 | 93 | F | R | R::99.89(17914) |
| P2 | 94 | F | G | G::99.94(19367) |
| P2 | 95 | F | N | N::99.89(19342) |
| P2 | 96 | F | H | H::99.91(19344) |
| P2 | 97 | F | R | R::99.81(20610) |
| P2 | 98 | F | V | V::99.95(22289) |
| P2 | 99 | F | S | S::99.80(22253) |
| P2 | 100 | F | W | W::99.62(22261) |
| P2 | 101 | F | P | P::99.91(22325) |

| | | | | |
|----|-----|---|---|--------------------------------|
| P2 | 102 | F | K | K::99.93(22329) |
| P2 | 104 | F | A | A::99.72(22271) |
| P2 | 105 | F | V | V::99.88(22301) |
| P2 | 106 | F | P | P::99.91(24134) |
| P2 | 107 | F | N | N::99.89(24115) |
| P2 | 108 | F | L | L::99.92(24116) |
| P2 | 109 | F | Q | Q::99.92(24060) |
| P2 | 110 | F | S | S::99.91(21873) |
| P2 | 111 | F | L | L::99.90(21852) |
| P2 | 112 | F | T | T::99.93(21782) |
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| P2 | 114 | F | L | L::99.94(21668) |
| P2 | 115 | F | L | L::99.91(20688) |
| P2 | 116 | F | S | S::99.90(24365) |
| P2 | 117 | F | S | S::99.91(23700) |
| P2 | 118 | F | N | N::99.91(22839) |
| P2 | 119 | F | L | L::99.93(22823) |
| P2 | 120 | F | S | S::99.91(22761) |
| P2 | 121 | F | W | W::99.91(22020) |
| P2 | 122 | F | L | L::99.95(19544) |
| P2 | 123 | F | S | S::99.96(21555) |
| P2 | 124 | F | L | L::99.95(21563) |
| P2 | 125 | F | D | D::99.87(20672) |
| P2 | 126 | F | V | V::99.93(22699) |
| P2 | 127 | F | S | S::99.91(22010) |
| P2 | 128 | F | A | A::99.87(23099) |
| P2 | 129 | F | A | A::99.89(23102) |
| P2 | 131 | F | Y | Y::99.93(22477) |
| P2 | 132 | F | H | H::99.91(22457) |
| P2 | 133 | F | L | L::71.07(15258) I::28.87(6198) |
| P2 | 134 | F | P | P::99.89(21435) |
| P2 | 135 | F | L | L::99.97(24745) |
| P2 | 136 | F | H | H::99.92(24705) |
| P2 | 137 | F | P | P::99.94(24176) |
| P2 | 138 | F | A | A::99.92(23228) |
| P2 | 139 | F | A | A::99.94(23232) |
| P2 | 140 | F | M | M::99.88(23235) |
| P2 | 141 | F | P | P::99.94(21964) |
| P2 | 142 | F | H | H::99.91(21206) |
| P2 | 143 | F | L | L::99.94(21211) |
| P2 | 144 | F | L | L::99.96(19476) |
| P2 | 145 | F | V | V::99.95(19475) |
| P2 | 146 | F | G | G::99.93(20379) |
| P2 | 147 | F | S | S::99.94(19757) |
| P2 | 148 | F | S | S::99.91(18177) |
| P2 | 149 | F | G | G::99.98(18529) |
| P2 | 150 | F | L | L::99.96(18591) |
| P2 | 151 | F | S | S::99.92(18588) |
| P2 | 152 | F | R | R::99.87(18575) |
| P2 | 153 | F | Y | Y::99.95(18595) |
| P2 | 154 | F | V | V::99.95(19573) |

| | | | | |
|----|-----|---|---|-------------------------------|
| P2 | 155 | F | A | A::99.95(20160) |
| P2 | 156 | F | R | R::99.86(20141) |
| P2 | 157 | F | L | L::99.96(20177) |
| P2 | 158 | F | S | S::99.90(20166) |
| P2 | 159 | F | S | S::99.92(20168) |
| P2 | 160 | F | T | T::99.94(20167) |
| P2 | 161 | F | S | S::99.92(23462) |
| P2 | 162 | F | R | R::99.89(24639) |
| P2 | 163 | F | I | I::99.98(24664) |
| P2 | 165 | F | N | N::99.89(20869) |
| P2 | 166 | F | D | D::99.82(20812) |
| P2 | 167 | F | Q | Q::99.94(20842) |
| P2 | 168 | F | H | H::99.92(20825) |
| P2 | 169 | F | G | G::99.91(20825) |
| P2 | 170 | F | T | T::99.94(20812) |
| P2 | 171 | F | M | M::99.77(19644) |
| P2 | 172 | F | Q | Q::99.78(17135) |
| P2 | 173 | F | N | N::99.90(17156) |
| P2 | 174 | F | L | L::99.93(17104) |
| P2 | 175 | F | H | H::99.87(14607) |
| P2 | 176 | F | D | D::99.88(14606) |
| P2 | 177 | F | S | S::99.84(14581) |
| P2 | 178 | F | C | C::99.86(16709) |
| P2 | 179 | F | S | S::99.96(16842) |
| P2 | 180 | F | R | R::99.92(15633) |
| P2 | 181 | F | N | N::99.84(15617) |
| P2 | 182 | F | L | L::99.92(15614) |
| P2 | 183 | F | Y | Y::99.88(15569) |
| P2 | 184 | F | V | V::99.94(13905) |
| P2 | 185 | F | S | S::99.92(12378) |
| P2 | 186 | F | L | L::99.92(12375) |
| P2 | 187 | F | M | M::90.34(11187) L::9.57(1185) |
| P2 | 188 | F | L | L::99.90(13466) |
| P2 | 189 | F | L | L::99.94(13443) |
| P2 | 190 | F | Y | Y::99.93(16009) |
| P2 | 191 | F | Q | Q::99.92(15970) |
| P2 | 192 | F | T | T::99.97(18517) |
| P2 | 194 | F | G | G::99.96(18447) |
| P2 | 195 | F | R | R::99.89(17911) |
| P2 | 196 | F | K | K::99.91(17486) |
| P2 | 197 | F | L | L::99.91(20744) |
| P2 | 198 | F | H | H::99.92(20756) |
| P2 | 199 | F | L | L::99.84(20347) |
| P2 | 200 | F | Y | Y::99.86(22038) |
| P2 | 201 | F | S | S::99.89(21982) |
| P2 | 202 | F | H | H::99.89(21913) |
| P2 | 203 | F | P | P::99.94(21887) |
| P2 | 204 | F | I | I::99.91(20459) |
| P2 | 205 | F | I | I::99.92(18628) |
| P2 | 206 | F | L | L::99.89(18620) |
| P2 | 207 | F | G | G::99.92(19000) |

| | | | | |
|----|-----|---|---|-----------------|
| P2 | 209 | F | R | R::99.94(15903) |
| P2 | 210 | F | K | K::99.88(15896) |
| P2 | 211 | F | I | I::99.94(18454) |
| P2 | 212 | F | P | P::99.95(19549) |
| P2 | 213 | F | M | M::99.90(19547) |
| P2 | 214 | F | G | G::99.92(19556) |
| P2 | 215 | F | V | V::99.91(19988) |
| P2 | 216 | F | G | G::99.89(19987) |
| P2 | 217 | F | L | L::99.90(19990) |
| P2 | 218 | F | S | S::99.92(23273) |
| P2 | 219 | F | P | P::99.89(23272) |
| P2 | 221 | F | L | L::99.92(23280) |
| P2 | 222 | F | L | L::99.93(23280) |
| P2 | 223 | F | A | A::99.87(23269) |
| P2 | 224 | F | Q | Q::99.91(23269) |
| P2 | 226 | F | T | T::99.94(23275) |
| P2 | 227 | F | S | S::99.89(20994) |
| P2 | 228 | F | A | A::99.88(28556) |
| P2 | 229 | F | I | I::99.94(28643) |
| P2 | 230 | F | C | C::99.91(28638) |
| P2 | 231 | F | S | S::99.91(28634) |
| P2 | 232 | F | V | V::99.91(28635) |
| P2 | 233 | F | V | V::99.90(28632) |
| P2 | 234 | F | R | R::99.87(28622) |
| P2 | 235 | F | R | R::99.89(28656) |
| P2 | 236 | F | A | A::99.91(31281) |
| P2 | 238 | F | P | P::99.91(29824) |
| P2 | 239 | F | H | H::99.90(29499) |
| P2 | 240 | F | C | C::96.17(26657) |
| P2 | 241 | F | L | L::99.95(27719) |
| P2 | 242 | F | A | A::99.89(25075) |
| P2 | 244 | F | S | S::99.89(25063) |
| P2 | 245 | F | Y | Y::99.88(25683) |
| P2 | 246 | F | M | M::99.90(24403) |
| P2 | 247 | F | D | D::99.87(21908) |
| P2 | 248 | F | D | D::99.91(21905) |
| P2 | 249 | F | V | V::99.91(20258) |
| P2 | 250 | F | V | V::99.89(20241) |
| P2 | 251 | F | L | L::99.85(20245) |
| P2 | 252 | F | G | G::99.97(22238) |
| P2 | 253 | F | A | A::99.77(22184) |
| P2 | 254 | F | K | K::99.92(22202) |
| P2 | 255 | F | S | S::99.93(22197) |
| P2 | 256 | F | V | V::99.87(22169) |
| P2 | 257 | F | Q | Q::99.90(21557) |
| P2 | 258 | F | H | H::99.89(21479) |
| P2 | 259 | F | L | L::99.90(21482) |
| P2 | 260 | F | E | E::99.93(21425) |
| P2 | 261 | F | S | S::99.91(17317) |
| P2 | 262 | F | L | L::99.77(16727) |
| P2 | 264 | F | T | T::99.90(16664) |

