Supplementary materials



Supplementary Figure 1. Schematic flow chart of the study procedure



Supplementary Figure 2. MSDL Method vs. Radiomics Method. Kaplan-Meier curves for high recurrence risk and low recurrence risk patients predicted by Radiomics method in the development cohort (B) and validation cohort (D). Comparison between



Supplementary Figure 3. Heatmap of different expression genes between high and low risk group

Supplementary Table 1. The risk groups and CT signature of CRC patients in this study.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TuominID | Cohort | CT-signature | Risk\_group | Gene-Data |
| A028 | Development | 0.9994  | High Risk | No |
| A029 | Development | 0.9999  | High Risk | No |
| A055 | Development | 0.0431  | Low Risk | No |
| A057 | Development | 0.9998  | High Risk | No |
| A054 | Development | 0.0361  | Low Risk | No |
| A058 | Development | 0.0086  | Low Risk | No |
| A051 | Development | 0.0629  | Low Risk | No |
| A062 | Development | 0.5374  | High Risk | No |
| A063 | Development | 0.0434  | Low Risk | No |
| A064 | Development | 0.2336  | Low Risk | No |
| A065 | Development | 0.4640  | Low Risk | No |
| A056 | Development | 0.0642  | Low Risk | No |
| A066 | Development | 0.9998  | High Risk | No |
| A060 | Development | 1.0000  | High Risk | No |
| A061 | Development | 0.0327  | Low Risk | No |
| A030 | Development | 0.9997  | High Risk | No |
| A031 | Development | 0.0473  | Low Risk | No |
| A033 | Development | 0.0544  | Low Risk | No |
| A032 | Development | 0.1827  | Low Risk | No |
| A034 | Development | 0.2906  | Low Risk | No |
| A036 | Development | 0.9994  | High Risk | No |
| A039 | Development | 0.9998  | High Risk | No |
| A040 | Development | 0.0403  | Low Risk | No |
| A041 | Development | 0.9997  | High Risk | No |
| A043 | Development | 0.9991  | High Risk | No |
| A035 | Development | 0.9991  | High Risk | No |
| A037 | Development | 0.0800  | Low Risk | No |
| A046 | Development | 0.4452  | Low Risk | No |
| A048 | Development | 0.1267  | Low Risk | No |
| A042 | Development | 0.1322  | Low Risk | No |
| A044 | Development | 0.0280  | Low Risk | No |
| A045 | Development | 0.5189  | High Risk | No |
| A047 | Development | 0.9998  | High Risk | No |
| A050 | Development | 0.0788  | Low Risk | No |
| A053 | Development | 0.9998  | High Risk | No |
| A052 | Development | 0.9999  | High Risk | No |
| A067 | Development | 0.9983  | High Risk | No |
| A106 | Development | 0.0393  | Low Risk | No |
| A107 | Development | 0.4767  | Low Risk | No |
| A111 | Development | 0.0179  | Low Risk | Yes |
| A112 | Development | 0.2121  | Low Risk | No |
| A113 | Development | 0.9980  | High Risk | Yes |
| A114 | Development | 0.2132  | Low Risk | No |
| A110 | Development | 0.0265  | Low Risk | No |
| A109 | Development | 0.0289  | Low Risk | No |
| A117 | Development | 0.0244  | Low Risk | No |
| A119 | Development | 0.0335  | Low Risk | Yes |
| A116 | Development | 0.1758  | Low Risk | No |
| A120 | Development | 0.0277  | Low Risk | No |
| A122 | Development | 0.0193  | Low Risk | No |
| A001 | Development | 0.0596  | Low Risk | No |
| A002 | Development | 1.0000  | High Risk | Yes |
| A121 | Development | 0.9997  | High Risk | No |
| A118 | Development | 0.0196  | Low Risk | No |
| A071 | Development | 0.0355  | Low Risk | No |
| A070 | Development | 0.0297  | Low Risk | No |
| A069 | Development | 1.0000  | High Risk | No |
| A072 | Development | 0.0285  | Low Risk | No |
| A068 | Development | 0.9999  | High Risk | No |
| A074 | Development | 0.0396  | Low Risk | No |
| A077 | Development | 0.0380  | Low Risk | No |
| A076 | Development | 0.9965  | High Risk | No |
| A078 | Development | 0.0720  | Low Risk | No |
| A073 | Development | 0.0103  | Low Risk | No |
| A079 | Development | 0.0484  | Low Risk | No |
| A080 | Development | 0.9948  | High Risk | No |
| A075 | Development | 0.4236  | Low Risk | No |
| A083 | Development | 0.9966  | High Risk | No |
| A085 | Development | 0.0409  | Low Risk | No |
| A082 | Development | 0.0289  | Low Risk | No |
| A086 | Development | 0.0245  | Low Risk | No |
| A087 | Development | 0.0763  | Low Risk | No |
| A084 | Development | 0.0266  | Low Risk | No |
| A088 | Development | 0.0284  | Low Risk | No |
| A089 | Development | 0.0368  | Low Risk | No |
| A081 | Development | 0.9438  | High Risk | No |
| A092 | Development | 0.0364  | Low Risk | No |
| A094 | Development | 0.9999  | High Risk | No |
| A091 | Development | 0.9996  | High Risk | No |
| A096 | Development | 0.9999  | High Risk | No |
| A097 | Development | 0.0433  | Low Risk | No |
| A095 | Development | 0.9997  | High Risk | No |
| A099 | Development | 0.0949  | Low Risk | No |
| A100 | Development | 0.1271  | Low Risk | No |
| A098 | Development | 0.1813  | Low Risk | No |
