

[illegible]

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| [4,] | "C" | "A" | "C" | "T" | "G" | "C" | "C" | "T" | "C" | "A" | "G" | "T" | "A" | "G" | "G" | "A" | "T" | "T" |
| [5,] | "C" | "A" | "C" | "T" | "G" | "C" | "C" | "T" | "C" | "T" | "G" | "T" | "A" | "G" | "G" | "A" | "T" | "T" |
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[6,] "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "
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[3,] "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "_" "

[illegible]

[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
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|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [1,] | "T" | "G" | "T" | "C" | "T" | "C" | "T" | "G" | "A" | "_" | "_" | "_" | "G" |
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| [5,] | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "A" | "C" | "C" |
| [6,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [1,] | [,1060] | [,1061] | [,1062] | [,1063] | [,1064] | [,1065] | [,1066] | [,1067] | [,1068] | [,1069] | [,1070] | [,1071] | [,1072] |
| [2,] | "C" | "C" | "G" | "G" | "T" | "C" | "G" | "T" | "T" | "T" | "G" | "G" | "G" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "T" | "G" | "G" | "T" | "T" | "G" | "A" | "A" | "T" | "T" | "C" | "A" | "G" |
| [5,] | "T" | "G" | "G" | "T" | "T" | "G" | "A" | "A" | "T" | "T" | "C" | "A" | "G" |
| [6,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [1,] | [,1073] | [,1074] | [,1075] | [,1076] | [,1077] | [,1078] | [,1079] | [,1080] | [,1081] | [,1082] | [,1083] | [,1084] | [,1085] |
| [2,] | "A" | "T" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "C" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "A" | "T" | "G" | "A" | "G" | "C" |
| [4,] | "A" | "T" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "G" | "C" |
| [5,] | "A" | "T" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "G" | "C" |
| [6,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "A" | "T" | "G" | "A" | "G" | "C" |
| [1,] | [,1086] | [,1087] | [,1088] | [,1089] | [,1090] | [,1091] | [,1092] | [,1093] | [,1094] | [,1095] | [,1096] | [,1097] | [,1098] |
| [2,] | "A" | "G" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "A" | "A" | "C" | "A" |
| [3,] | "A" | "G" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "A" | "A" | "C" | "A" |
| [4,] | "A" | "G" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "A" | "A" | "C" | "A" |
| [5,] | "A" | "G" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "A" | "A" | "C" | "A" |
| [6,] | "A" | "G" | "C" | "C" | "A" | "T" | "G" | "G" | "C" | "A" | "A" | "C" | "A" |
| [1,] | [,1099] | [,1100] | [,1101] | [,1102] | [,1103] | [,1104] | [,1105] | [,1106] | [,1107] | [,1108] | [,1109] | [,1110] | [,1111] |
| [2,] | "G" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "G" |
| [3,] | "G" | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" |
| [4,] | "G" | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" |
| [5,] | "G" | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" |
| [6,] | "G" | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" |
| [1,] | [,1112] | [,1113] | [,1114] | [,1115] | [,1116] | [,1117] | [,1118] | [,1119] | [,1120] | [,1121] | [,1122] | [,1123] | [,1124] |
| [2,] | "G" | "G" | "A" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "A" | "G" |
| [3,] | "G" | "G" | "A" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "A" | "G" |
| [4,] | "G" | "G" | "A" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "A" | "G" |
| [5,] | "G" | "G" | "A" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "A" | "G" |
| [6,] | "G" | "G" | "A" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "A" | "G" |
| [1,] | [,1125] | [,1126] | [,1127] | [,1128] | [,1129] | [,1130] | [,1131] | [,1132] | [,1133] | [,1134] | [,1135] | [,1136] | [,1137] |
| [2,] | "C" | "G" | "G" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "G" | "G" | "G" |
| [3,] | "C" | "G" | "G" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "G" | "G" | "G" |
| [4,] | "C" | "G" | "G" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "G" | "G" | "G" |
| [5,] | "C" | "G" | "G" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "G" | "G" | "G" |
| [6,] | "C" | "G" | "G" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "G" | "G" | "G" |
| [1,] | [,1138] | [,1139] | [,1140] | [,1141] | [,1142] | [,1143] | [,1144] | [,1145] | [,1146] | [,1147] | [,1148] | [,1149] | [,1150] |
| [2,] | "T" | "G" | "G" | "G" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "A" |
| [3,] | "T" | "G" | "G" | "G" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "A" |
| [4,] | "T" | "G" | "G" | "G" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "A" |
| [5,] | "T" | "G" | "G" | "G" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "A" |
| [6,] | "T" | "G" | "G" | "G" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "A" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | [,1151] | [,1152] | [,1153] | [,1154] | [,1155] | [,1156] | [,1157] | [,1158] | [,1159] | [,1160] | [,1161] | [,1162] | [,1163] |
| [1,] | "G" | "C" | "G" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| [2,] | "G" | "C" | "G" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| [3,] | "G" | "C" | "G" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| [4,] | "G" | "C" | "G" | "A" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| [5,] | "G" | "C" | "G" | "A" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| [6,] | "G" | "C" | "G" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "A" |
| | [,1164] | [,1165] | [,1166] | [,1167] | [,1168] | [,1169] | [,1170] | [,1171] | [,1172] | [,1173] | [,1174] | [,1175] | [,1176] |
| [1,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| [2,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| [3,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| [4,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| [5,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| [6,] | "A" | "G" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "C" | "A" | "G" | "A" |
| | [,1177] | [,1178] | [,1179] | [,1180] | [,1181] | [,1182] | [,1183] | [,1184] | [,1185] | [,1186] | [,1187] | [,1188] | [,1189] |
| [1,] | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| [2,] | "G" | "G" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| [3,] | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| [4,] | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| [5,] | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| [6,] | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "G" | "C" | "G" | "C" | "A" | "C" |
| | [,1190] | [,1191] | [,1192] | [,1193] | [,1194] | [,1195] | [,1196] | [,1197] | [,1198] | [,1199] | [,1200] | [,1201] | [,1202] |
| [1,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| [2,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| [3,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| [4,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| [5,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| [6,] | "G" | "C" | "G" | "C" | "C" | "T" | "G" | "C" | "G" | "C" | "C" | "T" | "G" |
| | [,1203] | [,1204] | [,1205] | [,1206] | [,1207] | [,1208] | [,1209] | [,1210] | [,1211] | [,1212] | [,1213] | [,1214] | [,1215] |
| [1,] | "C" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "C" | "C" | "C" |
| [2,] | "C" | "A" | "G" | "A" | "C" | "C" | "C" | "T" | "G" | "A" | "C" | "C" | "C" |
| [3,] | "C" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "C" | "C" | "C" |
| [4,] | "C" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "C" | "C" | "C" |
| [5,] | "C" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "C" | "C" | "C" |
| [6,] | "C" | "A" | "G" | "A" | "C" | "C" | "A" | "T" | "G" | "A" | "C" | "C" | "C" |
| | [,1216] | [,1217] | [,1218] | [,1219] | [,1220] | [,1221] | [,1222] | [,1223] | [,1224] | [,1225] | [,1226] | [,1227] | [,1228] |
| [1,] | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| [2,] | "G" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| [3,] | "G" | "T" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| [4,] | "G" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| [5,] | "G" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| [6,] | "G" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "G" | "T" | "G" | "C" | "T" |
| | [,1229] | [,1230] | [,1231] | [,1232] | [,1233] | [,1234] | [,1235] | [,1236] | [,1237] | [,1238] | [,1239] | [,1240] | [,1241] |
| [1,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| [2,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| [3,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| [4,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| [5,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| [6,] | "G" | "C" | "G" | "C" | "T" | "T" | "C" | "C" | "T" | "G" | "C" | "G" | "C" |
| | [,1242] | [,1243] | [,1244] | [,1245] | [,1246] | [,1247] | [,1248] | [,1249] | [,1250] | [,1251] | [,1252] | [,1253] | [,1254] |
| [1,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| [2,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| [3,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| [4,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| [5,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| [6,] | "C" | "G" | "A" | "A" | "A" | "C" | "G" | "C" | "C" | "T" | "T" | "C" | "A" |
| | [,1255] | [,1256] | [,1257] | [,1258] | [,1259] | [,1260] | [,1261] | [,1262] | [,1263] | [,1264] | [,1265] | [,1266] | [,1267] |