| | | | | |
|----|-----|---|---|-----------------|
| P2 | 265 | F | A | A::99.73(16301) |
| P2 | 266 | F | V | V::99.91(16319) |
| P2 | 267 | F | T | T::99.97(15241) |
| P2 | 268 | F | N | N::99.94(15051) |
| P2 | 270 | F | L | L::99.93(16693) |
| P2 | 271 | F | L | L::99.88(16738) |
| P2 | 272 | F | S | S::99.81(16722) |
| P2 | 273 | F | L | L::99.93(16742) |
| P2 | 274 | F | G | G::99.80(16716) |
| P2 | 275 | F | I | I::99.85(16727) |
| P2 | 276 | F | H | H::99.94(19330) |
| P2 | 277 | F | L | L::99.97(15005) |
| P2 | 278 | F | N | N::99.94(11689) |
| P2 | 279 | F | P | P::99.97(11689) |
| P2 | 280 | F | N | N::99.90(8895) |
| P2 | 281 | F | K | K::99.93(8899) |
| P2 | 282 | F | T | T::99.87(8889) |
| P2 | 283 | F | K | K::99.93(8899) |
| P2 | 284 | F | R | R::99.93(8899) |
| P2 | 285 | F | W | W::99.91(10984) |
| P2 | 286 | F | G | G::99.90(10986) |
| P2 | 287 | F | Y | Y::99.94(10988) |
| P2 | 288 | F | S | S::99.96(10992) |
| P2 | 289 | F | L | L::99.93(10988) |
| P2 | 290 | F | H | H::99.93(10987) |
| P2 | 292 | F | M | M::99.89(10292) |
| P2 | 293 | F | G | G::99.91(10291) |
| P2 | 294 | F | Y | Y::99.86(10286) |
| P2 | 295 | F | V | V::99.94(10294) |
| P2 | 296 | F | I | I::99.94(10303) |
| P2 | 297 | F | G | G::99.94(13788) |
| P2 | 298 | F | C | C::99.92(14482) |
| P2 | 299 | F | H | H::99.92(14476) |
| P2 | 300 | F | G | G::99.93(14621) |
| P2 | 301 | F | S | S::99.90(12686) |
| P2 | 302 | F | L | L::99.92(12698) |
| P2 | 303 | F | P | P::99.94(12704) |
| P2 | 304 | F | Q | Q::99.91(12705) |
| P2 | 305 | F | D | D::99.89(13257) |
| P2 | 306 | F | H | H::99.86(14768) |
| P2 | 307 | F | I | I::99.91(14781) |
| P2 | 308 | F | I | I::99.93(14780) |
| P2 | 309 | F | Q | Q::99.90(14784) |
| P2 | 310 | F | K | K::99.86(14781) |
| P2 | 311 | F | I | I::99.93(14793) |
| P2 | 312 | F | K | K::99.90(14792) |
| P2 | 313 | F | E | E::99.90(14795) |
| P2 | 314 | F | C | C::99.92(14800) |
| P2 | 316 | F | R | R::99.94(17441) |
| P2 | 317 | F | K | K::99.88(17532) |
| P2 | 318 | F | L | L::99.95(15577) |

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|----|-----|---|---|--------------------------------|
| P2 | 319 | F | P | P::99.96(15141) |
| P2 | 320 | F | V | V::99.91(15138) |
| P2 | 321 | F | N | N::99.92(15138) |
| P2 | 322 | F | R | R::99.87(15125) |
| P2 | 323 | F | P | P::99.95(16997) |
| P2 | 324 | F | I | I::99.92(16974) |
| P2 | 325 | F | D | D::99.95(16854) |
| P2 | 326 | F | W | W::99.83(14408) |
| P2 | 327 | F | K | K::99.95(14423) |
| P2 | 328 | F | V | V::99.94(14421) |
| P2 | 329 | F | C | C::99.85(14408) |
| P2 | 330 | F | Q | Q::99.88(14410) |
| P2 | 331 | F | R | R::99.90(14413) |
| P2 | 332 | F | I | I::99.92(14501) |
| P2 | 333 | F | V | V::99.98(16587) |
| P2 | 334 | F | G | G::99.94(16582) |
| P2 | 335 | F | L | L::99.83(14545) |
| P2 | 336 | F | L | L::99.93(17065) |
| P2 | 337 | F | G | G::99.97(17185) |
| P2 | 339 | F | A | A::99.70(17942) |
| P2 | 340 | F | A | A::99.78(18255) |
| P2 | 341 | F | P | P::99.93(18303) |
| P2 | 343 | F | T | T::99.90(18309) |
| P2 | 344 | F | Q | Q::99.91(18312) |
| P2 | 345 | F | C | C::99.91(18304) |
| P2 | 346 | F | G | G::99.96(18313) |
| P2 | 347 | F | Y | Y::81.29(11326) C::18.61(2593) |
| P2 | 348 | F | P | P::99.95(13930) |
| P2 | 349 | F | A | A::99.95(13927) |
| P2 | 350 | F | L | L::84.96(11842) *:14.99(2089) |
| P2 | 351 | F | M | M::99.85(13920) |
| P2 | 352 | F | P | P::99.83(13916) |
| P2 | 353 | F | L | L::99.95(13932) |
| P2 | 354 | F | Y | Y::99.94(11848) |
| P2 | 355 | F | A | A::99.86(11835) |
| P2 | 356 | F | C | C::99.95(11845) |
| P2 | 357 | F | I | I::99.94(11844) |
| P2 | 358 | F | Q | Q::99.77(11812) |
| P2 | 359 | F | S | S::99.93(11831) |
| P2 | 360 | F | K | K::99.92(15654) |
| P2 | 361 | F | Q | Q::99.90(16130) |
| P2 | 362 | F | A | A::99.95(16248) |
| P2 | 364 | F | T | T::99.92(15507) |
| P2 | 366 | F | S | S::99.93(13447) |
| P2 | 367 | F | P | P::99.96(13452) |
| P2 | 368 | F | T | T::99.91(13446) |
| P2 | 369 | F | Y | Y::97.49(11975) |
| P2 | 370 | F | K | K::99.89(12255) |
| P2 | 371 | F | A | A::99.93(12260) |
| P2 | 373 | F | L | L::99.92(10402) |
| P2 | 374 | F | C | C::99.92(10427) |

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|----|-----|---|---|--------------------------------|
| P2 | 375 | F | K | K::99.90(10425) |
| P2 | 376 | F | Q | Q::99.92(10429) |
| P2 | 377 | F | Y | Y::99.93(11768) |
| P2 | 378 | F | L | L::99.84(11759) |
| P2 | 379 | F | N | N::99.95(11770) |
| P2 | 380 | F | L | L::99.94(11771) |
| P2 | 381 | F | Y | Y::99.93(11770) |
| P2 | 382 | F | P | P::99.95(9457) |
| P2 | 383 | F | V | V::99.87(9449) |
| P2 | 384 | F | A | A::99.87(6852) |
| P2 | 385 | F | R | R::99.89(7114) |
| P2 | 386 | F | Q | Q::99.82(9339) |
| P2 | 387 | F | R | R::99.96(9326) |
| P2 | 388 | F | P | P::99.88(8292) |
| P2 | 389 | F | G | G::99.93(8317) |
| P2 | 390 | F | L | L::99.97(9798) |
| P2 | 391 | F | C | C::99.89(9802) |
| P2 | 392 | F | Q | Q::99.88(9803) |
| P2 | 393 | F | V | V::99.94(9815) |
| P2 | 395 | F | A | A::99.37(11227) |
| P2 | 396 | F | D | D::99.91(11282) |
| P2 | 397 | F | A | A::99.81(11280) |
| P2 | 398 | F | T | T::99.94(12453) |
| P2 | 399 | F | P | P::99.93(12464) |
| P2 | 400 | F | T | T::99.95(12471) |
| P2 | 401 | F | G | G::99.84(12467) |
| P2 | 402 | F | W | W::99.89(14943) |
| P2 | 403 | F | G | G::99.86(14949) |
| P2 | 404 | F | L | L::99.94(14964) |
| P2 | 405 | F | V | V::99.96(14968) |
| P2 | 406 | F | M | M::68.17(10859) I::31.75(5057) |
| P2 | 407 | F | G | G::99.89(15918) |
| P2 | 408 | F | H | H::99.93(14093) |
| P2 | 409 | F | Q | Q::99.79(15392) |
| P2 | 410 | F | R | R::99.83(12907) |
| P2 | 411 | F | M | M::99.85(13003) |
| P2 | 412 | F | R | R::99.95(12980) |
| P2 | 413 | F | G | G::99.92(12979) |
| P2 | 414 | F | T | T::99.98(12987) |
| P2 | 416 | F | R | R::99.93(12978) |
| P2 | 417 | F | A | A::99.94(12982) |
| P2 | 418 | F | P | P::99.97(12987) |
| P2 | 419 | F | L | L::99.92(12980) |
| P2 | 420 | F | P | P::99.82(12969) |
| P2 | 421 | F | I | I::99.92(12977) |
| P2 | 422 | F | H | H::99.95(12981) |
| P2 | 423 | F | T | T::99.98(12985) |
| P2 | 424 | F | A | A::92.16(11969) T::7.69(999) |
| P2 | 425 | F | E | E::99.88(12968) |
| P2 | 426 | F | L | L::99.96(12951) |
| P2 | 427 | F | L | L::99.94(11642) |

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|----|-----|---|---|-------------------------------|
| P2 | 428 | F | A | A::99.97(11646) |
| P2 | 429 | F | A | A::91.22(10626) T::8.71(1015) |
| P2 | 430 | F | C | C::91.39(10639) Y::8.56(996) |
| P2 | 432 | F | A | A::99.91(13991) |
| P2 | 433 | F | R | R::99.69(15225) |
| P2 | 434 | F | S | S::99.88(15262) |
| P2 | 435 | F | R | R::99.91(12707) |
| P2 | 436 | F | S | S::99.92(12708) |
| P2 | 437 | F | G | G::99.93(12706) |
| P2 | 438 | F | A | A::99.90(12701) |
| P2 | 439 | F | N | N::99.21(12605) |
| P2 | 440 | F | I | I::99.96(11230) |
| P2 | 441 | F | L | L::99.89(11223) |
| P2 | 442 | F | G | G::99.91(12098) |
| P2 | 443 | F | T | T::99.91(10667) |
| P2 | 444 | F | D | D::99.92(11834) |
| P2 | 445 | F | N | N::99.86(11831) |
| P2 | 446 | F | S | S::99.97(11846) |
| P2 | 447 | F | V | V::99.97(11843) |
| P2 | 448 | F | V | V::99.93(10633) |
| P2 | 449 | F | L | L::99.98(11557) |
| P2 | 450 | F | S | S::99.83(11529) |
| P2 | 451 | F | R | R::99.68(11498) |
| P2 | 452 | F | K | K::99.87(9079) |
| P2 | 453 | F | Y | Y::99.92(9085) |
| P2 | 454 | F | T | T::99.92(9073) |
| P2 | 455 | F | S | S::99.88(6750) |
| P2 | 456 | F | Y | Y::99.84(6747) |
| P2 | 457 | F | P | P::99.96(6755) |
| P2 | 458 | F | W | W::99.93(6884) |
| P2 | 459 | F | L | L::99.96(7017) |
| P2 | 460 | F | L | L::99.91(7475) |
| P2 | 461 | F | G | G::99.97(7480) |
| P2 | 462 | F | C | C::99.88(7473) |
| P2 | 463 | F | A | A::99.87(11599) |
| P2 | 464 | F | A | A::99.84(11597) |
| P2 | 465 | F | N | N::99.96(11619) |
| P2 | 466 | F | W | W::95.13(11058) |
| P2 | 467 | F | I | I::99.97(11621) |
| P2 | 468 | F | L | L::99.95(11617) |
| P2 | 469 | F | R | R::99.91(11611) |
| P2 | 470 | F | G | G::99.93(11614) |
| P2 | 471 | F | T | T::99.89(11609) |
| P2 | 472 | F | S | S::99.92(11612) |
| P2 | 474 | F | V | V::99.93(11612) |
| P2 | 475 | F | Y | Y::99.95(11614) |
| P2 | 476 | F | V | V::99.93(11612) |
| P2 | 477 | F | P | P::99.94(11612) |
| P2 | 478 | F | S | S::99.89(11606) |
| P2 | 479 | F | A | A::99.80(11596) |
| P2 | 480 | F | L | L::99.81(11596) |