| A102 | Development | 0.0300  | Low Risk | No |
| A101 | Development | 0.0384  | Low Risk | No |
| A103 | Development | 0.8581  | High Risk | No |
| A104 | Development | 0.0366  | Low Risk | No |
| A124 | Development | 0.9999  | High Risk | No |
| A125 | Development | 0.0224  | Low Risk | No |
| A123 | Development | 0.0203  | Low Risk | Yes |
| A126 | Development | 0.2738  | Low Risk | No |
| A022 | Development | 0.0562  | Low Risk | Yes |
| A142 | Development | 0.0198  | Low Risk | No |
| A145 | Development | 0.1086  | Low Risk | Yes |
| A143 | Development | 0.9995  | High Risk | No |
| A144 | Development | 0.9987  | High Risk | Yes |
| A146 | Development | 1.0000  | High Risk | Yes |
| A141 | Development | 0.0202  | Low Risk | No |
| A147 | Development | 0.0199  | Low Risk | Yes |
| A150 | Development | 0.0192  | Low Risk | No |
| A153 | Development | 0.0758  | Low Risk | Yes |
| A154 | Development | 0.0720  | Low Risk | Yes |
| A155 | Development | 0.0378  | Low Risk | Yes |
| A148 | Development | 0.0702  | Low Risk | Yes |
| A151 | Development | 0.0512  | Low Risk | Yes |
| A149 | Development | 0.2958  | Low Risk | Yes |
| A152 | Development | 0.0945  | Low Risk | Yes |
| A127 | Development | 0.1107  | Low Risk | No |
| A129 | Development | 0.2952  | Low Risk | No |
| A130 | Development | 0.0447  | Low Risk | No |
| A128 | Development | 0.1325  | Low Risk | No |
| A131 | Development | 0.0331  | Low Risk | No |
| A049 | Development | 1.0000  | High Risk | No |
| A132 | Development | 0.1006  | Low Risk | No |
| A003 | Development | 0.0155  | Low Risk | No |
| A133 | Development | 0.9996  | High Risk | No |
| A134 | Development | 0.9993  | High Risk | No |
| A135 | Development | 0.0324  | Low Risk | No |
| A137 | Development | 0.1152  | Low Risk | Yes |
| A136 | Development | 0.9990  | High Risk | Yes |
| A139 | Development | 0.0394  | Low Risk | No |
| A138 | Development | 0.0388  | Low Risk | No |
| A140 | Development | 0.9994  | High Risk | No |
| A157 | Development | 0.4539  | Low Risk | No |
| A158 | Development | 0.9987  | High Risk | No |
| A159 | Development | 0.9999  | High Risk | Yes |
| A160 | Development | 0.9964  | High Risk | Yes |
| A162 | Development | 0.0678  | Low Risk | Yes |
| A156 | Development | 0.0529  | Low Risk | Yes |
| A230 | Development | 0.0571  | Low Risk | No |
| A231 | Development | 0.1473  | Low Risk | No |
| A232 | Development | 0.9999  | High Risk | No |
| A233 | Development | 0.0119  | Low Risk | Yes |
| A234 | Development | 0.9996  | High Risk | Yes |
| A236 | Development | 0.0282  | Low Risk | Yes |
| A239 | Development | 0.0704  | Low Risk | Yes |
| A240 | Development | 0.0364  | Low Risk | Yes |
| A241 | Development | 0.0456  | Low Risk | No |
| A237 | Development | 1.0000  | High Risk | No |
| A238 | Development | 0.9999  | High Risk | Yes |
| A243 | Development | 0.0357  | Low Risk | No |
| A244 | Development | 0.0157  | Low Risk | No |
| A242 | Development | 0.0372  | Low Risk | No |
| A013 | Development | 0.2000  | Low Risk | No |
| A014 | Development | 0.0655  | Low Risk | Yes |
| A235 | Development | 0.8138  | High Risk | Yes |
| A012 | Development | 0.9989  | High Risk | Yes |
| A246 | Development | 1.0000  | High Risk | No |
| A253 | Development | 0.0667  | Low Risk | No |
| A254 | Development | 0.0321  | Low Risk | No |
| A245 | Development | 0.0415  | Low Risk | No |
| A258 | Development | 1.0000  | High Risk | No |
| A247 | Development | 0.0610  | Low Risk | No |
| A256 | Development | 1.0000  | High Risk | No |
| A257 | Development | 0.9999  | High Risk | No |
| A259 | Development | 0.0775  | Low Risk | No |
| A260 | Development | 0.0580  | Low Risk | No |
| A023 | Development | 0.0572  | Low Risk | No |
| A251 | Development | 0.0266  | Low Risk | Yes |
| A250 | Development | 0.9991  | High Risk | No |
| A252 | Development | 0.9996  | High Risk | Yes |
| A255 | Development | 0.9999  | High Risk | Yes |
| A248 | Development | 0.0467  | Low Risk | Yes |
| A163 | Development | 0.9991  | High Risk | Yes |
| A164 | Development | 0.0667  | Low Risk | Yes |
| A165 | Development | 0.9997  | High Risk | Yes |
| A166 | Development | 0.9999  | High Risk | Yes |
| A168 | Development | 0.9999  | High Risk | Yes |
| A006 | Development | 0.0651  | Low Risk | Yes |
| A170 | Development | 0.9733  | High Risk | No |
| A171 | Development | 0.0482  | Low Risk | No |
| A172 | Development | 0.0228  | Low Risk | No |
| A174 | Development | 0.9998  | High Risk | No |
| A173 | Development | 0.0347  | Low Risk | Yes |
| A176 | Development | 0.0338  | Low Risk | No |
| A175 | Development | 0.0452  | Low Risk | No |
| A177 | Development | 0.1485  | Low Risk | No |
| A167 | Development | 0.0799  | Low Risk | Yes |
| A161 | Development | 0.0296  | Low Risk | Yes |
| A169 | Development | 0.0349  | Low Risk | No |