| [1,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| [2,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| [3,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| [4,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| [5,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| [6,] | "T" | "T" | "C" | "T" | "G" | "C" | "T" | "G" | "A" | "C" | "G" | "G" | "T" |
| | [,1268] | [,1269] | [,1270] | [,1271] | [,1272] | [,1273] | [,1274] | [,1275] | [,1276] | [,1277] | [,1278] | [,1279] | [,1280] |
| [1,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| [2,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| [3,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| [4,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| [5,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| [6,] | "C" | "A" | "G" | "C" | "G" | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "C" |
| | [,1281] | [,1282] | [,1283] | [,1284] | [,1285] | [,1286] | [,1287] | [,1288] | [,1289] | [,1290] | [,1291] | [,1292] | [,1293] |
| [1,] | "A" | "T" | "T" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" | "C" |
| [2,] | "A" | "T" | "T" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" | "C" |
| [3,] | "A" | "T" | "T" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" | "C" |
| [4,] | "A" | "T" | "T" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" | "C" |
| [5,] | "A" | "T" | "T" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" | "C" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [6,] | "A" | "T" | "T" | "G" | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "C" |
| | [,1294] | [,1295] | [,1296] | [,1297] | [,1298] | [,1299] | [,1300] | [,1301] | [,1302] | [,1303] | [,1304] | [,1305] | [,1306] |
| [1,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| [2,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| [3,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| [4,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| [5,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| [6,] | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "C" | "C" | "C" | "T" |
| | [,1307] | [,1308] | [,1309] | [,1310] | [,1311] | [,1312] | [,1313] | [,1314] | [,1315] | [,1316] | [,1317] | [,1318] | [,1319] |
| [1,] | "G" | "C" | "G" | "C" | "C" | "C" | "A" | "T" | "A" | "T" | "C" | "A" | "G" |
| [2,] | "G" | "C" | "G" | "C" | "C" | "C" | "G" | "T" | "A" | "T" | "C" | "A" | "G" |
| [3,] | "G" | "C" | "G" | "C" | "C" | "C" | "A" | "T" | "A" | "T" | "C" | "A" | "G" |
| [4,] | "G" | "C" | "G" | "C" | "C" | "C" | "A" | "T" | "A" | "T" | "C" | "A" | "G" |
| [5,] | "G" | "C" | "G" | "C" | "C" | "C" | "A" | "T" | "A" | "T" | "C" | "A" | "G" |
| [6,] | "G" | "C" | "G" | "C" | "C" | "C" | "G" | "T" | "A" | "T" | "C" | "A" | "G" |
| | [,1320] | [,1321] | [,1322] | [,1323] | [,1324] | [,1325] | [,1326] | [,1327] | [,1328] | [,1329] | [,1330] | [,1331] | [,1332] |
| [1,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| [2,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| [3,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| [4,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| [5,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| [6,] | "C" | "T" | "C" | "A" | "C" | "C" | "T" | "A" | "C" | "C" | "G" | "C" | "C" |
| | [,1333] | [,1334] | [,1335] | [,1336] | [,1337] | [,1338] | [,1339] | [,1340] | [,1341] | [,1342] | [,1343] | [,1344] | [,1345] |
| [1,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| [2,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| [3,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| [4,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| [5,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| [6,] | "A" | "G" | "A" | "T" | "C" | "A" | "A" | "G" | "T" | "A" | "C" | "T" | "T" |
| | [,1346] | [,1347] | [,1348] | [,1349] | [,1350] | [,1351] | [,1352] | [,1353] | [,1354] | [,1355] | [,1356] | [,1357] | [,1358] |
| [1,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| [2,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| [3,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| [4,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| [5,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| [6,] | "C" | "T" | "C" | "T" | "T" | "T" | "T" | "C" | "C" | "T" | "G" | "G" | "A" |
| | [,1359] | [,1360] | [,1361] | [,1362] | [,1363] | [,1364] | [,1365] | [,1366] | [,1367] | [,1368] | [,1369] | [,1370] | [,1371] |
| [1,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| [2,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| [3,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| [4,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| [5,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| [6,] | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "T" | "G" | "A" | "T" | "G" | "A" |
| | [,1372] | [,1373] | [,1374] | [,1375] | [,1376] | [,1377] | [,1378] | [,1379] | [,1380] | [,1381] | [,1382] | [,1383] | [,1384] |
| [1,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| [2,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| [3,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| [4,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| [5,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| [6,] | "G" | "G" | "A" | "T" | "G" | "C" | "T" | "G" | "C" | "A" | "G" | "A" | "T" |
| | [,1385] | [,1386] | [,1387] | [,1388] | [,1389] | [,1390] | [,1391] | [,1392] | [,1393] | [,1394] | [,1395] | [,1396] | [,1397] |
| [1,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "T" |
| [2,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "T" |
| [3,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "G" |
| [4,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "T" |
| [5,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "T" |
| [6,] | "G" | "C" | "T" | "G" | "G" | "T" | "G" | "T" | "T" | "A" | "C" | "C" | "T" |
| | [,1398] | [,1399] | [,1400] | [,1401] | [,1402] | [,1403] | [,1404] | [,1405] | [,1406] | [,1407] | [,1408] | [,1409] | [,1410] |
| [1,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| [2,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| [3,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| [4,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| [5,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| [6,] | "C" | "T" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "T" | "C" | "C" | "A" |
| | [,1411] | [,1412] | [,1413] | [,1414] | [,1415] | [,1416] | [,1417] | [,1418] | [,1419] | [,1420] | [,1421] | [,1422] | [,1423] |
| [1,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| [2,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| [3,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| [4,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| [5,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| [6,] | "G" | "C" | "C" | "T" | "G" | "G" | "T" | "C" | "A" | "C" | "A" | "G" | "G" |
| | [,1424] | [,1425] | [,1426] | [,1427] | [,1428] | [,1429] | [,1430] | [,1431] | [,1432] | [,1433] | [,1434] | [,1435] | [,1436] |
| [1,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |
| [2,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |
| [3,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |
| [4,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [5,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |
| [6,] | "T" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "T" | "G" |
| | [,1437] | [,1438] | [,1439] | [,1440] | [,1441] | [,1442] | [,1443] | [,1444] | [,1445] | [,1446] | [,1447] | [,1448] | [,1449] |
| [1,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| [2,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| [3,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| [4,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| [5,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| [6,] | "G" | "A" | "C" | "A" | "A" | "C" | "A" | "A" | "G" | "G" | "C" | "C" | "A" |
| | [,1450] | [,1451] | [,1452] | [,1453] | [,1454] | [,1455] | [,1456] | [,1457] | [,1458] | [,1459] | [,1460] | [,1461] | [,1462] |
| [1,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| [2,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| [3,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| [4,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| [5,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| [6,] | "C" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "A" | "T" | "G" | "G" | "G" |
| | [,1463] | [,1464] | [,1465] | [,1466] | [,1467] | [,1468] | [,1469] | [,1470] | [,1471] | [,1472] | [,1473] | [,1474] | [,1475] |
| [1,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| [2,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| [3,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| [4,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| [5,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| [6,] | "G" | "A" | "T" | "G" | "C" | "G" | "G" | "G" | "C" | "A" | "G" | "C" | "T" |
| | [,1476] | [,1477] | [,1478] | [,1479] | [,1480] | [,1481] | [,1482] | [,1483] | [,1484] | [,1485] | [,1486] | [,1487] | [,1488] |
| [1,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| [2,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| [3,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| [4,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| [5,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| [6,] | "G" | "T" | "G" | "T" | "A" | "C" | "T" | "A" | "C" | "A" | "T" | "G" | "G" |
| | [,1489] | [,1490] | [,1491] | [,1492] | [,1493] | [,1494] | [,1495] | [,1496] | [,1497] | [,1498] | [,1499] | [,1500] | [,1501] |