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|----|-----|---|---|-----------------------------|
| P2 | 481 | F | N | N::99.97(11602) |
| P2 | 482 | F | P | P::99.92(7965) |
| P2 | 483 | F | A | A::99.77(7954) |
| P2 | 484 | F | D | D::99.90(7962) |
| P2 | 485 | F | D | D::99.56(7932) |
| P2 | 486 | F | P | P::99.96(7963) |
| P2 | 487 | F | S | S::99.91(7958) |
| P2 | 488 | F | R | R::99.95(7960) |
| P2 | 489 | F | G | G::93.07(7410) S::6.86(546) |
| P2 | 490 | F | R | R::95.26(11286) |
| P2 | 491 | F | L | L::99.88(11036) |
| P2 | 492 | F | G | G::94.99(10531) |
| P2 | 493 | F | L | L::99.89(11095) |
| P2 | 494 | F | S | S::99.90(12449) |
| P2 | 495 | F | R | R::99.87(12453) |
| P2 | 496 | F | P | P::99.93(12431) |
| P2 | 497 | F | L | L::99.84(12280) |
| P2 | 498 | F | L | L::99.94(12016) |
| P2 | 499 | F | R | R::95.16(11036) |
| P2 | 500 | F | L | L::99.90(11323) |
| P2 | 501 | F | P | P::99.80(11315) |
| P2 | 503 | F | R | R::97.14(12125) |
| P2 | 504 | F | P | P::99.90(12465) |
| P2 | 505 | F | T | T::99.93(12469) |
| P2 | 506 | F | T | T::99.97(12120) |
| P2 | 507 | F | G | G::99.95(12119) |
| P2 | 508 | F | R | R::99.84(12106) |
| P2 | 509 | F | T | T::99.91(12104) |
| P2 | 510 | F | S | S::99.89(12083) |
| P2 | 511 | F | L | L::99.94(12069) |
| P2 | 512 | F | Y | Y::99.96(11961) |
| P2 | 513 | F | A | A::99.72(8906) |
| P2 | 514 | F | D | D::99.97(8972) |
| P2 | 515 | F | S | S::99.90(8968) |
| P2 | 516 | F | P | P::99.88(8990) |
| P2 | 517 | F | S | S::99.89(8994) |
| P2 | 518 | F | V | V::99.86(8997) |
| P2 | 519 | F | P | P::99.87(9002) |
| P2 | 520 | F | S | S::99.94(9011) |
| P2 | 521 | F | H | H::99.97(9016) |
| P2 | 522 | F | L | L::99.91(9010) |
| P2 | 523 | F | P | P::99.87(9014) |
| P2 | 524 | F | D | D::99.90(9020) |
| P2 | 525 | F | R | R::99.73(9003) |
| P2 | 526 | F | V | V::99.87(9013) |
| P2 | 527 | F | H | H::99.93(9021) |
| P2 | 529 | F | A | A::99.89(9018) |
| P2 | 530 | F | S | S::99.94(9021) |
| P2 | 531 | F | P | P::99.99(10831) |
| P2 | 532 | F | L | L::99.94(10827) |
| P2 | 533 | F | H | H::99.97(21509) |

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|-------|-----|---|---|-----------------|
| P2 | 534 | F | V | V::99.95(46324) |
| P2 | 535 | F | A | A::99.85(49173) |
| P2 | 536 | F | W | W::99.91(49212) |
| P2 | 537 | F | R | R::98.99(48718) |
| P2 | 538 | F | P | P::99.86(49094) |
| <hr/> | | | | |
| S2 | 1 | F | S | S::100.00(7912) |
| S2 | 2 | F | T | T::99.92(7916) |
| S2 | 3 | F | T | T::99.97(7921) |
| S2 | 5 | F | H | H::99.90(7918) |
| S2 | 6 | F | Q | Q::99.90(7917) |
| S2 | 7 | F | T | T::99.95(7923) |
| S2 | 8 | F | L | L::99.94(7923) |
| S2 | 9 | F | Q | Q::99.78(11983) |
| S2 | 10 | F | D | D::99.92(13068) |
| S2 | 11 | F | P | P::99.93(13198) |
| S2 | 12 | F | R | R::99.91(15044) |
| S2 | 13 | F | V | V::99.99(16699) |
| S2 | 14 | F | R | R::99.91(16998) |
| S2 | 15 | F | G | G::99.96(17030) |
| S2 | 16 | F | L | L::99.88(17024) |
| S2 | 17 | F | Y | Y::99.86(17026) |
| S2 | 18 | F | L | L::99.93(17037) |
| S2 | 19 | F | P | P::99.95(17051) |
| S2 | 20 | F | A | A::99.92(17048) |
| S2 | 21 | F | G | G::99.95(17057) |
| S2 | 22 | F | G | G::99.83(17153) |
| S2 | 23 | F | S | S::99.91(17240) |
| S2 | 24 | F | S | S::99.89(19735) |
| S2 | 25 | F | S | S::99.95(19771) |
| S2 | 26 | F | G | G::99.90(19770) |
| S2 | 27 | F | T | T::99.92(19775) |
| S2 | 28 | F | V | V::99.89(19725) |
| S2 | 29 | F | N | N::97.71(18364) |
| S2 | 30 | F | P | P::99.93(19036) |
| S2 | 31 | F | V | V::99.92(20187) |
| S2 | 32 | F | P | P::99.94(20205) |
| S2 | 33 | F | T | T::99.94(21946) |
| S2 | 34 | F | T | T::99.94(21950) |
| S2 | 35 | F | V | V::99.90(20577) |
| S2 | 36 | F | S | S::99.94(20873) |
| S2 | 37 | F | H | H::99.87(20347) |
| S2 | 38 | F | T | T::99.91(20354) |
| S2 | 39 | F | S | S::99.94(20364) |
| S2 | 40 | F | S | S::99.95(21224) |
| S2 | 41 | F | I | I::99.97(21275) |
| S2 | 43 | F | S | S::99.95(20284) |
| S2 | 44 | F | R | R::99.91(20278) |
| S2 | 45 | F | I | I::99.96(20292) |
| S2 | 46 | F | G | G::99.84(20262) |
| S2 | 47 | F | D | D::99.90(19370) |
| S2 | 48 | F | P | P::99.88(17192) |

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|----|-----|---|---|-----------------|
| S2 | 49 | F | A | A::99.83(17869) |
| S2 | 50 | F | R | R::95.51(16173) |
| S2 | 51 | F | N | N::99.95(16924) |
| S2 | 52 | F | M | M::99.85(16902) |
| S2 | 53 | F | E | E::99.87(16891) |
| S2 | 54 | F | N | N::99.92(17431) |
| S2 | 55 | F | I | I::99.91(17427) |
| S2 | 56 | F | T | T::99.92(17402) |
| S2 | 57 | F | S | S::99.95(17282) |
| S2 | 58 | F | G | G::99.91(14912) |
| S2 | 59 | F | L | L::99.92(12269) |
| S2 | 60 | F | L | L::99.97(11850) |
| S2 | 61 | F | G | G::99.98(11986) |
| S2 | 62 | F | P | P::99.97(12553) |
| S2 | 63 | F | L | L::99.91(10567) |
| S2 | 64 | F | L | L::99.93(10570) |
| S2 | 65 | F | V | V::99.93(10573) |
| S2 | 66 | F | L | L::99.90(11753) |
| S2 | 67 | F | Q | Q::99.80(11746) |
| S2 | 68 | F | A | A::99.91(11759) |
| S2 | 69 | F | G | G::99.97(13394) |
| S2 | 72 | F | L | L::99.98(13194) |
| S2 | 73 | F | L | L::99.96(15158) |
| S2 | 74 | F | T | T::99.95(14426) |
| S2 | 75 | F | R | R::99.94(14421) |
| S2 | 76 | F | I | I::99.95(15075) |
| S2 | 77 | F | L | L::99.91(15067) |
| S2 | 78 | F | T | T::99.98(16399) |
| S2 | 79 | F | I | I::99.90(16370) |
| S2 | 80 | F | P | P::99.91(14930) |
| S2 | 81 | F | Q | Q::99.89(14783) |
| S2 | 82 | F | S | S::99.97(16272) |
| S2 | 83 | F | L | L::99.92(15118) |
| S2 | 84 | F | D | D::99.96(16150) |
| S2 | 85 | F | S | S::99.94(16152) |
| S2 | 86 | F | W | W::99.91(16149) |
| S2 | 87 | F | W | W::99.88(16181) |
| S2 | 88 | F | T | T::99.95(16789) |
| S2 | 89 | F | S | S::99.88(15850) |
| S2 | 90 | F | L | L::99.94(15859) |
| S2 | 91 | F | N | N::99.91(15854) |
| S2 | 93 | F | L | L::99.94(17193) |
| S2 | 94 | F | G | G::99.93(17403) |
| S2 | 95 | F | G | G::99.89(19855) |
| S2 | 96 | F | T | T::99.90(19343) |
| S2 | 97 | F | T | T::99.93(19384) |
| S2 | 98 | F | V | V::99.82(20664) |
| S2 | 99 | F | C | C::99.89(22274) |
| S2 | 100 | F | R | R::99.74(22240) |
| S2 | 101 | F | G | G::99.64(22278) |
| S2 | 102 | F | Q | Q::99.88(22320) |