| A180 | Development | 0.1290  | Low Risk | Yes |
| A181 | Development | 0.0276  | Low Risk | No |
| A183 | Development | 0.0429  | Low Risk | No |
| A184 | Development | 0.0329  | Low Risk | No |
| A182 | Development | 0.0264  | Low Risk | No |
| A186 | Development | 0.1366  | Low Risk | No |
| A178 | Development | 0.1284  | Low Risk | No |
| A008 | Development | 0.0196  | Low Risk | Yes |
| A189 | Development | 0.0666  | Low Risk | No |
| A190 | Development | 0.9998  | High Risk | No |
| A191 | Development | 0.9999  | High Risk | No |
| A192 | Development | 0.0339  | Low Risk | No |
| A193 | Development | 0.1784  | Low Risk | Yes |
| A194 | Development | 0.9997  | High Risk | No |
| A185 | Development | 0.0354  | Low Risk | No |
| A187 | Development | 0.9998  | High Risk | No |
| A188 | Development | 0.9996  | High Risk | No |
| A196 | Development | 0.9983  | High Risk | No |
| A195 | Development | 0.0504  | Low Risk | No |
| A199 | Development | 0.0133  | Low Risk | Yes |
| A202 | Development | 0.0216  | Low Risk | No |
| A201 | Development | 0.0326  | Low Risk | No |
| A197 | Development | 0.0142  | Low Risk | No |
| A204 | Development | 0.9993  | High Risk | Yes |
| A205 | Development | 0.0367  | Low Risk | No |
| A206 | Development | 0.0607  | Low Risk | No |
| A021 | Development | 0.9976  | High Risk | No |
| A208 | Development | 1.0000  | High Risk | No |
| A209 | Development | 0.9998  | High Risk | No |
| A210 | Development | 1.0000  | High Risk | No |
| A212 | Development | 0.0602  | Low Risk | No |
| A211 | Development | 0.0432  | Low Risk | No |
| A214 | Development | 0.0361  | Low Risk | No |
| A216 | Development | 0.2100  | Low Risk | Yes |
| A010 | Development | 0.0453  | Low Risk | Yes |
| A207 | Development | 0.2839  | Low Risk | No |
| A213 | Development | 0.0508  | Low Risk | No |
| A219 | Development | 0.0331  | Low Risk | No |
| A215 | Development | 0.0210  | Low Risk | Yes |
| A217 | Development | 1.0000  | High Risk | No |
| A220 | Development | 0.9995  | High Risk | No |
| A011 | Development | 0.0887  | Low Risk | Yes |
| A221 | Development | 0.9994  | High Risk | Yes |
| A222 | Development | 0.0220  | Low Risk | No |
| A218 | Development | 0.0856  | Low Risk | Yes |
| A223 | Development | 0.9986  | High Risk | Yes |
| A224 | Development | 1.0000  | High Risk | Yes |
| A226 | Development | 0.0347  | Low Risk | Yes |
| A225 | Development | 0.0343  | Low Risk | Yes |
| A227 | Development | 0.0339  | Low Risk | No |
| A228 | Development | 0.9997  | High Risk | No |
| A229 | Development | 0.4415  | Low Risk | No |
| A261 | Development | 0.0445  | Low Risk | No |
| A262 | Development | 0.0313  | Low Risk | Yes |
| A263 | Development | 0.1385  | Low Risk | No |
| A331 | Development | 0.0391  | Low Risk | No |
| A332 | Development | 0.9982  | High Risk | No |
| A324 | Development | 0.9999  | High Risk | No |
| A333 | Development | 0.0297  | Low Risk | No |
| A334 | Development | 0.0221  | Low Risk | No |
| A335 | Development | 0.0783  | Low Risk | No |
| C073 | Development | 0.0208  | Low Risk | No |
| B086 | Development | 0.0242  | Low Risk | No |
| C074 | Development | 0.6907  | High Risk | No |
| B087 | Development | 0.0886  | Low Risk | No |
| A329 | Development | 0.0671  | Low Risk | No |
| C072 | Development | 0.0109  | Low Risk | No |
| A265 | Development | 0.0594  | Low Risk | Yes |
| A266 | Development | 0.0243  | Low Risk | Yes |
| A267 | Development | 0.1873  | Low Risk | No |
| A015 | Development | 0.0180  | Low Risk | Yes |
| A016 | Development | 0.0366  | Low Risk | Yes |
| A269 | Development | 0.9996  | High Risk | No |
| A276 | Development | 0.9995  | High Risk | Yes |
| A277 | Development | 0.0161  | Low Risk | Yes |
| A278 | Development | 1.0000  | High Risk | Yes |
| A275 | Development | 0.9997  | High Risk | No |
| A264 | Development | 0.9930  | High Risk | No |
| A279 | Development | 0.0167  | Low Risk | No |
| A017 | Development | 0.0681  | Low Risk | Yes |
| A280 | Development | 0.1405  | Low Risk | Yes |
| A281 | Development | 0.0217  | Low Risk | Yes |
| A282 | Development | 0.0107  | Low Risk | Yes |
| A283 | Development | 0.0145  | Low Risk | Yes |
| A270 | Development | 0.9999  | High Risk | No |
| A271 | Development | 0.0322  | Low Risk | No |
| A272 | Development | 0.9999  | High Risk | No |
| A273 | Development | 0.8414  | High Risk | No |
| A274 | Development | 0.0178  | Low Risk | No |
| A285 | Development | 1.0000  | High Risk | Yes |
| A286 | Development | 0.9825  | High Risk | Yes |
| A287 | Development | 0.0436  | Low Risk | Yes |
| A284 | Development | 0.0353  | Low Risk | Yes |
| A294 | Development | 0.0407  | Low Risk | Yes |
| A295 | Development | 0.0199  | Low Risk | Yes |
| A293 | Development | 0.0417  | Low Risk | Yes |
| A297 | Development | 0.0424  | Low Risk | Yes |