| [1,] | "T" | "G" | "A" | "C" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| [2,] | "T" | "G" | "A" | "C" | "G" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| [3,] | "T" | "G" | "A" | "C" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| [4,] | "T" | "G" | "A" | "C" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| [5,] | "T" | "G" | "A" | "C" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| [6,] | "T" | "G" | "A" | "C" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" |
| | [,1502] | [,1503] | [,1504] | [,1505] | [,1506] | [,1507] | [,1508] | [,1509] | [,1510] | [,1511] | [,1512] | [,1513] | [,1514] |
| [1,] | "C" | "G" | "C" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "C" |
| [2,] | "C" | "G" | "C" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "C" |
| [3,] | "C" | "G" | "C" | "A" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "C" |
| [4,] | "C" | "G" | "C" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "C" |
| [5,] | "C" | "G" | "C" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "C" |
| [6,] | "C" | "G" | "C" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" |
| | [,1515] | [,1516] | [,1517] | [,1518] | [,1519] | [,1520] | [,1521] | [,1522] | [,1523] | [,1524] | [,1525] | [,1526] | [,1527] |
| [1,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| [2,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| [3,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| [4,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| [5,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| [6,] | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" |
| | [,1528] | [,1529] | [,1530] | [,1531] | [,1532] | [,1533] | [,1534] | [,1535] | [,1536] | [,1537] | [,1538] | [,1539] | [,1540] |
| [1,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| [2,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| [3,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| [4,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| [5,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| [6,] | "T" | "C" | "A" | "C" | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "C" | "A" |
| | [,1541] | [,1542] | [,1543] | [,1544] | [,1545] | [,1546] | [,1547] | [,1548] | [,1549] | [,1550] | [,1551] | [,1552] | [,1553] |
| [1,] | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| [2,] | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| [3,] | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| [4,] | "T" | "C" | "C" | "T" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| [5,] | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| [6,] | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "C" |
| | [,1554] | [,1555] | [,1556] | [,1557] | [,1558] | [,1559] | [,1560] | [,1561] | [,1562] | [,1563] | [,1564] | [,1565] | [,1566] |
| [1,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| [2,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| [3,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| [4,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| [5,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| [6,] | "T" | "C" | "C" | "A" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "C" |
| | [,1567] | [,1568] | [,1569] | [,1570] | [,1571] | [,1572] | [,1573] | [,1574] | [,1575] | [,1576] | [,1577] | [,1578] | [,1579] |
| [1,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |
| [2,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |
| [3,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [4,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |
| [5,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |
| [6,] | "T" | "G" | "C" | "A" | "C" | "C" | "G" | "G" | "G" | "A" | "G" | "G" | "G" |
| | [,1580] | [,1581] | [,1582] | [,1583] | [,1584] | [,1585] | [,1586] | [,1587] | [,1588] | [,1589] | [,1590] | [,1591] | [,1592] |
| [1,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| [2,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| [3,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| [4,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| [5,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| [6,] | "C" | "C" | "G" | "G" | "A" | "T" | "C" | "G" | "A" | "G" | "A" | "C" | "C" |
| | [,1593] | [,1594] | [,1595] | [,1596] | [,1597] | [,1598] | [,1599] | [,1600] | [,1601] | [,1602] | [,1603] | [,1604] | [,1605] |
| [1,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| [2,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| [3,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| [4,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| [5,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| [6,] | "A" | "T" | "C" | "C" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "T" | "G" |
| | [,1606] | [,1607] | [,1608] | [,1609] | [,1610] | [,1611] | [,1612] | [,1613] | [,1614] | [,1615] | [,1616] | [,1617] | [,1618] |
| [1,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| [2,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| [3,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| [4,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| [5,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| [6,] | "A" | "T" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "G" | "G" | "A" |
| | [,1619] | [,1620] | [,1621] | [,1622] | [,1623] | [,1624] | [,1625] | [,1626] | [,1627] | [,1628] | [,1629] | [,1630] | [,1631] |
| [1,] | "C" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| [2,] | "C" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| [3,] | "C" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| [4,] | "C" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| [5,] | "C" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| [6,] | "T" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "G" | "A" | "A" | "A" | "T" |
| | [,1632] | [,1633] | [,1634] | [,1635] | [,1636] | [,1637] | [,1638] | [,1639] | [,1640] | [,1641] | [,1642] | [,1643] | [,1644] |
| [1,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| [2,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| [3,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| [4,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| [5,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| [6,] | "A" | "T" | "G" | "T" | "T" | "T" | "C" | "C" | "A" | "C" | "C" | "A" | "A" |
| | [,1645] | [,1646] | [,1647] | [,1648] | [,1649] | [,1650] | [,1651] | [,1652] | [,1653] | [,1654] | [,1655] | [,1656] | [,1657] |
| [1,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| [2,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| [3,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| [4,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| [5,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| [6,] | "A" | "C" | "C" | "T" | "T" | "G" | "T" | "G" | "G" | "A" | "G" | "G" | "C" |
| | [,1658] | [,1659] | [,1660] | [,1661] | [,1662] | [,1663] | [,1664] | [,1665] | [,1666] | [,1667] | [,1668] | [,1669] | [,1670] |
| [1,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| [2,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| [3,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| [4,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| [5,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| [6,] | "C" | "T" | "C" | "T" | "T" | "T" | "C" | "A" | "A" | "A" | "C" | "A" | "G" |
| | [,1671] | [,1672] | [,1673] | [,1674] | [,1675] | [,1676] | [,1677] | [,1678] | [,1679] | [,1680] | [,1681] | [,1682] | [,1683] |
| [1,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| [2,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| [3,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| [4,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| [5,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| [6,] | "T" | "T" | "C" | "A" | "A" | "G" | "A" | "C" | "G" | "C" | "A" | "G" | "T" |
| | [,1684] | [,1685] | [,1686] | [,1687] | [,1688] | [,1689] | [,1690] | [,1691] | [,1692] | [,1693] | [,1694] | [,1695] | [,1696] |
| [1,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| [2,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| [3,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| [4,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| [5,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| [6,] | "A" | "C" | "A" | "G" | "C" | "A" | "C" | "G" | "A" | "G" | "G" | "G" | "T" |
| | [,1697] | [,1698] | [,1699] | [,1700] | [,1701] | [,1702] | [,1703] | [,1704] | [,1705] | [,1706] | [,1707] | [,1708] | [,1709] |
| [1,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| [2,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| [3,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| [4,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| [5,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| [6,] | "G" | "G" | "T" | "A" | "A" | "C" | "C" | "A" | "G" | "G" | "A" | "C" | "C" |
| | [,1710] | [,1711] | [,1712] | [,1713] | [,1714] | [,1715] | [,1716] | [,1717] | [,1718] | [,1719] | [,1720] | [,1721] | [,1722] |
| [1,] | "A" | "T" | "G" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |
| [2,] | "A" | "T" | "G" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [3,] | "A" | "T" | "C" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |
| [4,] | "A" | "T" | "G" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |
| [5,] | "A" | "T" | "G" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |
| [6,] | "A" | "T" | "G" | "G" | "T" | "G" | "A" | "G" | "G" | "A" | "C" | "A" | "G" |
| | [,1723] | [,1724] | [,1725] | [,1726] | [,1727] | [,1728] | [,1729] | [,1730] | [,1731] | [,1732] | [,1733] | [,1734] | [,1735] |
| [1,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "A" |