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|----|-----|---|---|-----------------|
| S2 | 103 | F | N | N::99.94(22333) |
| S2 | 104 | F | S | S::99.88(22312) |
| S2 | 105 | F | Q | Q::99.79(22286) |
| S2 | 106 | F | S | S::99.70(22256) |
| S2 | 107 | F | P | P::99.88(24097) |
| S2 | 108 | F | T | T::99.94(24126) |
| S2 | 109 | F | S | S::99.90(24110) |
| S2 | 110 | F | N | N::99.91(24057) |
| S2 | 111 | F | H | H::99.91(21872) |
| S2 | 112 | F | S | S::99.89(21794) |
| S2 | 113 | F | P | P::99.93(21747) |
| S2 | 114 | F | T | T::99.96(21745) |
| S2 | 115 | F | S | S::99.94(21522) |
| S2 | 116 | F | C | C::99.84(20673) |
| S2 | 117 | F | P | P::99.93(24350) |
| S2 | 118 | F | P | P::99.94(22847) |
| S2 | 119 | F | T | T::99.91(22831) |
| S2 | 120 | F | C | C::99.88(22811) |
| S2 | 121 | F | P | P::99.96(22712) |
| S2 | 122 | F | G | G::99.95(19141) |
| S2 | 123 | F | Y | Y::99.96(21437) |
| S2 | 124 | F | R | R::99.79(21562) |
| S2 | 125 | F | W | W::99.89(21457) |
| S2 | 126 | F | M | M::99.88(23262) |
| S2 | 127 | F | C | C::99.87(22008) |
| S2 | 128 | F | L | L::99.92(22011) |
| S2 | 129 | F | R | R::99.84(23091) |
| S2 | 130 | F | R | R::99.86(23080) |
| S2 | 132 | F | I | I::99.93(22478) |
| S2 | 133 | F | I | I::99.89(22358) |
| S2 | 135 | F | L | L::99.93(21442) |
| S2 | 137 | F | I | I::99.91(24656) |
| S2 | 138 | F | L | L::99.93(24175) |
| S2 | 139 | F | L | L::99.97(23241) |
| S2 | 140 | F | L | L::99.92(23254) |
| S2 | 141 | F | C | C::99.89(22686) |
| S2 | 142 | F | L | L::99.91(21205) |
| S2 | 143 | F | I | I::99.94(21212) |
| S2 | 145 | F | L | L::99.93(19469) |
| S2 | 146 | F | L | L::99.96(20164) |
| S2 | 147 | F | V | V::99.95(19747) |
| S2 | 148 | F | L | L::99.97(18133) |
| S2 | 149 | F | L | L::99.89(18173) |
| S2 | 150 | F | D | D::99.94(18575) |
| S2 | 151 | F | Y | Y::99.90(18581) |
| S2 | 152 | F | Q | Q::99.85(18573) |
| S2 | 153 | F | G | G::99.93(18591) |
| S2 | 154 | F | M | M::99.92(18592) |
| S2 | 155 | F | L | L::99.94(19569) |
| S2 | 156 | F | P | P::99.94(20157) |
| S2 | 157 | F | V | V::99.86(20155) |

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|----|-----|---|---|-----------------|
| S2 | 158 | F | C | C::99.93(20172) |
| S2 | 159 | F | P | P::99.93(20174) |
| S2 | 160 | F | L | L::99.93(20168) |
| S2 | 161 | F | L | L::99.90(20158) |
| S2 | 162 | F | P | P::99.92(23464) |
| S2 | 163 | F | G | G::99.96(24657) |
| S2 | 164 | F | S | S::99.97(20872) |
| S2 | 165 | F | S | S::99.94(20875) |
| S2 | 166 | F | T | T::99.91(20833) |
| S2 | 167 | F | T | T::99.88(20824) |
| S2 | 168 | F | S | S::99.93(20840) |
| S2 | 169 | F | T | T::99.92(20824) |
| S2 | 170 | F | G | G::99.91(20818) |
| S2 | 171 | F | P | P::99.95(20240) |
| S2 | 172 | F | C | C::99.77(18242) |
| S2 | 173 | F | R | R::99.91(17159) |
| S2 | 174 | F | T | T::99.91(17144) |
| S2 | 175 | F | C | C::99.84(17004) |
| S2 | 176 | F | T | T::99.93(14613) |
| S2 | 177 | F | T | T::99.95(14598) |
| S2 | 178 | F | P | P::99.91(14592) |
| S2 | 179 | F | A | A::99.92(16833) |
| S2 | 180 | F | Q | Q::99.92(16832) |
| S2 | 181 | F | G | G::99.94(15630) |
| S2 | 182 | F | T | T::99.88(15623) |
| S2 | 183 | F | S | S::99.92(15597) |
| S2 | 184 | F | M | M::99.93(15563) |
| S2 | 185 | F | Y | Y::99.92(13903) |
| S2 | 186 | F | P | P::99.81(12362) |
| S2 | 187 | F | S | S::99.93(12374) |
| S2 | 188 | F | C | C::99.91(12374) |
| S2 | 189 | F | C | C::99.87(13457) |
| S2 | 190 | F | C | C::99.90(13433) |
| S2 | 191 | F | T | T::99.96(15994) |
| S2 | 192 | F | K | K::99.94(15976) |
| S2 | 193 | F | P | P::99.97(18547) |
| S2 | 194 | F | S | S::99.92(18530) |
| S2 | 195 | F | D | D::99.91(18437) |
| S2 | 196 | F | G | G::99.85(17903) |
| S2 | 197 | F | N | N::99.92(17955) |
| S2 | 198 | F | C | C::99.85(20741) |
| S2 | 199 | F | T | T::99.96(20372) |
| S2 | 200 | F | C | C::99.75(22006) |
| S2 | 201 | F | I | I::99.93(22055) |
| S2 | 202 | F | P | P::99.89(21950) |
| S2 | 203 | F | I | I::99.95(21921) |
| S2 | 204 | F | P | P::99.94(21774) |
| S2 | 205 | F | S | S::99.92(18625) |
| S2 | 206 | F | S | S::99.94(18629) |
| S2 | 207 | F | W | W::99.78(18600) |
| S2 | 208 | F | A | A::99.92(19183) |

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|----|-----|---|---|---------------------------------|
| S2 | 210 | F | G | G::99.91(15899) |
| S2 | 211 | F | K | K::99.90(15889) |
| S2 | 213 | F | L | L::99.98(19555) |
| S2 | 214 | F | W | W::99.93(19553) |
| S2 | 215 | F | E | E::99.88(19547) |
| S2 | 216 | F | W | W::99.87(19980) |
| S2 | 217 | F | A | A::99.82(19973) |
| S2 | 218 | F | S | S::99.90(19989) |
| S2 | 219 | F | A | A::99.94(23277) |
| S2 | 220 | F | R | R::99.83(23256) |
| S2 | 222 | F | S | S::99.93(23280) |
| S2 | 223 | F | W | W::99.80(23251) |
| S2 | 224 | F | L | L::99.94(23285) |
| S2 | 225 | F | S | S::99.88(23261) |
| S2 | 226 | F | L | L::99.96(23275) |
| S2 | 227 | F | L | L::99.95(23271) |
| S2 | 228 | F | V | V::99.91(21000) |
| S2 | 229 | F | P | P::99.91(28611) |
| S2 | 231 | F | V | V::99.93(28646) |
| S2 | 232 | F | Q | Q::99.86(28620) |
| S2 | 233 | F | W | W::99.92(28635) |
| S2 | 235 | F | V | V::71.26(20419) A::28.59(8192) |
| S2 | 236 | F | G | G::99.93(30579) |
| S2 | 237 | F | L | L::99.91(31285) |
| S2 | 238 | F | S | S::99.88(31013) |
| S2 | 239 | F | P | P::99.92(29748) |
| S2 | 240 | F | T | T::99.90(28672) |
| S2 | 241 | F | V | V::99.92(27708) |
| S2 | 242 | F | W | W::99.92(25084) |
| S2 | 243 | F | L | L::77.61(19482) P::22.29(5595) |
| S2 | 244 | F | S | S::51.59(12942) L::48.33(12123) |
| S2 | 245 | F | V | V::77.74(19499) A::22.22(5573) |
| S2 | 246 | F | I | I::74.35(19080) T::25.56(6559) |
| S2 | 247 | F | W | W::99.89(23542) |
| S2 | 248 | F | M | M::99.85(21902) |
| S2 | 249 | F | M | M::99.91(21880) |
| S2 | 250 | F | W | W::99.83(20237) |
| S2 | 251 | F | F | F::69.06(13995) Y::30.84(6249) |
| S2 | 252 | F | W | W::99.80(20236) |
| S2 | 253 | F | G | G::99.95(22226) |
| S2 | 254 | F | P | P::77.06(17126) R::22.77(5060) |
| S2 | 255 | F | S | S::99.91(22197) |
| S2 | 256 | F | L | L::99.95(22201) |
| S2 | 257 | F | Y | Y::99.92(22180) |
| S2 | 258 | F | S | S::99.82(21541) |
| S2 | 259 | F | I | I::99.93(21489) |
| S2 | 260 | F | L | L::99.92(21485) |
| S2 | 261 | F | S | S::99.90(21405) |
| S2 | 262 | F | P | P::99.92(16790) |
| S2 | 264 | F | L | L::99.96(16753) |
| S2 | 265 | F | P | P::99.88(16328) |