| A296 | Development | 0.9960  | High Risk | Yes |
| A289 | Development | 0.4113  | Low Risk | No |
| A290 | Development | 0.0208  | Low Risk | Yes |
| A298 | Development | 0.9995  | High Risk | Yes |
| A300 | Development | 0.1075  | Low Risk | Yes |
| A301 | Development | 0.0287  | Low Risk | Yes |
| A291 | Development | 0.6541  | High Risk | Yes |
| A299 | Development | 0.1238  | Low Risk | Yes |
| A292 | Development | 0.1395  | Low Risk | No |
| A304 | Development | 0.0084  | Low Risk | Yes |
| A303 | Development | 0.9999  | High Risk | Yes |
| A307 | Development | 0.0609  | Low Risk | No |
| A308 | Development | 0.0304  | Low Risk | Yes |
| A302 | Development | 0.0200  | Low Risk | Yes |
| A314 | Development | 0.0809  | Low Risk | No |
| A288 | Development | 0.9997  | High Risk | No |
| A313 | Development | 0.0294  | Low Risk | No |
| A315 | Development | 0.0544  | Low Risk | No |
| A312 | Development | 0.9998  | High Risk | Yes |
| A018 | Development | 0.7554  | High Risk | No |
| A318 | Development | 0.1923  | Low Risk | Yes |
| A316 | Development | 0.9999  | High Risk | Yes |
| A320 | Development | 0.0336  | Low Risk | Yes |
| A317 | Development | 0.9982  | High Risk | No |
| A319 | Development | 0.9945  | High Risk | Yes |
| A020 | Development | 0.9997  | High Risk | Yes |
| A309 | Development | 0.7788  | High Risk | Yes |
| A311 | Development | 0.7510  | High Risk | Yes |
| A322 | Development | 0.1681  | Low Risk | Yes |
| A019 | Development | 1.0000  | High Risk | Yes |
| A310 | Development | 0.9998  | High Risk | Yes |
| A328 | Development | 0.9995  | High Risk | Yes |
| A330 | Development | 0.9999  | High Risk | No |
| A326 | Development | 0.9999  | High Risk | Yes |
| A323 | Development | 1.0000  | High Risk | Yes |
| A325 | Development | 1.0000  | High Risk | Yes |
| A321 | Development | 0.4079  | Low Risk | Yes |
| A327 | Development | 0.0862  | Low Risk | Yes |
| C075 | Development | 0.9996  | High Risk | No |
| B090 | Development | 0.8387  | High Risk | No |
| C076 | Development | 0.9999  | High Risk | No |
| B091 | Development | 0.9999  | High Risk | No |
| B088 | Development | 0.0468  | Low Risk | No |
| C158 | Development | 0.0616  | Low Risk | No |
| C160 | Development | 0.0605  | Low Risk | No |
| B108 | Development | 0.1093  | Low Risk | No |
| C162 | Development | 0.1007  | Low Risk | No |
| C163 | Development | 0.0530  | Low Risk | No |
| C169 | Development | 0.9999  | High Risk | No |
| C167 | Development | 0.1615  | Low Risk | No |
| B110 | Development | 0.0207  | Low Risk | No |
| B111 | Development | 0.9998  | High Risk | No |
| B112 | Development | 0.0261  | Low Risk | No |
| C121 | Development | 0.9994  | High Risk | No |
| A339 | Development | 0.9999  | High Risk | No |
| C171 | Development | 0.0251  | Low Risk | No |
| C170 | Development | 0.0514  | Low Risk | No |
| C161 | Development | 0.0219  | Low Risk | No |
| A340 | Development | 0.9997  | High Risk | No |
| C173 | Development | 0.9999  | High Risk | No |
| C174 | Development | 0.0529  | Low Risk | No |
| B106 | Development | 0.0363  | Low Risk | No |
| C155 | Development | 0.0446  | Low Risk | No |
| C157 | Development | 0.0794  | Low Risk | No |
| A338 | Development | 0.9999  | High Risk | Yes |
| A349 | Development | 0.9998  | High Risk | No |
| A341 | Development | 0.1177  | Low Risk | No |
| A342 | Development | 0.9998  | High Risk | Yes |
| C178 | Development | 0.8561  | High Risk | No |
| B114 | Development | 0.9999  | High Risk | No |
| A350 | Development | 1.0000  | High Risk | No |
| A352 | Development | 0.9998  | High Risk | Yes |
| A347 | Development | 0.0578  | Low Risk | No |
| A351 | Development | 1.0000  | High Risk | Yes |
| A354 | Development | 0.0400  | Low Risk | Yes |
| A355 | Development | 0.0518  | Low Risk | No |
| A356 | Development | 0.0183  | Low Risk | No |
| B117 | Development | 0.9999  | High Risk | No |
| C148 | Development | 0.9986  | High Risk | No |
| A348 | Development | 0.0710  | Low Risk | No |
| C077 | Development | 0.0552  | Low Risk | No |
| C078 | Development | 0.0201  | Low Risk | No |
| B089 | Development | 0.9954  | High Risk | No |
| C082 | Development | 0.0238  | Low Risk | No |
| C085 | Development | 0.9924  | High Risk | No |
| B085 | Development | 0.0315  | Low Risk | No |
| C086 | Development | 0.0428  | Low Risk | No |
| C087 | Development | 0.9995  | High Risk | No |
| C088 | Development | 0.0488  | Low Risk | No |
| C080 | Development | 0.0526  | Low Risk | No |
| B094 | Development | 0.9999  | High Risk | No |
| B093 | Development | 0.7890  | High Risk | No |
| C092 | Development | 0.0874  | Low Risk | No |
| C093 | Development | 0.0563  | Low Risk | No |
| C090 | Development | 0.0273  | Low Risk | No |
| C094 | Development | 0.0376  | Low Risk | No |
| B095 | Development | 0.0443  | Low Risk | No |