| [2,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "G" | "G" | "A" |
| [3,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "A" |
| [4,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "A" |
| [5,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "A" |
| [6,] | "A" | "G" | "A" | "A" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "A" |
| | [,1736] | [,1737] | [,1738] | [,1739] | [,1740] | [,1741] | [,1742] | [,1743] | [,1744] | [,1745] | [,1746] | [,1747] | [,1748] |
| [1,] | "G" | "C" | "C" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| [2,] | "G" | "C" | "C" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| [3,] | "G" | "C" | "T" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| [4,] | "G" | "C" | "T" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| [5,] | "G" | "C" | "C" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| [6,] | "G" | "C" | "C" | "G" | "G" | "G" | "T" | "G" | "C" | "C" | "T" | "C" | "C" |
| | [,1749] | [,1750] | [,1751] | [,1752] | [,1753] | [,1754] | [,1755] | [,1756] | [,1757] | [,1758] | [,1759] | [,1760] | [,1761] |
| [1,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [2,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [3,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [4,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [5,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [6,] | "A" | "T" | "G" | "C" | "C" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| | [,1762] | [,1763] | [,1764] | [,1765] | [,1766] | [,1767] | [,1768] | [,1769] | [,1770] | [,1771] | [,1772] | [,1773] | [,1774] |
| [1,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| [2,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| [3,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| [4,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| [5,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| [6,] | "T" | "C" | "T" | "C" | "A" | "G" | "T" | "G" | "G" | "A" | "G" | "A" | "A" |
| | [,1775] | [,1776] | [,1777] | [,1778] | [,1779] | [,1780] | [,1781] | [,1782] | [,1783] | [,1784] | [,1785] | [,1786] | [,1787] |
| [1,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| [2,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| [3,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| [4,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| [5,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| [6,] | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "A" | "G" | "C" | "T" | "T" | "C" |
| | [,1788] | [,1789] | [,1790] | [,1791] | [,1792] | [,1793] | [,1794] | [,1795] | [,1796] | [,1797] | [,1798] | [,1799] | [,1800] |
| [1,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| [2,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| [3,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| [4,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| [5,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| [6,] | "C" | "T" | "G" | "G" | "A" | "A" | "A" | "A" | "T" | "G" | "T" | "C" | "A" |
| | [,1801] | [,1802] | [,1803] | [,1804] | [,1805] | [,1806] | [,1807] | [,1808] | [,1809] | [,1810] | [,1811] | [,1812] | [,1813] |
| [1,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| [2,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| [3,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| [4,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| [5,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| [6,] | "C" | "T" | "C" | "G" | "G" | "G" | "C" | "C" | "T" | "T" | "G" | "G" | "G" |
| | [,1814] | [,1815] | [,1816] | [,1817] | [,1818] | [,1819] | [,1820] | [,1821] | [,1822] | [,1823] | [,1824] | [,1825] | [,1826] |
| [1,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| [2,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| [3,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| [4,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| [5,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| [6,] | "T" | "A" | "C" | "C" | "C" | "T" | "G" | "C" | "A" | "G" | "G" | "A" | "G" |
| | [,1827] | [,1828] | [,1829] | [,1830] | [,1831] | [,1832] | [,1833] | [,1834] | [,1835] | [,1836] | [,1837] | [,1838] | [,1839] |
| [1,] | "A" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| [2,] | "G" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| [3,] | "A" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| [4,] | "A" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| [5,] | "A" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| [6,] | "G" | "T" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "T" | "T" | "G" |
| | [,1840] | [,1841] | [,1842] | [,1843] | [,1844] | [,1845] | [,1846] | [,1847] | [,1848] | [,1849] | [,1850] | [,1851] | [,1852] |
| [1,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| [2,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| [3,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| [4,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| [5,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| [6,] | "A" | "G" | "G" | "A" | "G" | "A" | "C" | "T" | "G" | "T" | "A" | "C" | "C" |
| | [,1853] | [,1854] | [,1855] | [,1856] | [,1857] | [,1858] | [,1859] | [,1860] | [,1861] | [,1862] | [,1863] | [,1864] | [,1865] |
| [1,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [2,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |
| [3,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |
| [4,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |
| [5,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |
| [6,] | "C" | "G" | "T" | "G" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "C" | "C" |
| | [,1866] | [,1867] | [,1868] | [,1869] | [,1870] | [,1871] | [,1872] | [,1873] | [,1874] | [,1875] | [,1876] | [,1877] | [,1878] |
| [1,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| [2,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| [3,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| [4,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| [5,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| [6,] | "G" | "C" | "C" | "A" | "A" | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "A" |
| | [,1879] | [,1880] | [,1881] | [,1882] | [,1883] | [,1884] | [,1885] | [,1886] | [,1887] | [,1888] | [,1889] | [,1890] | [,1891] |
| [1,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| [2,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| [3,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| [4,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| [5,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| [6,] | "A" | "C" | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "G" | "C" | "C" | "T" |
| | [,1892] | [,1893] | [,1894] | [,1895] | [,1896] | [,1897] | [,1898] | [,1899] | [,1900] | [,1901] | [,1902] | [,1903] | [,1904] |
| [1,] | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| [2,] | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| [3,] | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| [4,] | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| [5,] | "G" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| [6,] | "C" | "G" | "T" | "G" | "G" | "T" | "C" | "T" | "T" | "C" | "T" | "C" | "T" |
| | [,1905] | [,1906] | [,1907] | [,1908] | [,1909] | [,1910] | [,1911] | [,1912] | [,1913] | [,1914] | [,1915] | [,1916] | [,1917] |
| [1,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| [2,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| [3,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| [4,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| [5,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| [6,] | "G" | "T" | "G" | "G" | "C" | "C" | "T" | "T" | "T" | "G" | "G" | "G" | "C" |
| | [,1918] | [,1919] | [,1920] | [,1921] | [,1922] | [,1923] | [,1924] | [,1925] | [,1926] | [,1927] | [,1928] | [,1929] | [,1930] |
| [1,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| [2,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| [3,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| [4,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| [5,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| [6,] | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "G" | "T" | "G" | "G" |
| | [,1931] | [,1932] | [,1933] | [,1934] | [,1935] | [,1936] | [,1937] | [,1938] | [,1939] | [,1940] | [,1941] | [,1942] | [,1943] |
| [1,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| [2,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| [3,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| [4,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| [5,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| [6,] | "C" | "A" | "T" | "G" | "A" | "A" | "A" | "C" | "A" | "C" | "A" | "A" | "G" |
| | [,1944] | [,1945] | [,1946] | [,1947] | [,1948] | [,1949] | [,1950] | [,1951] | [,1952] | [,1953] | [,1954] | [,1955] | [,1956] |
| [1,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| [2,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| [3,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| [4,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| [5,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| [6,] | "G" | "G" | "C" | "A" | "G" | "A" | "G" | "T" | "C" | "C" | "T" | "C" | "A" |
| | [,1957] | [,1958] | [,1959] | [,1960] | [,1961] | [,1962] | [,1963] | [,1964] | [,1965] | [,1966] | [,1967] | [,1968] | [,1969] |
| [1,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| [2,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| [3,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| [4,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| [5,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| [6,] | "G" | "G" | "G" | "A" | "C" | "T" | "T" | "C" | "T" | "T" | "C" | "G" | "A" |