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|-------|-----|---|---|-------------------------------|
| S2 | 266 | F | L | L::99.93(16332) |
| S2 | 267 | F | L | L::99.90(16254) |
| S2 | 268 | F | P | P::99.91(13110) |
| S2 | 269 | F | I | I::99.94(15065) |
| S2 | 272 | F | C | C::99.83(16729) |
| S2 | 273 | F | L | L::99.84(16727) |
| S2 | 274 | F | W | W::99.89(16735) |
| S2 | 275 | F | A | A::99.78(16713) |
| S2 | 276 | F | Y | Y::99.84(16725) |
| <hr/> | | | | |
| X | 1 | F | M | M::99.99(6757) |
| X | 2 | F | A | A::99.83(7008) |
| X | 3 | F | A | A::99.76(7003) |
| X | 4 | F | R | R::99.99(7481) |
| X | 5 | F | L | L::99.93(7477) |
| X | 6 | F | C | C::99.83(7469) |
| X | 7 | F | C | C::99.87(11602) |
| X | 8 | F | Q | Q::99.85(11606) |
| X | 9 | F | L | L::99.97(11621) |
| X | 10 | F | D | D::95.22(11068) |
| X | 11 | F | P | P::99.98(11621) |
| X | 12 | F | A | A::99.84(11603) |
| X | 13 | F | R | R::99.95(11616) |
| X | 14 | F | D | D::99.89(11609) |
| X | 15 | F | V | V::99.83(11601) |
| X | 16 | F | L | L::99.91(11611) |
| X | 17 | F | C | C::99.91(11609) |
| X | 18 | F | L | L::99.97(11616) |
| X | 19 | F | R | R::99.90(11608) |
| X | 20 | F | P | P::99.97(11616) |
| X | 21 | F | V | V::99.89(11606) |
| X | 22 | F | G | G::99.81(11597) |
| X | 23 | F | A | A::99.81(11596) |
| X | 24 | F | E | E::99.93(11599) |
| X | 25 | F | S | S::99.93(9083) |
| X | 26 | F | C | C::99.89(7963) |
| X | 27 | F | G | G::99.89(7961) |
| X | 28 | F | R | R::99.82(7953) |
| X | 29 | F | P | P::99.94(7961) |
| X | 30 | F | F | F::85.32(6796) V::14.55(1159) |
| X | 31 | F | S | S::99.94(7959) |
| X | 32 | F | G | G::93.05(7408) E::6.86(546) |
| X | 33 | F | P | P::99.93(11800) |
| X | 34 | F | L | L::99.92(11801) |
| X | 35 | F | G | G::94.95(10537) |
| X | 36 | F | T | T::99.96(12224) |
| X | 37 | F | L | L::99.93(12453) |
| X | 38 | F | S | S::99.94(12461) |
| X | 39 | F | S | S::99.83(12425) |
| X | 40 | F | P | P::99.91(12350) |
| X | 41 | F | S | S::99.98(12201) |
| X | 42 | F | P | P::99.92(11587) |

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|---|----|---|---|-----------------|
| X | 43 | F | S | S::99.94(11583) |
| X | 44 | F | A | A::99.80(11315) |
| X | 45 | F | V | V::99.92(12376) |
| X | 46 | F | S | S::99.94(12452) |
| X | 47 | F | T | T::99.90(12466) |
| X | 48 | F | D | D::97.07(12113) |
| X | 49 | F | H | H::99.97(12472) |
| X | 50 | F | G | G::99.92(12119) |
| X | 51 | F | A | A::99.94(12117) |
| X | 52 | F | H | H::99.91(12107) |
| X | 53 | F | L | L::99.88(12093) |
| X | 54 | F | S | S::99.88(12069) |
| X | 55 | F | L | L::99.99(11964) |
| X | 56 | F | R | R::99.71(8874) |
| X | 57 | F | G | G::99.96(8937) |
| X | 58 | F | L | L::99.90(8968) |
| X | 59 | F | P | P::99.92(8993) |
| X | 60 | F | V | V::99.88(8993) |
| X | 61 | F | C | C::99.78(8984) |
| X | 62 | F | A | A::99.79(8995) |
| X | 64 | F | S | S::99.90(9007) |
| X | 65 | F | S | S::99.96(9015) |
| X | 66 | F | A | A::99.86(9012) |
| X | 67 | F | G | G::99.92(9021) |
| X | 68 | F | P | P::99.88(9016) |
| X | 69 | F | C | C::99.86(9013) |
| X | 70 | F | A | A::99.89(9017) |
| X | 71 | F | L | L::99.94(9022) |
| X | 72 | F | R | R::99.89(9018) |
| X | 74 | F | T | T::99.90(10820) |
| X | 75 | F | S | S::99.95(10830) |
| X | 76 | F | A | A::99.89(12477) |
| X | 77 | F | R | R::99.93(38853) |
| X | 78 | F | R | R::99.83(48022) |
| X | 79 | F | M | M::99.89(49204) |
| X | 80 | F | E | E::99.89(49157) |
| X | 81 | F | T | T::99.90(49149) |
| X | 82 | F | T | T::99.94(49137) |
| X | 83 | F | V | V::99.83(46206) |
| X | 84 | F | N | N::99.90(46287) |
| X | 85 | F | A | A::99.89(46216) |
| X | 86 | F | H | H::99.91(44816) |
| X | 87 | F | Q | Q::99.93(43901) |
| X | 89 | F | L | L::99.92(43896) |
| X | 90 | F | P | P::99.90(45581) |
| X | 91 | F | K | K::99.88(45627) |
| X | 92 | F | V | V::99.92(45701) |
| X | 93 | F | L | L::99.89(45682) |
| X | 94 | F | H | H::99.92(45727) |
| X | 95 | F | K | K::99.95(46042) |
| X | 96 | F | R | R::99.92(46035) |

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|---|-----|---|---|-----------------|
| X | 97 | F | T | T::99.94(46051) |
| X | 98 | F | L | L::99.91(46038) |
| X | 99 | F | G | G::99.92(46563) |
| X | 100 | F | L | L::99.93(46594) |
| X | 101 | F | S | S::99.85(46561) |
| X | 102 | F | V | V::99.90(49377) |
| X | 103 | F | M | M::99.91(51258) |
| X | 104 | F | S | S::99.92(52940) |
| X | 105 | F | T | T::99.88(53340) |
| X | 106 | F | T | T::99.70(52254) |
| X | 107 | F | D | D::99.76(52283) |
| X | 108 | F | L | L::99.89(52350) |
| X | 109 | F | E | E::99.89(54341) |
| X | 110 | F | A | A::99.81(54383) |
| X | 111 | F | Y | Y::99.91(58100) |
| X | 113 | F | K | K::99.92(59483) |
| X | 114 | F | D | D::99.86(59457) |
| X | 115 | F | C | C::99.82(59419) |
| X | 116 | F | L | L::99.90(62080) |
| X | 118 | F | K | K::99.88(62059) |
| X | 119 | F | E | E::99.27(61659) |
| X | 120 | F | W | W::99.87(62501) |
| X | 121 | F | E | E::99.91(62526) |
| X | 122 | F | E | E::97.98(61205) |
| X | 123 | F | L | L::99.84(63103) |
| X | 124 | F | G | G::99.92(63838) |
| X | 125 | F | E | E::99.94(63050) |
| X | 126 | F | E | E::99.93(28083) |
| X | 127 | F | I | I::99.96(25924) |
| X | 128 | F | R | R::97.80(25365) |
| X | 129 | F | L | L::99.93(25914) |
| X | 130 | F | R | R::99.93(24561) |
| X | 131 | F | L | L::99.93(24568) |
| X | 133 | F | V | V::99.97(24578) |
| X | 134 | F | L | L::99.94(24567) |
| X | 135 | F | G | G::98.44(35577) |
| X | 136 | F | G | G::99.95(37286) |
| X | 137 | F | C | C::99.86(37254) |
| X | 138 | F | R | R::99.90(37275) |
| X | 139 | F | H | H::99.91(38857) |
| X | 140 | F | K | K::99.93(37843) |
| X | 141 | F | L | L::99.94(38497) |
| X | 142 | F | V | V::99.90(40496) |
| X | 143 | F | C | C::99.92(40471) |
| X | 144 | F | A | A::99.90(41626) |
| X | 145 | F | P | P::99.92(41678) |
| X | 146 | F | A | A::99.85(41658) |
| X | 147 | F | P | P::99.96(44335) |
| X | 148 | F | C | C::99.81(43742) |
| X | 149 | F | N | N::99.92(43798) |
| X | 152 | F | T | T::96.03(40667) |

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|---|-----|---|---|---------------------------------|
| X | 153 | F | S | S::99.95(43359) |
| C | 1 | F | M | M::99.86(48378) |
| C | 2 | F | D | D::99.88(48411) |
| C | 3 | F | I | I::99.94(42576) |
| C | 4 | F | D | D::99.88(42557) |
| C | 5 | F | P | P::99.96(42492) |
| C | 6 | F | Y | Y::99.95(39743) |
| C | 7 | F | K | K::99.93(37766) |
| C | 8 | F | E | E::99.94(40448) |
| C | 10 | F | G | G::99.92(41899) |
| C | 11 | F | A | A::99.95(42535) |
| C | 12 | F | S | S::70.23(28929) T::29.72(12243) |
| C | 13 | F | V | V::99.94(47818) |
| C | 14 | F | E | E::99.92(47022) |
| C | 15 | F | L | L::99.94(50062) |
| C | 16 | F | L | L::99.90(51451) |
| C | 17 | F | S | S::99.88(50486) |
| C | 19 | F | L | L::99.94(53456) |
| C | 20 | F | P | P::99.86(53439) |
| C | 21 | F | S | S::99.96(52943) |
| C | 22 | F | D | D::99.93(52929) |
| C | 25 | F | P | P::99.94(50257) |
| C | 26 | F | S | S::99.94(50295) |
| C | 27 | F | V | V::99.96(54004) |
| C | 28 | F | R | R::99.92(54490) |
| C | 29 | F | D | D::99.92(54534) |
| C | 30 | F | L | L::99.96(53413) |
| C | 31 | F | L | L::99.94(53396) |
| C | 32 | F | D | D::99.94(56124) |
| C | 33 | F | T | T::99.91(55995) |
| C | 34 | F | A | A::99.88(55942) |
| C | 35 | F | S | S::99.94(54149) |
| C | 36 | F | A | A::99.93(54145) |
| C | 37 | F | L | L::99.94(52520) |
| C | 38 | F | Y | Y::99.88(49578) |
| C | 39 | F | R | R::99.93(49602) |
| C | 40 | F | E | E::99.93(51773) |
| C | 41 | F | A | A::99.93(51808) |
| C | 42 | F | L | L::99.90(51762) |
| C | 43 | F | E | E::99.94(53867) |
| C | 44 | F | S | S::99.94(53856) |
| C | 45 | F | P | P::99.96(54438) |
| C | 46 | F | E | E::99.90(49801) |
| C | 47 | F | H | H::99.91(49014) |
| C | 48 | F | C | C::99.80(41704) |
| C | 49 | F | T | T::99.90(41744) |
| C | 50 | F | P | P::99.94(42791) |
| C | 51 | F | H | H::99.88(42754) |
| C | 52 | F | H | H::99.91(42785) |
| C | 53 | F | T | T::99.93(43446) |
| C | 54 | F | A | A::99.87(43953) |