| C096 | Development | 0.0438  | Low Risk | No |
| B092 | Development | 0.1590  | Low Risk | No |
| C098 | Development | 0.0372  | Low Risk | No |
| B096 | Development | 0.9993  | High Risk | No |
| C099 | Development | 0.0388  | Low Risk | No |
| C101 | Development | 0.0408  | Low Risk | No |
| C100 | Development | 0.0345  | Low Risk | No |
| C091 | Development | 0.0292  | Low Risk | No |
| C104 | Development | 0.9996  | High Risk | No |
| B098 | Development | 0.0449  | Low Risk | No |
| C103 | Development | 0.0183  | Low Risk | No |
| C107 | Development | 0.9999  | High Risk | No |
| C108 | Development | 0.9998  | High Risk | No |
| C106 | Development | 0.0424  | Low Risk | No |
| C105 | Development | 0.9998  | High Risk | No |
| B100 | Development | 0.0594  | Low Risk | No |
| C112 | Development | 0.0513  | Low Risk | No |
| C111 | Development | 0.0439  | Low Risk | No |
| C109 | Development | 0.9998  | High Risk | No |
| C110 | Development | 0.0799  | Low Risk | No |
| B099 | Development | 0.0262  | Low Risk | No |
| C113 | Development | 0.8127  | High Risk | No |
| C115 | Development | 0.9997  | High Risk | No |
| C117 | Development | 0.9998  | High Risk | No |
| C081 | Development | 0.9999  | High Risk | No |
| C116 | Development | 0.0313  | Low Risk | No |
| C114 | Development | 0.9999  | High Risk | No |
| C120 | Development | 0.0302  | Low Risk | No |
| C123 | Development | 0.9999  | High Risk | No |
| C127 | Development | 0.1023  | Low Risk | No |
| A336 | Development | 0.9999  | High Risk | No |
| C128 | Development | 0.0363  | Low Risk | No |
| C136 | Development | 0.0320  | Low Risk | No |
| A337 | Development | 0.0199  | Low Risk | No |
| A268 | Development | 0.9999  | High Risk | No |
| B102 | Development | 0.0265  | Low Risk | No |
| B101 | Development | 0.0568  | Low Risk | No |
| B103 | Development | 0.9998  | High Risk | No |
| C138 | Development | 0.0181  | Low Risk | No |
| B104 | Development | 0.0617  | Low Risk | No |
| B105 | Development | 0.9993  | High Risk | No |
| C154 | Development | 0.0329  | Low Risk | No |
| C152 | Development | 0.0237  | Low Risk | No |
| C151 | Development | 0.9999  | High Risk | No |
| C156 | Development | 0.9999  | High Risk | No |
| B107 | Development | 0.5289  | High Risk | No |
| C153 | Development | 1.0000  | High Risk | No |
| C140 | Development | 0.9079  | High Risk | No |
| C141 | Development | 0.0623  | Low Risk | No |
| C143 | Development | 0.0540  | Low Risk | No |
| B120 | Validation | 0.9928  | High Risk | No |
| A361 | Validation | 0.9994  | High Risk | No |
| B122 | Validation | 0.0350  | Low Risk | No |
| B124 | Validation | 0.0447  | Low Risk | Yes |
| B123 | Validation | 0.3732  | Low Risk | No |
| A362 | Validation | 0.0126  | Low Risk | No |
| A364 | Validation | 0.5713  | High Risk | No |
| A357 | Validation | 0.1964  | Low Risk | Yes |
| A358 | Validation | 0.4958  | Low Risk | No |
| A360 | Validation | 0.8989  | High Risk | No |
| B118 | Validation | 0.5881  | High Risk | No |
| A359 | Validation | 0.0523  | Low Risk | Yes |
| B113 | Validation | 0.9974  | High Risk | No |
| B119 | Validation | 0.0676  | Low Risk | No |
| A249 | Validation | 0.9962  | High Risk | No |
| C046 | Validation | 0.0803  | Low Risk | No |
| C047 | Validation | 0.9209  | High Risk | No |
| C050 | Validation | 0.0711  | Low Risk | No |
| C048 | Validation | 0.9817  | High Risk | No |
| C049 | Validation | 0.8723  | High Risk | No |
| C043 | Validation | 0.1826  | Low Risk | No |
| C045 | Validation | 0.8562  | High Risk | No |
| C053 | Validation | 0.0318  | Low Risk | No |
| A389 | Validation | 0.2938  | Low Risk | No |
| C054 | Validation | 0.0248  | Low Risk | No |
| C059 | Validation | 0.6686  | High Risk | No |
| C055 | Validation | 0.0679  | Low Risk | No |
| C056 | Validation | 0.7912  | High Risk | No |
| C060 | Validation | 0.0861  | Low Risk | No |
| C051 | Validation | 0.7209  | High Risk | No |
| C052 | Validation | 0.0478  | Low Risk | No |
| C061 | Validation | 0.7232  | High Risk | No |
| C062 | Validation | 0.9953  | High Risk | No |
| C064 | Validation | 0.0583  | Low Risk | No |
| C057 | Validation | 0.0661  | Low Risk | No |
| C347 | Validation | 0.0360  | Low Risk | No |
| C065 | Validation | 0.0355  | Low Risk | No |
| C345 | Validation | 0.1431  | Low Risk | No |
| C351 | Validation | 0.3212  | Low Risk | No |
| C063 | Validation | 0.6984  | High Risk | No |
| A365 | Validation | 0.2726  | Low Risk | No |
| A368 | Validation | 0.0215  | Low Risk | No |
| B001 | Validation | 0.1845  | Low Risk | No |
| B002 | Validation | 0.9856  | High Risk | No |
| A343 | Validation | 0.9982  | High Risk | Yes |
| A367 | Validation | 0.4357  | Low Risk | No |
| A372 | Validation | 0.7820  | High Risk | Yes |
| A373 | Validation | 0.1519  | Low Risk | Yes |
| A371 | Validation | 0.9971  | High Risk | No |