| | [,1970] | [,1971] | [,1972] | [,1973] | [,1974] | [,1975] | [,1976] | [,1977] | [,1978] | [,1979] | [,1980] | [,1981] | [,1982] |
| [1,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| [2,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| [3,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| [4,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| [5,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| [6,] | "C" | "A" | "G" | "C" | "C" | "T" | "C" | "A" | "A" | "T" | "G" | "A" | "G" |
| | [,1983] | [,1984] | [,1985] | [,1986] | [,1987] | [,1988] | [,1989] | [,1990] | [,1991] | [,1992] | [,1993] | [,1994] | [,1995] |
| [1,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| [2,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| [3,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| [4,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| [5,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| [6,] | "G" | "C" | "T" | "A" | "T" | "T" | "A" | "T" | "G" | "A" | "G" | "G" | "C" |
| | [,1996] | [,1997] | [,1998] | [,1999] | [,2000] | [,2001] | [,2002] | [,2003] | [,2004] | [,2005] | [,2006] | [,2007] | [,2008] |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [1,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [2,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [3,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [4,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [5,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [6,] | "T" | "G" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "A" | "T" |
| [1,] | [,2009] | [,2010] | [,2011] | [,2012] | [,2013] | [,2014] | [,2015] | [,2016] | [,2017] | [,2018] | [,2019] | [,2020] | [,2021] |
| [2,] | "T" | "A" | "T" | "C" | "T" | "G" | "G" | "T" | "A" | "T" | "G" | "C" | "A" |
| [3,] | "T" | "A" | "T" | "C" | "T" | "G" | "C" | "T" | "C" | "C" | "G" | "C" | "A" |
| [4,] | "T" | "A" | "T" | "C" | "T" | "G" | "G" | "T" | "A" | "T" | "G" | "C" | "A" |
| [5,] | "T" | "A" | "T" | "C" | "T" | "G" | "G" | "T" | "A" | "T" | "G" | "C" | "A" |
| [6,] | "T" | "A" | "T" | "C" | "T" | "G" | "G" | "T" | "A" | "T" | "G" | "C" | "A" |
| [1,] | [,2022] | [,2023] | [,2024] | [,2025] | [,2026] | [,2027] | [,2028] | [,2029] | [,2030] | [,2031] | [,2032] | [,2033] | [,2034] |
| [2,] | "C" | "C" | "T" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "C" |
| [3,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| [4,] | "C" | "C" | "T" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "C" |
| [5,] | "C" | "C" | "T" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "C" |
| [6,] | "C" | "C" | "T" | "G" | "T" | "G" | "G" | "G" | "C" | "A" | "T" | "C" | "C" |
| [1,] | [,2035] | [,2036] | [,2037] | [,2038] | [,2039] | [,2040] | [,2041] | [,2042] | [,2043] | [,2044] | [,2045] | [,2046] | [,2047] |
| [2,] | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "A" | "T" | "T" | "G" | "C" |
| [3,] | "C" | "C" | "T" | "T" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |
| [4,] | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "A" | "T" | "T" | "G" | "C" |
| [5,] | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "A" | "T" | "T" | "G" | "C" |
| [6,] | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "G" | "A" | "T" | "T" | "G" | "C" |
| [1,] | [,2048] | [,2049] | [,2050] | [,2051] | [,2052] | [,2053] | [,2054] | [,2055] | [,2056] | [,2057] | [,2058] | [,2059] | [,2060] |
| [2,] | "T" | "G" | "G" | "G" | "A" | "A" | "G" | "A" | "T" | "T" | "C" | "T" | "G" |
| [3,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| [4,] | "T" | "G" | "G" | "G" | "A" | "A" | "G" | "A" | "T" | "T" | "C" | "T" | "G" |
| [5,] | "T" | "G" | "G" | "G" | "A" | "A" | "G" | "A" | "T" | "T" | "C" | "T" | "G" |
| [6,] | "T" | "G" | "G" | "G" | "A" | "A" | "G" | "A" | "T" | "T" | "C" | "T" | "G" |
| [1,] | [,2061] | [,2062] | [,2063] | [,2064] | [,2065] | [,2066] | [,2067] | [,2068] | [,2069] | [,2070] | [,2071] | [,2072] | [,2073] |
| [2,] | "G" | "A" | "A" | "T" | "G" | "G" | "A" | "A" | "A" | "G" | "A" | "C" | "A" |
| [3,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| [4,] | "G" | "A" | "G" | "A" | "T" | "G" | "G" | "A" | "A" | "G" | "A" | "C" | "A" |
| [5,] | "G" | "A" | "G" | "A" | "T" | "G" | "G" | "A" | "A" | "G" | "A" | "C" | "A" |
| [6,] | "G" | "A" | "G" | "A" | "T" | "G" | "G" | "A" | "A" | "G" | "A" | "C" | "A" |
| [1,] | [,2074] | [,2075] | [,2076] | [,2077] | [,2078] | [,2079] | [,2080] | [,2081] | [,2082] | [,2083] | [,2084] | [,2085] | [,2086] |
| [2,] | "T" | "G" | "G" | "C" | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "G" |
| [3,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "_ " | "_ " | "_ " | "_ " | "_ " |
| [4,] | "T" | "G" | "G" | "C" | "T" | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "G" |
| [5,] | "T" | "G" | "G" | "C" | "T" | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "G" |
| [6,] | "T" | "G" | "G" | "C" | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "G" |
| [1,] | [,2087] | [,2088] | [,2089] | [,2090] | [,2091] | [,2092] | [,2093] | [,2094] | [,2095] | [,2096] | [,2097] | [,2098] | [,2099] |
| [2,] | "G" | "G" | "G" | "T" | "C" | "A" | "A" | "C" | "T" | "G" | "G" | "G" | "C" |
| [3,] | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " |
| [4,] | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "T" | "G" | "G" | "G" | "C" |
| [5,] | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "T" | "G" | "G" | "G" | "C" |
| [6,] | "G" | "G" | "G" | "T" | "C" | "A" | "G" | "C" | "T" | "G" | "G" | "G" | "C" |
| [1,] | [,2100] | [,2101] | [,2102] | [,2103] | [,2104] | [,2105] | [,2106] | [,2107] | [,2108] | [,2109] | [,2110] | [,2111] | [,2112] |
| [2,] | "A" | "T" | "G" | "T" | "A" | "C" | "A" | "C" | "C" | "C" | "T" | "G" | "A" |
| [3,] | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " |
| [4,] | "A" | "T" | "G" | "T" | "A" | "C" | "A" | "C" | "C" | "C" | "T" | "G" | "A" |
| [5,] | "A" | "T" | "G" | "T" | "A" | "C" | "A" | "C" | "C" | "C" | "T" | "G" | "A" |
| [6,] | "A" | "T" | "G" | "T" | "A" | "C" | "A" | "C" | "C" | "C" | "T" | "G" | "A" |
| [1,] | [,2113] | [,2114] | [,2115] | [,2116] | [,2117] | [,2118] | [,2119] | [,2120] | [,2121] | [,2122] | [,2123] | [,2124] | [,2125] |
| [2,] | "C" | "C" | "G" | "T" | "C" | "A" | "T" | "C" | "G" | "T" | "G" | "G" | "G" |
| [3,] | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " |
| [4,] | "C" | "C" | "G" | "T" | "C" | "A" | "T" | "C" | "G" | "T" | "G" | "G" | "G" |
| [5,] | "C" | "C" | "G" | "T" | "C" | "A" | "T" | "C" | "G" | "T" | "G" | "G" | "G" |
| [6,] | "C" | "C" | "G" | "T" | "C" | "A" | "T" | "C" | "G" | "T" | "G" | "G" | "G" |
| [1,] | [,2126] | [,2127] | [,2128] | [,2129] | [,2130] | [,2131] | [,2132] | [,2133] | [,2134] | [,2135] | [,2136] | [,2137] | [,2138] |
| [2,] | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [3,] | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " | "_ " |
| [4,] | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [5,] | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |
| [6,] | "C" | "C" | "T" | "G" | "T" | "T" | "C" | "C" | "T" | "C" | "C" | "A" | "T" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | [,2139] | [,2140] | [,2141] | [,2142] | [,2143] | [,2144] | [,2145] | [,2146] | [,2147] | [,2148] | [,2149] | [,2150] | [,2151] |
| [1,] | "G" | "C" | "C" | "G" | "G" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "C" |
| [2,] | "G" | "C" | "C" | "G" | "G" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "C" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "C" | "C" | "G" | "G" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "C" |
| [5,] | "G" | "C" | "C" | "G" | "G" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "C" |
| [6,] | "G" | "C" | "C" | "G" | "G" | "C" | "A" | "T" | "T" | "G" | "T" | "C" | "C" |
| | [,2152] | [,2153] | [,2154] | [,2155] | [,2156] | [,2157] | [,2158] | [,2159] | [,2160] | [,2161] | [,2162] | [,2163] | [,2164] |
| [1,] | "T" | "T" | "C" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "T" | "A" |
| [2,] | "T" | "T" | "C" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "T" | "A" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "T" | "T" | "C" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "T" | "A" |
| [5,] | "T" | "T" | "C" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "T" | "A" |
| [6,] | "T" | "T" | "C" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "T" | "A" |
| | [,2165] | [,2166] | [,2167] | [,2168] | [,2169] | [,2170] | [,2171] | [,2172] | [,2173] | [,2174] | [,2175] | [,2176] | [,2177] |
| [1,] | "C" | "T" | "T" | "C" | "C" | "T" | "C" | "G" | "T" | "C" | "A" | "C" | "T" |
| [2,] | "C" | "T" | "T" | "C" | "C" | "T" | "C" | "G" | "T" | "C" | "A" | "C" | "T" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "C" | "T" | "T" | "C" | "C" | "T" | "C" | "G" | "T" | "C" | "A" | "C" | "T" |
| [5,] | "C" | "T" | "T" | "C" | "C" | "T" | "C" | "G" | "T" | "C" | "A" | "C" | "T" |
| [6,] | "C" | "T" | "T" | "C" | "C" | "T" | "C" | "G" | "T" | "C" | "A" | "C" | "T" |
| | [,2178] | [,2179] | [,2180] | [,2181] | [,2182] | [,2183] | [,2184] | [,2185] | [,2186] | [,2187] | [,2188] | [,2189] | [,2190] |
| [1,] | "C" | "A" | "C" | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "C" | "C" | "T" |
| [2,] | "C" | "A" | "C" | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "C" | "C" | "T" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "C" | "A" | "C" | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "C" | "C" | "T" |