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|---|-----|---|---|-----------------|
| C | 55 | F | L | L::99.95(42268) |
| C | 56 | F | R | R::99.89(42238) |
| C | 57 | F | Q | Q::99.92(41543) |
| C | 58 | F | A | A::99.83(40023) |
| C | 59 | F | I | I::99.94(38614) |
| C | 60 | F | L | L::99.92(34315) |
| C | 61 | F | C | C::99.91(34397) |
| C | 62 | F | W | W::99.88(31190) |
| C | 63 | F | G | G::99.95(32580) |
| C | 64 | F | D | D::99.90(30051) |
| C | 65 | F | L | L::99.93(27004) |
| C | 66 | F | M | M::99.88(31200) |
| C | 67 | F | T | T::99.92(31019) |
| C | 68 | F | L | L::99.93(26972) |
| C | 69 | F | A | A::99.93(28103) |
| C | 70 | F | T | T::99.94(26023) |
| C | 71 | F | W | W::99.84(28020) |
| C | 72 | F | V | V::99.94(29657) |
| C | 73 | F | G | G::99.95(29337) |
| C | 74 | F | G | G::99.82(27893) |
| C | 75 | F | N | N::99.96(28102) |
| C | 76 | F | L | L::99.93(25894) |
| C | 77 | F | E | E::99.91(25890) |
| C | 78 | F | D | D::99.96(25375) |
| C | 79 | F | P | P::99.83(25348) |
| C | 80 | F | V | V::99.93(22670) |
| C | 81 | F | S | S::99.95(22678) |
| C | 82 | F | R | R::99.58(22592) |
| C | 83 | F | D | D::99.94(30079) |
| C | 84 | F | L | L::99.92(30083) |
| C | 85 | F | V | V::99.93(31963) |
| C | 86 | F | V | V::99.94(31969) |
| C | 87 | F | S | S::99.89(32295) |
| C | 88 | F | Y | Y::99.91(34003) |
| C | 89 | F | V | V::99.87(35561) |
| C | 90 | F | N | N::99.91(33383) |
| C | 91 | F | T | T::99.95(33404) |
| C | 92 | F | N | N::99.92(33343) |
| C | 93 | F | M | M::99.91(29566) |
| C | 94 | F | G | G::99.83(29544) |
| C | 95 | F | L | L::99.91(29562) |
| C | 96 | F | K | K::99.92(34361) |
| C | 98 | F | R | R::99.90(33999) |
| C | 99 | F | Q | Q::99.86(35068) |
| C | 100 | F | L | L::99.94(35086) |
| C | 101 | F | L | L::99.90(35047) |
| C | 102 | F | W | W::99.90(35633) |
| C | 104 | F | H | H::99.88(34205) |
| C | 105 | F | I | I::99.91(34213) |
| C | 106 | F | S | S::99.91(34779) |
| C | 107 | F | C | C::99.87(37983) |

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|---|-----|---|---|--------------------------------|
| C | 108 | F | L | L::99.89(37992) |
| C | 109 | F | T | T::99.94(37996) |
| C | 111 | F | G | G::96.02(36417) |
| C | 112 | F | R | R::99.89(36811) |
| C | 113 | F | Q | Q::99.95(33848) |
| C | 114 | F | T | T::99.86(30873) |
| C | 115 | F | V | V::99.93(30895) |
| C | 116 | F | I | I::82.45(25491) V::17.48(5404) |
| C | 117 | F | E | E::99.94(31275) |
| C | 118 | F | Y | Y::99.94(28299) |
| C | 119 | F | L | L::99.94(30782) |
| C | 120 | F | V | V::99.92(29189) |
| C | 121 | F | S | S::99.93(29969) |
| C | 123 | F | G | G::99.97(36692) |
| C | 124 | F | V | V::99.96(36974) |
| C | 125 | F | W | W::99.91(35373) |
| C | 126 | F | I | I::99.94(35426) |
| C | 127 | F | R | R::99.67(35307) |
| C | 128 | F | T | T::99.90(33257) |
| C | 129 | F | P | P::99.93(33081) |
| C | 130 | F | P | P::98.50(29352) |
| C | 131 | F | A | A::99.94(29094) |
| C | 132 | F | Y | Y::99.91(29799) |
| C | 133 | F | R | R::99.87(30390) |
| C | 134 | F | P | P::99.92(31134) |
| C | 135 | F | P | P::97.69(31005) |
| C | 136 | F | N | N::99.94(32592) |
| C | 137 | F | A | A::99.90(30362) |
| C | 138 | F | P | P::99.87(30773) |
| C | 139 | F | I | I::99.94(31425) |
| C | 140 | F | L | L::99.94(31405) |
| C | 141 | F | S | S::99.96(31218) |
| C | 142 | F | T | T::99.92(32689) |
| C | 143 | F | L | L::99.95(32075) |
| C | 144 | F | P | P::99.90(31956) |
| C | 145 | F | E | E::99.91(30577) |
| C | 146 | F | T | T::99.92(29919) |
| C | 147 | F | T | T::99.92(28923) |
| C | 148 | F | V | V::99.96(31147) |
| C | 149 | F | V | V::70.71(21896) I::29.23(9053) |
| C | 150 | F | R | R::99.90(30751) |
| C | 151 | F | R | R::70.50(21301) G::29.45(8900) |
| C | 152 | F | R | R::99.91(32454) |
| C | 153 | F | G | G::70.98(23118) C::28.94(9425) |
| C | 154 | F | R | R::99.53(33065) |
| C | 155 | F | S | S::99.88(32784) |
| C | 156 | F | P | P::99.96(30934) |
| C | 157 | F | R | R::99.95(29260) |
| C | 158 | F | R | R::99.95(29258) |
| C | 159 | F | R | R::99.88(29920) |
| C | 160 | F | T | T::99.94(32357) |

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|-------|----|-----|---|---|--|
| | C | 161 | F | P | P::99.95(35977) |
| | C | 162 | F | S | S::99.94(36003) |
| | C | 163 | F | P | P::99.95(38487) |
| | C | 164 | F | R | R::99.69(38772) |
| | C | 165 | F | R | R::99.92(39595) |
| | C | 166 | F | R | R::99.95(39216) |
| | C | 167 | F | R | R::99.90(38956) |
| | C | 168 | F | S | S::99.93(39124) |
| | C | 169 | F | Q | Q::60.08(22869) K::39.84(15165) |
| | C | 170 | F | S | S::99.95(39277) |
| | C | 171 | F | P | P::99.88(41403) |
| | C | 172 | F | R | R::97.70(37382) |
| | C | 173 | F | R | R::99.87(37914) |
| C | | 174 | F | R | R::99.91(37822) |
| C | | 175 | F | R | R::99.94(39903) |
| C | | 176 | F | S | S::99.95(39910) |
| C | | 177 | F | Q | Q::99.92(39873) |
| C | | 178 | F | S | S::99.95(39881) |
| C | | 179 | F | R | R::99.93(39919) |
| C | | 180 | F | E | E::99.90(39940) |
| C | | 181 | F | S | S::99.96(39823) |
| C | | 182 | F | Q | Q::99.90(39163) |
| <hr/> | | | | | |
| P1 | 1 | F | M | | M::99.92(32608) |
| P1 | 2 | F | P | | P::99.91(31712) |
| P1 | 3 | F | L | | L::99.91(30785) |
| P1 | 4 | F | S | | S::99.95(31423) |
| P1 | 5 | F | Y | | Y::99.93(31414) |
| P1 | 6 | F | Q | | Q::75.54(24691) L::10.15(3319) R::9.68(3163) |
| P1 | 7 | F | L | | L::54.80(17934) H::45.16(14781) |
| P1 | 9 | F | R | | R::99.87(31890) |
| P1 | 10 | F | R | | R::99.90(30575) |
| P1 | 11 | F | L | | L::99.93(29918) |
| P1 | 12 | F | L | | L::99.96(29272) |
| P1 | 13 | F | L | | L::99.97(30961) |
| P1 | 14 | F | L | | L::99.92(30944) |
| P1 | 15 | F | D | | D::70.48(21297) E::29.45(8899) |
| P1 | 16 | F | D | | D::99.91(30715) |
| P1 | 17 | F | E | | E::70.97(23102) D::28.97(9429) |
| P1 | 18 | F | A | | A::99.83(33153) |
| P1 | 19 | F | G | | G::99.91(33175) |
| P1 | 20 | F | P | | P::99.88(32656) |
| P1 | 21 | F | L | | L::99.95(29251) |
| P1 | 22 | F | E | | E::99.96(29258) |
| P1 | 23 | F | E | | E::99.91(29237) |
| P1 | 24 | F | E | | E::99.88(29982) |
| P1 | 25 | F | L | | L::99.92(32346) |
| P1 | 26 | F | P | | P::99.96(36007) |
| P1 | 27 | F | R | | R::99.92(38445) |
| P1 | 28 | F | L | | L::99.93(38480) |
| P1 | 29 | F | A | | A::99.68(38773) |
| P1 | 30 | F | D | | D::99.93(39604) |