| A370 | Validation | 0.9086  | High Risk | Yes |
| A374 | Validation | 0.1202  | Low Risk | No |
| C159 | Validation | 0.9947  | High Risk | No |
| B121 | Validation | 0.0233  | Low Risk | No |
| A369 | Validation | 0.1115  | Low Risk | No |
| A363 | Validation | 0.9922  | High Risk | No |
| B003 | Validation | 0.9859  | High Risk | No |
| A375 | Validation | 0.1021  | Low Risk | Yes |
| A376 | Validation | 0.9985  | High Risk | No |
| B004 | Validation | 0.1309  | Low Risk | No |
| A366 | Validation | 0.0978  | Low Risk | No |
| A377 | Validation | 0.3357  | Low Risk | Yes |
| A385 | Validation | 0.9338  | High Risk | Yes |
| A384 | Validation | 0.5829  | High Risk | No |
| A381 | Validation | 0.9457  | High Risk | No |
| B007 | Validation | 0.9983  | High Risk | No |
| C119 | Validation | 0.9019  | High Risk | No |
| A383 | Validation | 0.8568  | High Risk | Yes |
| B006 | Validation | 0.1269  | Low Risk | Yes |
| B012 | Validation | 0.0265  | Low Risk | No |
| B008 | Validation | 0.9813  | High Risk | No |
| B115 | Validation | 0.7476  | High Risk | No |
| B005 | Validation | 0.8857  | High Risk | Yes |
| B011 | Validation | 0.8731  | High Risk | Yes |
| B013 | Validation | 0.7493  | High Risk | No |
| B009 | Validation | 0.9667  | High Risk | No |
| B016 | Validation | 0.3905  | Low Risk | No |
| B014 | Validation | 0.3199  | Low Risk | Yes |
| B020 | Validation | 0.0893  | Low Risk | Yes |
| B015 | Validation | 0.6157  | High Risk | No |
| B017 | Validation | 0.1575  | Low Risk | Yes |
| B018 | Validation | 0.9572  | High Risk | Yes |
| B022 | Validation | 0.9941  | High Risk | Yes |
| B023 | Validation | 0.1804  | Low Risk | Yes |
| B021 | Validation | 0.8929  | High Risk | Yes |
| B024 | Validation | 0.9974  | High Risk | Yes |
| A379 | Validation | 0.1637  | Low Risk | No |
| A380 | Validation | 0.2590  | Low Risk | Yes |
| A378 | Validation | 0.8391  | High Risk | No |
| A382 | Validation | 0.0877  | Low Risk | No |
| A305 | Validation | 0.0725  | Low Risk | Yes |
| B029 | Validation | 0.4129  | Low Risk | Yes |
| B032 | Validation | 0.7404  | High Risk | Yes |
| B035 | Validation | 0.9716  | High Risk | Yes |
| B037 | Validation | 0.8772  | High Risk | Yes |
| B038 | Validation | 0.2891  | Low Risk | No |
| B040 | Validation | 0.0573  | Low Risk | Yes |
| B046 | Validation | 0.8984  | High Risk | Yes |
| B047 | Validation | 0.0390  | Low Risk | Yes |
| B025 | Validation | 0.1145  | Low Risk | No |
| B027 | Validation | 0.9340  | High Risk | No |
| B036 | Validation | 0.2595  | Low Risk | Yes |
| B049 | Validation | 0.9327  | High Risk | No |
| B041 | Validation | 0.9718  | High Risk | No |
| B048 | Validation | 0.2528  | Low Risk | Yes |
| B010 | Validation | 0.0349  | Low Risk | Yes |
| B028 | Validation | 0.0157  | Low Risk | No |
| B052 | Validation | 0.9994  | High Risk | No |
| B053 | Validation | 0.1791  | Low Risk | No |
| B055 | Validation | 0.0854  | Low Risk | No |
| B039 | Validation | 0.3811  | Low Risk | Yes |
| B051 | Validation | 0.7595  | High Risk | No |
| B054 | Validation | 0.9995  | High Risk | Yes |
| C236 | Validation | 0.0578  | Low Risk | No |
| B050 | Validation | 0.0956  | Low Risk | Yes |
| B056 | Validation | 0.9945  | High Risk | No |
| B057 | Validation | 0.9166  | High Risk | Yes |
| B058 | Validation | 0.0687  | Low Risk | No |
| B026 | Validation | 0.7345  | High Risk | Yes |
| B030 | Validation | 0.7081  | High Risk | No |
| B033 | Validation | 0.8428  | High Risk | Yes |
| B019 | Validation | 0.3754  | Low Risk | Yes |
| B031 | Validation | 0.4834  | Low Risk | No |
| B034 | Validation | 0.3869  | Low Risk | Yes |
| A353 | Validation | 0.7187  | High Risk | No |
| B061 | Validation | 0.9941  | High Risk | No |
| B062 | Validation | 0.0581  | Low Risk | No |
| B067 | Validation | 0.9153  | High Risk | Yes |
| B071 | Validation | 0.9453  | High Risk | Yes |
| A346 | Validation | 0.9988  | High Risk | Yes |
| B074 | Validation | 0.9912  | High Risk | No |
| B076 | Validation | 0.7427  | High Risk | No |
| B073 | Validation | 0.3202  | Low Risk | Yes |
| B077 | Validation | 0.9970  | High Risk | No |
| B079 | Validation | 0.7598  | High Risk | No |
| B075 | Validation | 0.1514  | Low Risk | Yes |
| B078 | Validation | 0.3543  | Low Risk | No |
| B081 | Validation | 0.1446  | Low Risk | Yes |
| C247 | Validation | 0.9918  | High Risk | No |
| B127 | Validation | 0.4910  | Low Risk | Yes |
| B080 | Validation | 0.1514  | Low Risk | Yes |
| B082 | Validation | 0.6832  | High Risk | Yes |
| B128 | Validation | 0.7048  | High Risk | Yes |
| B044 | Validation | 0.9919  | High Risk | Yes |
| B125 | Validation | 0.9955  | High Risk | Yes |
| B129 | Validation | 0.9980  | High Risk | Yes |
| C256 | Validation | 0.0175  | Low Risk | Yes |
| B042 | Validation | 0.4463  | Low Risk | No |