| [5,] | "C" | "A" | "C" | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "C" | "C" | "T" |
| [6,] | "C" | "A" | "C" | "C" | "G" | "G" | "A" | "A" | "C" | "C" | "C" | "C" | "T" |
| | [,2191] | [,2192] | [,2193] | [,2194] | [,2195] | [,2196] | [,2197] | [,2198] | [,2199] | [,2200] | [,2201] | [,2202] | [,2203] |
| [1,] | "T" | "C" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "G" |
| [2,] | "T" | "C" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "G" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "T" | "C" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "G" |
| [5,] | "T" | "C" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "G" |
| [6,] | "T" | "C" | "C" | "C" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "G" |
| | [,2204] | [,2205] | [,2206] | [,2207] | [,2208] | [,2209] | [,2210] | [,2211] | [,2212] | [,2213] | [,2214] | [,2215] | [,2216] |
| [1,] | "G" | "G" | "G" | "C" | "A" | "T" | "G" | "C" | "T" | "A" | "C" | "A" | "A" |
| [2,] | "G" | "G" | "G" | "C" | "A" | "T" | "G" | "C" | "T" | "A" | "C" | "A" | "A" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "G" | "G" | "C" | "A" | "T" | "G" | "C" | "T" | "A" | "C" | "A" | "A" |
| [5,] | "G" | "G" | "G" | "C" | "A" | "T" | "G" | "C" | "T" | "A" | "C" | "A" | "A" |
| [6,] | "G" | "G" | "G" | "C" | "A" | "T" | "G" | "C" | "T" | "A" | "C" | "A" | "A" |
| | [,2217] | [,2218] | [,2219] | [,2220] | [,2221] | [,2222] | [,2223] | [,2224] | [,2225] | [,2226] | [,2227] | [,2228] | [,2229] |
| [1,] | "G" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "G" |
| [2,] | "G" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "G" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "G" |
| [5,] | "G" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "G" |
| [6,] | "G" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "G" |
| | [,2230] | [,2231] | [,2232] | [,2233] | [,2234] | [,2235] | [,2236] | [,2237] | [,2238] | [,2239] | [,2240] | [,2241] | [,2242] |
| [1,] | "C" | "T" | "A" | "T" | "G" | "G" | "G" | "C" | "A" | "C" | "G" | "T" | "C" |
| [2,] | "C" | "T" | "A" | "T" | "G" | "G" | "G" | "C" | "A" | "C" | "G" | "T" | "C" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "C" | "T" | "A" | "T" | "G" | "G" | "G" | "C" | "A" | "C" | "G" | "T" | "C" |
| [5,] | "C" | "T" | "A" | "T" | "G" | "G" | "G" | "C" | "A" | "C" | "G" | "T" | "C" |
| [6,] | "C" | "T" | "A" | "T" | "G" | "G" | "G" | "C" | "A" | "C" | "G" | "T" | "C" |
| | [,2243] | [,2244] | [,2245] | [,2246] | [,2247] | [,2248] | [,2249] | [,2250] | [,2251] | [,2252] | [,2253] | [,2254] | [,2255] |
| [1,] | "T" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "G" | "C" | "A" |
| [2,] | "T" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "G" | "C" | "A" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "T" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "G" | "C" | "A" |
| [5,] | "T" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "G" | "C" | "A" |
| [6,] | "T" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" | "G" | "G" | "C" | "A" |
| | [,2256] | [,2257] | [,2258] | [,2259] | [,2260] | [,2261] | [,2262] | [,2263] | [,2264] | [,2265] | [,2266] | [,2267] | [,2268] |
| [1,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| [2,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| [5,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| [6,] | "A" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "C" | "A" | "T" | "C" | "A" |
| | [,2269] | [,2270] | [,2271] | [,2272] | [,2273] | [,2274] | [,2275] | [,2276] | [,2277] | [,2278] | [,2279] | [,2280] | [,2281] |
| [1,] | "C" | "C" | "T" | "C" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |
| [2,] | "C" | "C" | "T" | "C" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "C" | "C" | "T" | "C" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |
| [5,] | "C" | "C" | "T" | "C" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [6,] | "C" | "C" | "T" | "T" | "C" | "C" | "G" | "C" | "T" | "G" | "C" | "C" | "T" |
| | [,2282] | [,2283] | [,2284] | [,2285] | [,2286] | [,2287] | [,2288] | [,2289] | [,2290] | [,2291] | [,2292] | [,2293] | [,2294] |
| [1,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| [2,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| [5,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| [6,] | "G" | "G" | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "C" | "C" | "T" | "G" |
| | [,2295] | [,2296] | [,2297] | [,2298] | [,2299] | [,2300] | [,2301] | [,2302] | [,2303] | [,2304] | [,2305] | [,2306] | [,2307] |
| [1,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| [2,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| [5,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| [6,] | "G" | "G" | "T" | "G" | "T" | "G" | "G" | "A" | "C" | "C" | "G" | "C" | "C" |
| | [,2308] | [,2309] | [,2310] | [,2311] | [,2312] | [,2313] | [,2314] | [,2315] | [,2316] | [,2317] | [,2318] | [,2319] | [,2320] |
| [1,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "A" | "G" | "G" | "T" | "T" |
| [2,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "A" | "G" | "G" | "T" | "T" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "A" | "G" | "G" | "T" | "T" |
| [5,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "A" | "G" | "G" | "T" | "T" |
| [6,] | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "C" | "A" | "G" | "G" | "T" | "T" |
| | [,2321] | [,2322] | [,2323] | [,2324] | [,2325] | [,2326] | [,2327] | [,2328] | [,2329] | [,2330] | [,2331] | [,2332] | [,2333] |
| [1,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| [2,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| [3,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| [4,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| [5,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| [6,] | "C" | "G" | "T" | "C" | "C" | "T" | "G" | "C" | "C" | "C" | "G" | "T" | "G" |
| | [,2334] | [,2335] | [,2336] | [,2337] | [,2338] | [,2339] | [,2340] | [,2341] | [,2342] | [,2343] | [,2344] | [,2345] | [,2346] |
| [1,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| [2,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| [3,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| [4,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| [5,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| [6,] | "G" | "G" | "C" | "G" | "C" | "C" | "A" | "C" | "G" | "G" | "T" | "C" | "A" |
| | [,2347] | [,2348] | [,2349] | [,2350] | [,2351] | [,2352] | [,2353] | [,2354] | [,2355] | [,2356] | [,2357] | [,2358] | [,2359] |
| [1,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| [2,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| [3,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| [4,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| [5,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| [6,] | "A" | "C" | "A" | "T" | "G" | "G" | "A" | "T" | "G" | "G" | "C" | "A" | "C" |
| | [,2360] | [,2361] | [,2362] | [,2363] | [,2364] | [,2365] | [,2366] | [,2367] | [,2368] | [,2369] | [,2370] | [,2371] | [,2372] |
| [1,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| [2,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| [3,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| [4,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| [5,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| [6,] | "T" | "G" | "C" | "C" | "C" | "T" | "C" | "T" | "A" | "C" | "G" | "A" | "G" |
| | [,2373] | [,2374] | [,2375] | [,2376] | [,2377] | [,2378] | [,2379] | [,2380] | [,2381] | [,2382] | [,2383] | [,2384] | [,2385] |
| [1,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| [2,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| [3,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| [4,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| [5,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| [6,] | "G" | "C" | "C" | "C" | "T" | "G" | "G" | "C" | "T" | "G" | "C" | "C" | "A" |
| | [,2386] | [,2387] | [,2388] | [,2389] | [,2390] | [,2391] | [,2392] | [,2393] | [,2394] | [,2395] | [,2396] | [,2397] | [,2398] |
| [1,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| [2,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| [3,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| [4,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| [5,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| [6,] | "T" | "C" | "T" | "T" | "C" | "A" | "T" | "T" | "G" | "C" | "T" | "C" | "A" |
| | [,2399] | [,2400] | [,2401] | [,2402] | [,2403] | [,2404] | [,2405] | [,2406] | [,2407] | [,2408] | [,2409] | [,2410] | [,2411] |
| [1,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| [2,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| [3,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| [4,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| [5,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| [6,] | "A" | "G" | "T" | "T" | "A" | "A" | "C" | "A" | "A" | "C" | "T" | "A" | "C" |
| | [,2412] | [,2413] | [,2414] | [,2415] | [,2416] | [,2417] | [,2418] | [,2419] | [,2420] | [,2421] | [,2422] | [,2423] | [,2424] |
| [1,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |
| [2,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |
| [3,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |
| [4,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [5,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |
| [6,] | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "A" | "C" | "C" | "T" | "G" | "G" |
| [1,] | [,2425] | [,2426] | [,2427] | [,2428] | [,2429] | [,2430] | [,2431] | [,2432] | [,2433] | [,2434] | [,2435] | [,2436] | [,2437] |