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|----|----|---|---|---------------------------------|
| P1 | 31 | F | E | E::99.86(40666) |
| P1 | 32 | F | G | G::60.16(23459) D::39.78(15512) |
| P1 | 33 | F | L | L::99.93(38776) |
| P1 | 34 | F | N | N::99.92(39847) |
| P1 | 35 | F | R | R::99.84(41433) |
| P1 | 36 | F | R | R::99.88(39433) |
| P1 | 37 | F | V | V::99.90(38873) |
| P1 | 38 | F | A | A::99.87(37715) |
| P1 | 39 | F | E | E::99.91(37832) |
| P1 | 40 | F | D | D::99.95(39907) |
| P1 | 41 | F | L | L::99.89(39886) |
| P1 | 42 | F | N | N::99.91(39868) |
| P1 | 43 | F | L | L::99.94(39877) |
| P1 | 44 | F | G | G::99.90(39906) |
| P1 | 45 | F | N | N::99.93(39953) |
| P1 | 46 | F | L | L::99.90(39759) |
| P1 | 47 | F | N | N::99.90(38353) |
| P1 | 48 | F | V | V::99.93(38320) |
| P1 | 49 | F | S | S::97.76(35725) |
| P1 | 50 | F | I | I::99.96(36162) |
| P1 | 51 | F | P | P::99.94(36154) |
| P1 | 52 | F | W | W::97.62(33481) |
| P1 | 53 | F | T | T::99.93(33688) |
| P1 | 54 | F | H | H::99.95(36976) |
| P1 | 55 | F | K | K::99.87(37259) |
| P1 | 56 | F | V | V::99.96(36245) |
| P1 | 57 | F | G | G::97.71(34345) |
| P1 | 58 | F | N | N::99.90(35126) |
| P1 | 60 | F | T | T::99.88(38175) |
| P1 | 61 | F | G | G::99.93(39559) |
| P1 | 62 | F | L | L::99.94(39384) |
| P1 | 63 | F | Y | Y::99.93(38595) |
| P1 | 64 | F | S | S::99.93(38837) |
| P1 | 65 | F | S | S::99.93(41127) |
| P1 | 66 | F | T | T::99.95(40809) |
| P1 | 67 | F | V | V::98.90(39139) |
| P1 | 68 | F | P | P::99.93(40293) |
| P1 | 69 | F | V | V::99.57(40168) |
| P1 | 71 | F | N | N::99.92(41468) |
| P1 | 72 | F | P | P::99.94(41993) |
| P1 | 73 | F | H | H::99.91(37069) |
| P1 | 74 | F | W | W::99.83(37249) |
| P1 | 75 | F | K | K::99.95(36064) |
| P1 | 76 | F | T | T::99.93(35049) |
| P1 | 77 | F | P | P::99.94(33488) |
| P1 | 78 | F | S | S::99.95(36523) |
| P1 | 80 | F | P | P::99.92(36438) |
| P1 | 81 | F | N | N::99.93(32967) |
| P1 | 82 | F | I | I::99.89(36532) |
| P1 | 83 | F | H | H::99.90(38473) |
| P1 | 84 | F | L | L::99.96(41059) |

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|----|-----|---|---|-----------------|
| P1 | 85 | F | H | H::99.93(39682) |
| P1 | 86 | F | Q | Q::99.89(37644) |
| P1 | 87 | F | D | D::99.95(36502) |
| P1 | 88 | F | I | I::99.96(36508) |
| P1 | 89 | F | I | I::99.93(36259) |
| P1 | 90 | F | K | K::99.95(37546) |
| P1 | 91 | F | K | K::99.94(39030) |
| P1 | 92 | F | C | C::99.88(40693) |
| P1 | 93 | F | E | E::99.90(40161) |
| P1 | 94 | F | Q | Q::99.96(42146) |
| P1 | 96 | F | V | V::99.93(42310) |
| P1 | 97 | F | G | G::99.86(40715) |
| P1 | 98 | F | P | P::99.88(43321) |
| P1 | 99 | F | L | L::99.92(45008) |
| P1 | 100 | F | T | T::99.92(46325) |
| P1 | 101 | F | V | V::99.88(45247) |
| P1 | 102 | F | N | N::99.91(48642) |
| P1 | 103 | F | E | E::99.93(47049) |
| P1 | 104 | F | K | K::99.92(46574) |
| P1 | 105 | F | R | R::99.86(46526) |
| P1 | 106 | F | R | R::99.92(46959) |
| P1 | 107 | F | L | L::99.95(46967) |
| P1 | 108 | F | Q | Q::99.89(44944) |
| P1 | 109 | F | L | L::99.95(43589) |
| P1 | 110 | F | I | I::99.94(47278) |
| P1 | 111 | F | M | M::99.85(48357) |
| P1 | 112 | F | P | P::99.86(48769) |
| P1 | 113 | F | A | A::99.81(48650) |
| P1 | 114 | F | R | R::99.90(48102) |
| P1 | 116 | F | Y | Y::99.87(45326) |
| P1 | 117 | F | P | P::99.93(45403) |
| P1 | 118 | F | K | K::99.87(44755) |
| P1 | 119 | F | V | V::99.94(44799) |
| P1 | 120 | F | T | T::99.92(44398) |
| P1 | 121 | F | K | K::99.96(43834) |
| P1 | 122 | F | Y | Y::99.94(43836) |
| P1 | 123 | F | L | L::99.89(43803) |
| P1 | 124 | F | P | P::99.87(43785) |
| P1 | 125 | F | L | L::99.91(40369) |
| P1 | 126 | F | D | D::99.89(41261) |
| P1 | 127 | F | K | K::99.86(41229) |
| P1 | 128 | F | G | G::99.91(41251) |
| P1 | 129 | F | I | I::99.97(43082) |
| P1 | 130 | F | K | K::99.93(43068) |
| P1 | 131 | F | P | P::99.96(43782) |
| P1 | 132 | F | Y | Y::99.91(40063) |
| P1 | 133 | F | Y | Y::99.94(37454) |
| P1 | 134 | F | P | P::99.93(38887) |
| P1 | 135 | F | E | E::99.91(38540) |
| P1 | 136 | F | H | H::99.81(38499) |
| P1 | 137 | F | L | L::99.95(38733) |

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|----|-----|---|---|-----------------|
| P1 | 138 | F | V | V::99.93(39920) |
| P1 | 139 | F | N | N::99.93(40065) |
| P1 | 140 | F | H | H::99.94(38865) |
| P1 | 141 | F | Y | Y::99.93(37132) |
| P1 | 143 | F | Q | Q::99.88(35521) |
| P1 | 144 | F | T | T::99.97(35454) |
| P1 | 145 | F | R | R::99.89(35983) |
| P1 | 146 | F | H | H::99.94(35696) |
| P1 | 147 | F | Y | Y::99.92(33640) |
| P1 | 148 | F | L | L::99.93(34300) |
| P1 | 149 | F | H | H::99.91(31727) |
| P1 | 150 | F | T | T::99.93(29514) |
| P1 | 151 | F | L | L::99.94(29023) |
| P1 | 152 | F | W | W::99.90(29635) |
| P1 | 153 | F | K | K::99.88(29817) |
| P1 | 154 | F | A | A::99.88(29689) |
| P1 | 155 | F | G | G::99.85(30982) |
| P1 | 156 | F | I | I::99.93(32283) |
| P1 | 157 | F | L | L::99.93(32472) |
| P1 | 158 | F | Y | Y::99.92(32479) |
| P1 | 159 | F | K | K::99.93(32932) |
| P1 | 160 | F | R | R::99.88(28984) |
| P1 | 161 | F | E | E::99.93(27336) |
| P1 | 162 | F | T | T::99.92(27722) |
| P1 | 163 | F | T | T::99.94(28385) |
| P1 | 164 | F | H | H::99.93(28095) |
| P1 | 165 | F | S | S::99.93(27188) |
| P1 | 166 | F | A | A::99.95(27602) |
| P1 | 167 | F | S | S::99.91(27795) |
| P1 | 169 | F | C | C::99.89(28003) |
| P1 | 170 | F | G | G::99.89(30194) |
| P1 | 171 | F | S | S::99.88(29550) |
| P1 | 172 | F | P | P::99.93(29639) |
| P1 | 173 | F | Y | Y::99.89(29632) |
| P1 | 174 | F | S | S::99.94(30405) |
| P1 | 175 | F | W | W::97.69(29690) |
| P1 | 176 | F | E | E::97.69(30208) |
| P1 | 177 | F | Q | Q::99.95(31863) |
| P1 | 178 | F | E | E::99.89(30074) |
| P1 | 179 | F | L | L::99.95(30013) |
| P1 | 180 | F | R | R::99.87(26315) |
| P1 | 181 | F | H | H::99.92(28687) |
| P1 | 182 | F | G | G::99.92(29927) |
| P1 | 183 | F | A | A::98.93(28794) |
| P1 | 184 | F | E | E::99.90(29108) |
| P1 | 185 | F | S | S::99.94(29791) |
| P1 | 187 | F | H | H::99.86(29311) |
| P1 | 188 | F | Q | Q::99.87(28040) |
| P1 | 189 | F | Q | Q::99.86(28032) |
| P1 | 190 | F | S | S::99.98(27325) |
| P1 | 191 | F | S | S::99.94(27757) |

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|----|-----|---|---|--------------------------------|
| P1 | 192 | F | G | G::98.00(28568) |
| P1 | 193 | F | I | I::99.92(29131) |
| P1 | 194 | F | L | L::99.92(29108) |
| P1 | 195 | F | S | S::99.94(28075) |
| P1 | 196 | F | R | R::99.89(27999) |
| P1 | 197 | F | P | P::99.97(27538) |
| P1 | 198 | F | P | P::99.93(27014) |
| P1 | 199 | F | V | V::99.89(27175) |
| P1 | 200 | F | G | G::99.95(26217) |
| P1 | 201 | F | S | S::99.94(26128) |
| P1 | 202 | F | S | S::99.88(25284) |
| P1 | 203 | F | L | L::99.93(24205) |
| P1 | 204 | F | Q | Q::99.91(22432) |
| P1 | 205 | F | S | S::99.92(22433) |
| P1 | 206 | F | K | K::99.92(21195) |
| P1 | 207 | F | H | H::99.87(21166) |
| P1 | 208 | F | R | R::99.82(22209) |
| P1 | 209 | F | K | K::99.90(20756) |
| P1 | 210 | F | P | P::99.92(20727) |
| P1 | 211 | F | R | R::99.89(20770) |
| P1 | 212 | F | L | L::99.94(20110) |
| P1 | 213 | F | G | G::99.92(20354) |
| P1 | 214 | F | L | L::99.92(21234) |
| P1 | 215 | F | Q | Q::99.91(21216) |
| P1 | 216 | F | S | S::99.93(21168) |
| P1 | 217 | F | Q | Q::93.22(20927) L::6.71(1506) |
| P1 | 218 | F | Q | Q::99.92(22710) |
| P1 | 219 | F | G | G::99.93(20536) |
| P1 | 220 | F | H | H::77.51(15930) P::22.45(4614) |
| P1 | 221 | F | L | L::99.94(20544) |
| P1 | 222 | F | A | A::99.85(20529) |
| P1 | 223 | F | G | G::54.29(10740) R::45.63(9027) |
| P1 | 224 | F | R | R::96.68(19129) |
| P1 | 225 | F | Q | Q::99.93(20338) |
| P1 | 226 | F | Q | Q::99.92(18836) |
| P1 | 227 | F | G | G::99.95(18854) |
| P1 | 228 | F | R | R::99.88(20583) |
| P1 | 229 | F | S | S::99.96(20393) |
| P1 | 230 | F | W | W::99.90(19472) |
| P1 | 231 | F | S | S::99.92(19303) |
| P1 | 232 | F | I | I::99.93(18922) |
| P1 | 233 | F | R | R::97.62(18127) |
| P1 | 234 | F | A | A::99.91(17909) |
| P1 | 235 | F | G | G::99.88(17256) |
| P1 | 236 | F | I | I::94.43(16312) T::5.55(959) |
| P1 | 237 | F | H | H::99.87(17467) |
| P1 | 238 | F | P | P::99.90(17299) |
| P1 | 239 | F | T | T::99.94(16794) |
| P1 | 240 | F | A | A::96.41(15198) |
| P1 | 241 | F | R | R::99.86(15166) |
| P1 | 242 | F | R | R::99.90(14915) |