| B045 | Validation | 0.9988  | High Risk | Yes |
| B130 | Validation | 0.1245  | Low Risk | Yes |
| B133 | Validation | 0.6214  | High Risk | Yes |
| C253 | Validation | 0.1608  | Low Risk | No |
| B060 | Validation | 0.5130  | High Risk | No |
| A345 | Validation | 0.0256  | Low Risk | Yes |
| B064 | Validation | 0.1776  | Low Risk | No |
| B059 | Validation | 0.7944  | High Risk | Yes |
| B063 | Validation | 0.5930  | High Risk | Yes |
| B065 | Validation | 0.3984  | Low Risk | Yes |
| B066 | Validation | 0.0269  | Low Risk | Yes |
| B068 | Validation | 0.9852  | High Risk | No |
| B070 | Validation | 0.9996  | High Risk | No |
| B072 | Validation | 0.0891  | Low Risk | Yes |
| B069 | Validation | 0.8449  | High Risk | No |
| C242 | Validation | 0.0570  | Low Risk | No |
| B136 | Validation | 0.9998  | High Risk | Yes |
| B137 | Validation | 0.9077  | High Risk | Yes |
| B140 | Validation | 0.0605  | Low Risk | Yes |
| B134 | Validation | 0.0191  | Low Risk | No |
| B144 | Validation | 0.9972  | High Risk | No |
| B149 | Validation | 0.9582  | High Risk | Yes |
| B152 | Validation | 0.0285  | Low Risk | Yes |
| B145 | Validation | 0.0619  | Low Risk | No |
| B147 | Validation | 0.0188  | Low Risk | Yes |
| B146 | Validation | 0.3938  | Low Risk | Yes |
| B148 | Validation | 0.0903  | Low Risk | No |
| B151 | Validation | 0.3558  | Low Risk | Yes |
| B150 | Validation | 0.3464  | Low Risk | Yes |
| B153 | Validation | 0.9364  | High Risk | Yes |
| B156 | Validation | 0.5042  | High Risk | Yes |
| A386 | Validation | 0.9811  | High Risk | Yes |
| B154 | Validation | 0.4754  | Low Risk | No |
| C263 | Validation | 0.3667  | Low Risk | No |
| B155 | Validation | 0.1070  | Low Risk | Yes |
| B083 | Validation | 0.7926  | High Risk | No |
| C254 | Validation | 0.0377  | Low Risk | Yes |
| B135 | Validation | 0.2485  | Low Risk | Yes |
| B138 | Validation | 0.0175  | Low Risk | No |
| B141 | Validation | 0.1947  | Low Risk | No |
| B043 | Validation | 0.2748  | Low Risk | Yes |
| B143 | Validation | 0.5713  | High Risk | Yes |
| B139 | Validation | 0.9569  | High Risk | Yes |
| B142 | Validation | 0.8166  | High Risk | Yes |
| B157 | Validation | 0.9930  | High Risk | No |
| B158 | Validation | 0.6104  | High Risk | Yes |
| B159 | Validation | 0.0274  | Low Risk | No |
| B162 | Validation | 0.4925  | Low Risk | No |
| B167 | Validation | 0.9635  | High Risk | No |
| B170 | Validation | 0.2312  | Low Risk | No |
| B169 | Validation | 0.0487  | Low Risk | Yes |
| B174 | Validation | 0.0876  | Low Risk | No |
| B171 | Validation | 0.2614  | Low Risk | No |
| B172 | Validation | 0.3289  | Low Risk | No |
| B175 | Validation | 0.8723  | High Risk | No |
| B165 | Validation | 0.0282  | Low Risk | Yes |
| B176 | Validation | 0.9976  | High Risk | No |
| B173 | Validation | 0.8251  | High Risk | No |
| C068 | Validation | 0.7688  | High Risk | No |
| C069 | Validation | 0.5363  | High Risk | No |
| C066 | Validation | 0.0810  | Low Risk | Yes |
| C071 | Validation | 0.2735  | Low Risk | No |
| C002 | Validation | 0.9084  | High Risk | No |
| B177 | Validation | 0.0408  | Low Risk | Yes |
| C067 | Validation | 0.5791  | High Risk | No |
| C070 | Validation | 0.9167  | High Risk | No |
| B160 | Validation | 0.1884  | Low Risk | Yes |
| B164 | Validation | 0.0319  | Low Risk | No |
| C006 | Validation | 0.2106  | Low Risk | No |
| C003 | Validation | 0.9951  | High Risk | No |
| B166 | Validation | 0.0403  | Low Risk | No |
| B168 | Validation | 0.8971  | High Risk | Yes |
| B163 | Validation | 0.9966  | High Risk | No |
| C010 | Validation | 0.9447  | High Risk | No |
| C011 | Validation | 0.0397  | Low Risk | No |
| C012 | Validation | 0.0472  | Low Risk | No |
| C015 | Validation | 0.3007  | Low Risk | No |
| C016 | Validation | 0.9278  | High Risk | No |
| C014 | Validation | 0.5624  | High Risk | No |
| C017 | Validation | 0.1205  | Low Risk | No |
| C018 | Validation | 0.0303  | Low Risk | No |
| C019 | Validation | 0.0686  | Low Risk | No |
| C020 | Validation | 0.1066  | Low Risk | No |
| C022 | Validation | 0.9996  | High Risk | No |
| C024 | Validation | 0.2787  | Low Risk | No |
| C302 | Validation | 0.5432  | High Risk | No |
| C025 | Validation | 0.9803  | High Risk | No |
| C032 | Validation | 0.4893  | Low Risk | No |
| C028 | Validation | 0.7043  | High Risk | No |
| C026 | Validation | 0.1114  | Low Risk | No |
| C035 | Validation | 0.2344  | Low Risk | No |
| C021 | Validation | 0.1242  | Low Risk | No |
| C023 | Validation | 0.9952  | High Risk | No |
| C027 | Validation | 0.1375  | Low Risk | No |
| C037 | Validation | 0.9977  | High Risk | No |
| C030 | Validation | 0.8386  | High Risk | No |
| C004 | Validation | 0.3900  | Low Risk | No |
| C008 | Validation | 0.1834  | Low Risk | No |
| C013 | Validation | 0.9415  | High Risk | No |