| [2,] | "G" | "T" | "C" | "T" | "G" | "A" | "T" | "C" | "A" | "C" | "A" | "C" | "C" |
| [3,] | "G" | "G" | "A" | "C" | "C" | "C" | "C" | "C" | "T" | "C" | "T" | "G" | "C" |
| [4,] | "G" | "T" | "C" | "A" | "G" | "A" | "T" | "C" | "A" | "C" | "A" | "A" | "C" |
| [5,] | "G" | "T" | "C" | "A" | "G" | "A" | "T" | "C" | "A" | "C" | "A" | "A" | "C" |
| [6,] | "G" | "T" | "C" | "A" | "G" | "A" | "T" | "C" | "A" | "C" | "A" | "A" | "C" |
| [1,] | [,2438] | [,2439] | [,2440] | [,2441] | [,2442] | [,2443] | [,2444] | [,2445] | [,2446] | [,2447] | [,2448] | [,2449] | [,2450] |
| [2,] | "C" | "A" | "T" | "C" | "A" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "G" |
| [3,] | "T" | "G" | "C" | "A" | "C" | "C" | "C" | "T" | "C" | "T" | "T" | "T" | "C" |
| [4,] | "C" | "A" | "T" | "C" | "A" | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "G" |
| [5,] | "C" | "A" | "T" | "C" | "A" | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "G" |
| [6,] | "C" | "A" | "T" | "C" | "A" | "G" | "C" | "A" | "T" | "C" | "A" | "C" | "G" |
| [1,] | [,2451] | [,2452] | [,2453] | [,2454] | [,2455] | [,2456] | [,2457] | [,2458] | [,2459] | [,2460] | [,2461] | [,2462] | [,2463] |
| [2,] | "G" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "A" | "G" | "C" | "C" | "A" |
| [3,] | "T" | "G" | "T" | "G" | "A" | "A" | "G" | "C" | "T" | "T" | "T" | "T" | "T" |
| [4,] | "G" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "A" | "G" | "C" | "C" | "A" |
| [5,] | "G" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "A" | "G" | "C" | "C" | "A" |
| [6,] | "G" | "C" | "C" | "A" | "C" | "A" | "G" | "C" | "A" | "G" | "C" | "C" | "A" |
| [1,] | [,2464] | [,2465] | [,2466] | [,2467] | [,2468] | [,2469] | [,2470] | [,2471] | [,2472] | [,2473] | [,2474] | [,2475] | [,2476] |
| [2,] | "G" | "T" | "G" | "T" | "T" | "G" | "G" | "G" | "G" | "C" | "G" | "G" | "C" |
| [3,] | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" |
| [4,] | "G" | "T" | "G" | "T" | "T" | "G" | "G" | "G" | "G" | "C" | "T" | "G" | "C" |
| [5,] | "G" | "T" | "G" | "T" | "T" | "G" | "G" | "G" | "G" | "C" | "T" | "G" | "C" |
| [6,] | "G" | "T" | "G" | "T" | "T" | "G" | "G" | "G" | "G" | "C" | "T" | "G" | "C" |
| [1,] | [,2477] | [,2478] | [,2479] | [,2480] | [,2481] | [,2482] | [,2483] | [,2484] | [,2485] | [,2486] | [,2487] | [,2488] | [,2489] |
| [2,] | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "C" | "C" | "A" | "G" |
| [3,] | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" |
| [4,] | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "C" | "C" | "A" | "G" |
| [5,] | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "C" | "C" | "A" | "G" |
| [6,] | "T" | "G" | "G" | "C" | "A" | "T" | "C" | "C" | "C" | "C" | "C" | "A" | "G" |
| [1,] | [,2490] | [,2491] | [,2492] | [,2493] | [,2494] | [,2495] | [,2496] | [,2497] | [,2498] | [,2499] | [,2500] | [,2501] | [,2502] |
| [2,] | "G" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "G" | "T" | "C" | "A" |
| [3,] | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" |
| [4,] | "G" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "G" | "T" | "C" | "A" |
| [5,] | "G" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "G" | "T" | "C" | "A" |
| [6,] | "G" | "C" | "G" | "G" | "G" | "T" | "C" | "T" | "G" | "G" | "T" | "C" | "A" |
| [1,] | [,2503] | [,2504] | [,2505] | [,2506] | [,2507] | [,2508] | [,2509] | [,2510] | [,2511] | [,2512] | [,2513] | [,2514] | [,2515] |
| [2,] | "C" | "C" | "A" | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | "T" |
| [3,] | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" | "T" |
| [4,] | "C" | "C" | "A" | "T" | "G" | "G" | "T" | "C" | "A" | "T" | "T" | "G" | |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [4,] | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "G" | "C" | "C" | "G" | "T" | "G" |
| [5,] | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "G" | "C" | "C" | "G" | "T" | "G" |
| [6,] | "C" | "A" | "T" | "C" | "A" | "T" | "C" | "G" | "C" | "C" | "G" | "T" | "G" |
| | [,2568] | [,2569] | [,2570] | [,2571] | [,2572] | [,2573] | [,2574] | [,2575] | [,2576] | [,2577] | [,2578] | [,2579] | [,2580] |
| [1,] | "G" | "A" | "C" | "T" | "G" | "G" | "T" | "T" | "C" | "T" | "T" | "G" | "G" |
| [2,] | "C" | "C" | "C" | "T" | "G" | "T" | "A" | "C" | "C" | "A" | "G" | "T" | "G" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "G" |
| [4,] | "G" | "A" | "C" | "T" | "G" | "G" | "T" | "T" | "C" | "C" | "T" | "T" | "G" |
| [5,] | "G" | "A" | "C" | "T" | "G" | "G" | "T" | "T" | "C" | "C" | "T" | "T" | "G" |
| [6,] | "G" | "A" | "C" | "T" | "G" | "G" | "T" | "T" | "C" | "C" | "T" | "T" | "G" |
| | [,2581] | [,2582] | [,2583] | [,2584] | [,2585] | [,2586] | [,2587] | [,2588] | [,2589] | [,2590] | [,2591] | [,2592] | [,2593] |
| [1,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| [2,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| [3,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| [4,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| [5,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| [6,] | "A" | "C" | "C" | "G" | "G" | "C" | "T" | "T" | "C" | "G" | "C" | "A" | "C" |
| | [,2594] | [,2595] | [,2596] | [,2597] | [,2598] | [,2599] | [,2600] | [,2601] | [,2602] | [,2603] | [,2604] | [,2605] | [,2606] |
| [1,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| [2,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| [3,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| [4,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| [5,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| [6,] | "A" | "A" | "T" | "G" | "A" | "C" | "C" | "A" | "A" | "C" | "G" | "T" | "A" |
| | [,2607] | [,2608] | [,2609] | [,2610] | [,2611] | [,2612] | [,2613] | [,2614] | [,2615] | [,2616] | [,2617] | [,2618] | [,2619] |
| [1,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| [2,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| [3,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| [4,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| [5,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| [6,] | "C" | "T" | "G" | "G" | "G" | "G" | "G" | "A" | "C" | "T" | "C" | "A" | "A" |
| | [,2620] | [,2621] | [,2622] | [,2623] | [,2624] | [,2625] | [,2626] | [,2627] | [,2628] | [,2629] | [,2630] | [,2631] | [,2632] |
| [1,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "G" | "T" |
| [2,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "G" | "T" |
| [3,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "G" | "T" |
| [4,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "C" | "G" | "T" |
| [5,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "G" | "G" | "C" | "T" | "G" | "T" |
| [6,] | "T" | "T" | "G" | "G" | "A" | "G" | "C" | "A" | "G" | "C" | "C" | "G" | "T" |
| | [,2633] | [,2634] | [,2635] | [,2636] | [,2637] | [,2638] | [,2639] | [,2640] | [,2641] | [,2642] | [,2643] | [,2644] | [,2645] |
| [1,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| [2,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| [3,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| [4,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| [5,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| [6,] | "C" | "A" | "T" | "C" | "G" | "A" | "G" | "C" | "A" | "C" | "T" | "T" | "G" |
| | [,2646] | [,2647] | [,2648] | [,2649] | [,2650] | [,2651] | [,2652] | [,2653] | [,2654] | [,2655] | [,2656] | [,2657] | [,2658] |
| [1,] | "T" | "C" | "T" | "C" | "A" | "G" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| [2,] | "T" | "C" | "T" | "C" | "A" | "G" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| [3,] | "T" | "C" | "T" | "C" | "A" | "G" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| [4,] | "T" | "C" | "T" | "C" | "A" | "G" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| [5,] | "T" | "C" | "T" | "C" | "A" | "A" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| [6,] | "T" | "C" | "T" | "C" | "A" | "G" | "C" | "G" | "G" | "G" | "A" | "G" | "C" |
| | [,2659] | [,2660] | [,2661] | [,2662] | [,2663] | [,2664] | [,2665] | [,2666] | [,2667] | [,2668] | [,2669] | [,2670] | [,2671] |
| [1,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| [2,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| [3,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| [4,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| [5,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| [6,] | "T" | "G" | "G" | "A" | "G" | "C" | "T" | "T" | "C" | "A" | "G" | "G" | "A" |
| | [,2672] | [,2673] | [,2674] | [,2675] | [,2676] | [,2677] | [,2678] | [,2679] | [,2680] | [,2681] | [,2682] | [,2683] | [,2684] |
| [1,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| [2,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| [3,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| [4,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| [5,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| [6,] | "A" | "G" | "C" | "T" | "G" | "A" | "G" | "C" | "T" | "C" | "A" | "C" | "C" |
| | [,2685] | [,2686] | [,2687] | [,2688] | [,2689] | [,2690] | [,2691] | [,2692] | [,2693] | [,2694] | [,2695] | [,2696] | [,2697] |
| [1,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| [2,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| [3,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| [4,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| [5,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| [6,] | "C" | "T" | "C" | "C" | "C" | "C" | "A" | "G" | "C" | "C" | "T" | "G" | "G" |