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|-------|-----|---|---|--------------------------------|
| P1 | 243 | F | P | P::99.92(15288) |
| P1 | 245 | F | G | G::99.93(15422) |
| P1 | 246 | F | V | V::99.91(15104) |
| P1 | 247 | F | E | E::99.93(15693) |
| P1 | 248 | F | P | P::99.90(15278) |
| P1 | 249 | F | S | S::99.91(15278) |
| P1 | 250 | F | G | G::99.88(15299) |
| P1 | 251 | F | S | S::99.90(15296) |
| P1 | 252 | F | G | G::99.94(15342) |
| P1 | 253 | F | H | H::99.91(15005) |
| P1 | 254 | F | T | T::99.95(14929) |
| P1 | 255 | F | T | T::99.96(14930) |
| P1 | 256 | F | N | N::99.95(15067) |
| P1 | 257 | F | L | L::66.81(9127) Q::33.12(4525) |
| P1 | 258 | F | A | A::99.90(16382) |
| P1 | 259 | F | S | S::88.34(16518) N::11.63(2174) |
| P1 | 260 | F | K | K::99.93(18233) |
| P1 | 261 | F | S | S::99.96(18674) |
| P1 | 262 | F | A | A::99.78(18483) |
| P1 | 263 | F | S | S::99.95(18508) |
| P1 | 264 | F | C | C::99.87(17851) |
| P1 | 265 | F | L | L::99.91(15790) |
| P1 | 266 | F | Y | Y::99.81(15774) |
| P1 | 267 | F | Q | Q::99.92(15791) |
| P1 | 268 | F | S | S::99.92(15791) |
| P1 | 269 | F | P | P::99.92(15786) |
| P1 | 270 | F | V | V::95.58(15093) |
| P1 | 271 | F | R | R::99.89(15772) |
| P1 | 272 | F | K | K::99.97(11688) |
| P1 | 273 | F | A | A::99.80(11670) |
| P1 | 274 | F | A | A::99.12(11590) |
| P1 | 275 | F | Y | Y::99.96(11688) |
| P1 | 276 | F | S | S::99.94(11685) |
| P1 | 277 | F | A | A::99.59(11636) |
| P1 | 278 | F | V | V::99.94(11677) |
| P1 | 279 | F | S | S::99.93(10750) |
| P1 | 280 | F | T | T::99.92(9521) |
| P1 | 282 | F | E | E::99.87(9484) |
| P1 | 283 | F | R | R::99.88(9316) |
| P1 | 284 | F | H | H::99.89(9318) |
| P1 | 285 | F | S | S::99.87(8645) |
| P1 | 286 | F | S | S::99.97(8634) |
| P1 | 287 | F | S | S::99.94(8630) |
| P1 | 288 | F | G | G::99.90(8626) |
| P1 | 289 | F | H | H::91.94(7936) N::8.03(693) |
| P1 | 290 | F | A | A::99.77(8608) |
| P1 | 291 | F | V | V::99.94(8384) |
| <hr/> | | | | |
| S1 | 1 | F | M | M::99.90(29209) |
| S1 | 2 | F | G | G::99.91(30615) |
| S1 | 3 | F | Q | Q::99.89(29099) |
| S1 | 4 | F | N | N::99.87(29774) |

| | | | | |
|----|----|---|---|--------------------------------|
| S1 | 5 | F | L | L::99.94(29783) |
| S1 | 6 | F | S | S::99.95(30215) |
| S1 | 7 | F | T | T::99.89(29265) |
| S1 | 8 | F | S | S::99.82(28028) |
| S1 | 9 | F | N | N::99.92(28047) |
| S1 | 10 | F | P | P::99.97(28121) |
| S1 | 11 | F | L | L::99.94(27619) |
| S1 | 12 | F | G | G::99.92(29130) |
| S1 | 15 | F | P | P::99.94(28019) |
| S1 | 16 | F | D | D::99.85(27301) |
| S1 | 17 | F | H | H::99.93(27637) |
| S1 | 18 | F | Q | Q::99.92(27173) |
| S1 | 19 | F | L | L::99.93(27182) |
| S1 | 20 | F | D | D::99.92(26210) |
| S1 | 21 | F | P | P::99.93(25298) |
| S1 | 22 | F | A | A::99.88(25092) |
| S1 | 24 | F | R | R::99.92(22436) |
| S1 | 25 | F | A | A::99.89(22017) |
| S1 | 26 | F | N | N::99.93(21197) |
| S1 | 27 | F | T | T::99.91(21285) |
| S1 | 28 | F | A | A::99.84(20731) |
| S1 | 29 | F | N | N::99.93(20728) |
| S1 | 30 | F | P | P::99.92(21153) |
| S1 | 31 | F | D | D::99.92(20793) |
| S1 | 32 | F | W | W::99.86(20104) |
| S1 | 33 | F | D | D::99.92(20361) |
| S1 | 35 | F | N | N::99.91(21187) |
| S1 | 36 | F | P | P::99.94(22108) |
| S1 | 37 | F | N | N::93.37(21407) Y::6.56(1505) |
| S1 | 38 | F | K | K::99.89(22702) |
| S1 | 39 | F | D | D::99.91(20531) |
| S1 | 40 | F | T | T::77.50(15931) P::22.45(4615) |
| S1 | 41 | F | W | W::99.88(20532) |
| S1 | 42 | F | P | P::99.86(19756) |
| S1 | 43 | F | D | D::99.87(19760) |
| S1 | 44 | F | A | A::99.75(19737) |
| S1 | 45 | F | N | N::99.91(20346) |
| S1 | 46 | F | K | K::99.89(17837) |
| S1 | 47 | F | V | V::99.95(18959) |
| S1 | 48 | F | G | G::99.92(20376) |
| S1 | 49 | F | A | A::99.95(20928) |
| S1 | 50 | F | G | G::99.94(19831) |
| S1 | 51 | F | A | A::99.93(19538) |
| S1 | 53 | F | G | G::99.89(18537) |
| S1 | 54 | F | P | P::99.91(17256) |
| S1 | 55 | F | G | G::99.93(17259) |
| S1 | 56 | F | F | F::94.38(16301) L::5.56(960) |
| S1 | 57 | F | T | T::99.87(17405) |
| S1 | 58 | F | P | P::99.88(17041) |
| S1 | 59 | F | P | P::99.83(15737) |
| S1 | 60 | F | H | H::99.94(15755) |

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|----|-----|---|---|--------------------------------|
| S1 | 61 | F | G | G::99.93(14822) |
| S1 | 62 | F | G | G::99.94(14937) |
| S1 | 63 | F | L | L::99.66(15248) |
| S1 | 64 | F | L | L::99.93(15360) |
| S1 | 65 | F | G | G::99.95(15421) |
| S1 | 66 | F | S | S::63.01(9528) W::36.87(5575) |
| S1 | 67 | F | S | S::99.89(15687) |
| S1 | 68 | F | P | P::99.92(15282) |
| S1 | 69 | F | Q | Q::99.83(15281) |
| S1 | 70 | F | A | A::99.89(15300) |
| S1 | 71 | F | Q | Q::99.84(15315) |
| S1 | 72 | F | G | G::99.81(14989) |
| S1 | 73 | F | I | I::99.96(15011) |
| S1 | 74 | F | L | L::99.95(14929) |
| S1 | 75 | F | Q | Q::99.97(15067) |
| S1 | 76 | F | T | T::99.92(15064) |
| S1 | 77 | F | L | L::64.65(8295) R::35.27(4526) |
| S1 | 78 | F | P | P::99.93(16601) |
| S1 | 79 | F | A | A::88.30(16514) T::11.62(2174) |
| S1 | 80 | F | N | N::99.93(18235) |
| S1 | 81 | F | P | P::99.95(19367) |
| S1 | 82 | F | P | P::99.96(18518) |
| S1 | 83 | F | P | P::99.96(17871) |
| S1 | 84 | F | A | A::99.84(15778) |
| S1 | 85 | F | S | S::99.93(15793) |
| S1 | 86 | F | T | T::99.85(15781) |
| S1 | 87 | F | N | N::99.95(15796) |
| S1 | 88 | F | R | R::99.84(15779) |
| S1 | 89 | F | Q | Q::99.91(15785) |
| S1 | 90 | F | S | S::95.56(15089) |
| S1 | 91 | F | G | G::99.96(15784) |
| S1 | 92 | F | R | R::99.96(11687) |
| S1 | 93 | F | Q | Q::99.85(11676) |
| S1 | 94 | F | P | P::99.23(11603) |
| S1 | 95 | F | T | T::99.98(11691) |
| S1 | 96 | F | P | P::99.98(11690) |
| S1 | 97 | F | L | L::79.31(9267) P::20.64(2412) |
| S1 | 98 | F | S | S::99.97(11677) |
| S1 | 99 | F | P | P::97.22(10454) |
| S1 | 100 | F | P | P::99.99(9526) |
| S1 | 101 | F | L | L::99.91(9519) |
| S1 | 102 | F | R | R::99.90(9351) |
| S1 | 103 | F | D | D::99.89(9317) |
| S1 | 104 | F | T | T::99.90(9308) |
| S1 | 105 | F | H | H::99.87(8645) |
| S1 | 106 | F | P | P::99.97(8634) |
| S1 | 107 | F | Q | Q::99.87(8624) |
| S1 | 108 | F | A | A::99.83(8620) |
| S1 | 109 | F | M | M::99.88(8622) |
| S1 | 110 | F | Q | Q::99.81(8612) |

| Meta data | |
|------------------|---|
| Assembly file: | HBV-RYD-41.sam |
| Annotation file: | /home3/vatt01s/Work/Project-150-HBV/Data/P150-1/Annotation/HBV.anno |
| Reference file: | KX357637.fa. |
| User name | ales01a |
| Hostname | Alpha |
| Location | /home2/ales01a/HBV/P150-5/HBV-RYD-41 |
| Date/Time | Mon 25 Mar 10:09:55 GMT 2019 |