| | [,2698] | [,2699] | [,2700] | [,2701] | [,2702] | [,2703] | [,2704] | [,2705] | [,2706] | [,2707] | [,2708] | [,2709] | [,2710] |
| [1,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |
| [2,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |

| | | | | | | | | | | | | | |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| [3,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |
| [4,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |
| [5,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |
| [6,] | "G" | "G" | "A" | "A" | "A" | "C" | "C" | "C" | "T" | "A" | "C" | "A" | "A" |
| | [,2711] | [,2712] | [,2713] | [,2714] | [,2715] | [,2716] | [,2717] | [,2718] | [,2719] | [,2720] | [,2721] | [,2722] | [,2723] |
| [1,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "A" |
| [2,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "A" |
| [3,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "G" |
| [4,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "A" |
| [5,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "A" |
| [6,] | "G" | "T" | "C" | "C" | "C" | "T" | "C" | "A" | "T" | "G" | "G" | "C" | "A" |
| | [,2724] | [,2725] | [,2726] | [,2727] | [,2728] | [,2729] | [,2730] | [,2731] | [,2732] | [,2733] | [,2734] | [,2735] | [,2736] |
| [1,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| [2,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| [3,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| [4,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| [5,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| [6,] | "C" | "A" | "G" | "G" | "A" | "G" | "A" | "A" | "G" | "G" | "G" | "G" | "G" |
| | [,2737] | [,2738] | [,2739] | [,2740] | [,2741] | [,2742] | [,2743] | [,2744] | [,2745] | [,2746] | [,2747] | [,2748] | [,2749] |
| [1,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "G" | "A" | "C" | "G" |
| [2,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "C" | "G" | "G" | "A" | "C" | "G" |
| [3,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "G" | "A" | "C" | "G" |
| [4,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "G" | "A" | "C" | "G" |
| [5,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "G" | "A" | "C" | "G" |
| [6,] | "C" | "A" | "T" | "C" | "C" | "C" | "G" | "G" | "G" | "G" | "A" | "C" | "G" |
| | [,2750] | [,2751] | [,2752] | [,2753] | [,2754] | [,2755] | [,2756] | [,2757] | [,2758] | [,2759] | [,2760] | [,2761] | [,2762] |
| [1,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| [2,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| [3,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| [4,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| [5,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| [6,] | "G" | "G" | "G" | "A" | "G" | "G" | "C" | "A" | "A" | "C" | "G" | "A" | "G" |
| | [,2763] | [,2764] | [,2765] | [,2766] | [,2767] | [,2768] | [,2769] | [,2770] | [,2771] | [,2772] | [,2773] | [,2774] | [,2775] |
| [1,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "G" |
| [2,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "_" |
| [3,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "_" |
| [4,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "G" |
| [5,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "G" |
| [6,] | "A" | "G" | "T" | "G" | "C" | "T" | "A" | "T" | "G" | "T" | "G" | "A" | "G" |
| | [,2776] | [,2777] | [,2778] | [,2779] | [,2780] | [,2781] | [,2782] | [,2783] | [,2784] | [,2785] | [,2786] | [,2787] | [,2788] |
| [1,] | "G" | "G" | "G" | "C" | "C" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" |
| [2,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "G" | "G" | "C" | "C" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" |
| [5,] | "G" | "G" | "G" | "C" | "C" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" |
| [6,] | "G" | "G" | "G" | "C" | "C" | "T" | "C" | "C" | "A" | "G" | "C" | "T" | "C" |
| | [,2789] | [,2790] | [,2791] | [,2792] | [,2793] | [,2794] | [,2795] | [,2796] | [,2797] | [,2798] | [,2799] | [,2800] | [,2801] |
| [1,] | "T" | "G" | "C" | "C" | "C" | "C" | "C" | "C" | "C" | "A" | "G" | "A" | "G" |
| [2,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "T" | "G" | "C" | "C" | "C" | "C" | "C" | "_" | "C" | "A" | "G" | "A" | "G" |
| [5,] | "T" | "G" | "C" | "C" | "C" | "C" | "C" | "_" | "C" | "A" | "G" | "A" | "G" |
| [6,] | "T" | "G" | "C" | "C" | "C" | "C" | "C" | "_" | "C" | "A" | "G" | "A" | "G" |
| | [,2802] | [,2803] | [,2804] | [,2805] | [,2806] | [,2807] | [,2808] | [,2809] | [,2810] | [,2811] | [,2812] | [,2813] | [,2814] |
| [1,] | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "G" |
| [2,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "G" |
| [5,] | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "G" |
| [6,] | "A" | "G" | "G" | "A" | "G" | "G" | "G" | "A" | "A" | "G" | "G" | "G" | "G" |
| | [,2815] | [,2816] | [,2817] | [,2818] | [,2819] | [,2820] | [,2821] | [,2822] | [,2823] | [,2824] | [,2825] | [,2826] | [,2827] |
| [1,] | "G" | "C" | "T" | "G" | "G" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "A" |
| [2,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "C" | "T" | "G" | "G" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "A" |
| [5,] | "G" | "C" | "T" | "G" | "G" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "A" |
| [6,] | "G" | "C" | "T" | "G" | "G" | "G" | "G" | "A" | "G" | "G" | "G" | "G" | "A" |
| | [,2828] | [,2829] | [,2830] | [,2831] | [,2832] | [,2833] | [,2834] | [,2835] | [,2836] | [,2837] | [,2838] | [,2839] | [,2840] |
| [1,] | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "T" | "G" | "A" | "C" | "A" | "C" |
| [2,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [3,] | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" | "_" |
| [4,] | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "T" | "G" | "A" | "C" | "A" | "C" |
| [5,] | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "T" | "G" | "A" | "C" | "A" | "C" |
| [6,] | "G" | "T" | "C" | "C" | "T" | "G" | "G" | "T" | "G" | "A" | "C" | "A" | "C" |
| | [,2841] | [,2842] | [,2843] | [,2844] | [,2845] | [,2846] | [,2847] | [,2848] | [,2849] | [,2850] | [,2851] | [,2852] | [,2853] |
| [1,] | "A" | "T" | "C" | "T" | "G" | "T" | "T" | "G" | "C" | "C" | "C" | "A" | "A" |

```

[2,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "A" "T" "C" "T" "G" "T" "T" "G" "C" "C" "C" "A" "A"
[5,] "A" "T" "C" "T" "G" "T" "T" "G" "C" "C" "C" "A" "A"
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[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "C" "T" "G" "A" "C" "C" "G" "T" "G" "G" "G" "C" "T"
[5,] "C" "T" "G" "A" "C" "C" "G" "T" "G" "G" "G" "C" "T"
[6,] "C" "T" "G" "A" "C" "C" "A" "T" "G" "G" "G" "C" "T"
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[1,] "G" "A" "A" "C" "A" "C" "A" "C" "G" "T" "T" "C" "T"
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[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "G" "A" "A" "C" "A" "C" "A" "C" "G" "T" "T" "C" "T"
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[4,] "G" "C" "T" "T" "G" "A" "C" "T" "C" "A" "T" "T" "T"
[5,] "G" "C" "T" "T" "G" "A" "C" "T" "C" "A" "T" "T" "T"
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[1,] "A" "G" "G" "G" "G" "G" "G" "A" "G" "G" "G" "A" "A"
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[5,] "A" "G" "G" "G" "G" "G" "G" "A" "G" "G" "G" "A" "A"
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      [,2906] [,2907] [,2908] [,2909] [,2910] [,2911] [,2912] [,2913] [,2914] [,2915] [,2916] [,2917] [,2918]
[1,] "A" "A" "G" "T" "G" "A" "A" "A" "T" "A" "A" "A" "G"
[2,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "A" "A" "G" "T" "G" "A" "A" "A" "T" "A" "A" "A" "G"
[5,] "A" "A" "G" "T" "G" "A" "A" "A" "T" "A" "A" "A" "G"
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      [,2919] [,2920] [,2921] [,2922] [,2923] [,2924] [,2925] [,2926] [,2927] [,2928] [,2929] [,2930] [,2931]
[1,] "G" "A" "G" "C" "A" "G" "G" "A" "A" "T" "G" "A" "A"
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[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "G" "A" "G" "C" "A" "G" "G" "A" "A" "T" "G" "A" "A"
[5,] "G" "A" "G" "C" "A" "G" "G" "A" "A" "T" "G" "A" "A"
[6,] "G" "A" "G" "C" "A" "G" "G" "A" "A" "T" "G" "A" "A"
      [,2932] [,2933] [,2934] [,2935] [,2936] [,2937] [,2938] [,2939] [,2940] [,2941] [,2942] [,2943] [,2944]
[1,] "A" "G" "G" "T" "A" "-" "-" "-" "-" "-" "-" "-" "-"
[2,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[3,] "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-" "-"
[4,] "A" "G" "G" "T" "A" "-" "-" "-" "-" "-" "-" "-" "-"
[5,] "A" "G" "G" "T" "A" "-" "-" "-" "-" "-" "-" "-" "-"
[6,] "A" "G" "G" "T" "A" "T" "A" "T" "A" "A" "G" "G" "T"
      [,2945] [,2946] [,2947]
[1,] "-" "-" "-"
[2,] "-" "-" "-"
[3,] "-" "-" "-"
[4,] "-" "-" "-"
[5,] "-" "-" "-"
[6,] "C" "T" "C"

```

```

> # Compute the SFS
> SFS <- compute_SFS(alignment)
>
> # Output the SFS
> print(SFS)
[1] 845 216 284 328 1239
>
> # The function for computing TajimasD values
> TajimasD <- function(sfs){
+   #For the computed SFS
+   n <- length(sfs) + 1
+   ss <- sum(sfs)
+
+   a1 <- sum(1 / seq_len(n-1))
+   a2 <- sum(1 / seq_len(n-1)^2)

```

```

+
+   b1 <- (n + 1) / (3 * (n - 1))
+   b2 <- 2 * (n^2 + n + 3)/(9 * n * (n - 1))
+
+   c1 <- b1 - 1/a1
+   c2 <- b2 - (n + 2)/(a1 * n) + a2 / a1^2
+
+   e1 <- c1 / a1
+   e2 <- c2 / (a1^2 + a2)
+
+   Vd <- e1 * ss + e2 * ss * (ss - 1)
+
+   theta_pi <- sum(2 * seq_len(n-1) * (n - seq_len(n-1)) * sfs)/(n*(n-1))
+   theta_w <- ss / a1
+   res <- (theta_pi - theta_w) / sqrt(Vd)
+   return(res)
+ }
>
> #Compute TajimaD
> TajimasD(SFS)
[1] -0.614027
>
>
>

```