| C005 | Validation | 0.7151  | High Risk | No |
| C007 | Validation | 0.9896  | High Risk | No |
| C009 | Validation | 0.4655  | Low Risk | No |
| C029 | Validation | 0.0361  | Low Risk | No |
| C031 | Validation | 0.9574  | High Risk | No |
| C039 | Validation | 0.9546  | High Risk | No |
| C038 | Validation | 0.2350  | Low Risk | No |
| C041 | Validation | 0.9355  | High Risk | No |
| C036 | Validation | 0.5410  | High Risk | No |
| C040 | Validation | 0.0387  | Low Risk | No |
| C042 | Validation | 0.3232  | Low Risk | No |
| C307 | Validation | 0.2258  | Low Risk | No |
| C033 | Validation | 0.9769  | High Risk | No |
| C044 | Validation | 0.0861  | Low Risk | No |
| B131 | Validation | 0.4148  | Low Risk | No |
| C001 | Validation | 0.8941  | High Risk | No |
| C034 | Validation | 0.0610  | Low Risk | No |
| C363 | Validation | 0.6943  | High Risk | Yes |
| C357 | Validation | 0.9028  | High Risk | No |
| B206 | Validation | 0.4480  | Low Risk | No |
| B207 | Validation | 0.9784  | High Risk | No |
| C631 | Validation | 0.2967  | Low Risk | Yes |
| B203 | Validation | 0.0588  | Low Risk | No |
| B209 | Validation | 0.3127  | Low Risk | No |
| B208 | Validation | 0.5090  | High Risk | No |
| B210 | Validation | 0.9966  | High Risk | No |
| B211 | Validation | 0.9591  | High Risk | No |
| B212 | Validation | 0.4641  | Low Risk | No |
| B213 | Validation | 0.1401  | Low Risk | No |
| B215 | Validation | 0.5955  | High Risk | No |
| B217 | Validation | 0.9053  | High Risk | No |
| B220 | Validation | 0.7923  | High Risk | No |
| B221 | Validation | 0.6898  | High Risk | No |
| B222 | Validation | 0.3758  | Low Risk | No |
| B219 | Validation | 0.1259  | Low Risk | No |
| B223 | Validation | 0.1179  | Low Risk | No |
| B216 | Validation | 0.6620  | High Risk | No |
| C672 | Validation | 0.0260  | Low Risk | Yes |
| B218 | Validation | 0.9983  | High Risk | No |
| B214 | Validation | 0.8199  | High Risk | No |
| C694 | Validation | 0.1127  | Low Risk | Yes |
| C058 | Validation | 0.2179  | Low Risk | No |
| C377 | Validation | 0.0687  | Low Risk | No |
| A390 | Validation | 0.9993  | High Risk | No |
| C374 | Validation | 0.0254  | Low Risk | No |
| C381 | Validation | 0.9445  | High Risk | No |
| C385 | Validation | 0.1770  | Low Risk | No |
| C391 | Validation | 0.1796  | Low Risk | No |
| C392 | Validation | 0.0290  | Low Risk | No |
| C396 | Validation | 0.0958  | Low Risk | No |
| C400 | Validation | 0.1955  | Low Risk | No |
| C409 | Validation | 0.8060  | High Risk | No |
| C418 | Validation | 0.0530  | Low Risk | No |
| C393 | Validation | 0.9965  | High Risk | No |
| C433 | Validation | 0.0650  | Low Risk | No |
| C436 | Validation | 0.6070  | High Risk | No |
| C444 | Validation | 0.1839  | Low Risk | No |
| C434 | Validation | 0.1265  | Low Risk | No |
| C456 | Validation | 0.3545  | Low Risk | No |
| C461 | Validation | 0.1328  | Low Risk | No |
| C460 | Validation | 0.1453  | Low Risk | No |
| C463 | Validation | 0.5041  | High Risk | No |
| C467 | Validation | 0.0348  | Low Risk | No |
| C424 | Validation | 0.3093  | Low Risk | No |
| C428 | Validation | 0.8879  | High Risk | Yes |
| C499 | Validation | 0.0831  | Low Risk | No |
| C495 | Validation | 0.1938  | Low Risk | No |
| C498 | Validation | 0.3303  | Low Risk | No |
| C503 | Validation | 0.0388  | Low Risk | No |
| C511 | Validation | 0.9819  | High Risk | No |
| C501 | Validation | 0.9949  | High Risk | No |
| C475 | Validation | 0.4351  | Low Risk | No |
| C488 | Validation | 0.0987  | Low Risk | No |
| C520 | Validation | 0.1097  | Low Risk | No |
| C507 | Validation | 0.9977  | High Risk | No |
| C509 | Validation | 0.1016  | Low Risk | No |
| C504 | Validation | 0.1222  | Low Risk | No |
| C515 | Validation | 0.7645  | High Risk | No |
| C526 | Validation | 0.1797  | Low Risk | No |
| C470 | Validation | 0.9919  | High Risk | No |
| C479 | Validation | 0.0285  | Low Risk | Yes |
| C474 | Validation | 0.5704  | High Risk | No |
| C522 | Validation | 0.0553  | Low Risk | No |
| C532 | Validation | 0.3156  | Low Risk | No |
| C528 | Validation | 0.6760  | High Risk | No |
| C549 | Validation | 0.2065  | Low Risk | No |
| C556 | Validation | 0.9051  | High Risk | No |
| B178 | Validation | 0.4240  | Low Risk | No |
| C513 | Validation | 0.8760  | High Risk | No |
| B182 | Validation | 0.5688  | High Risk | No |
| B184 | Validation | 0.9742  | High Risk | No |
| C530 | Validation | 0.5172  | High Risk | No |
| C540 | Validation | 0.8357  | High Risk | No |
| C543 | Validation | 0.2696  | Low Risk | No |
| B183 | Validation | 0.0608  | Low Risk | No |
| B185 | Validation | 0.0891  | Low Risk | No |
| B186 | Validation | 0.7309  | High Risk | No |
| B187 | Validation | 0.7044  | High Risk | No |
| B188 | Validation | 0.4949  | Low Risk | No |
| B189 | Validation | 0.4421  | Low Risk | No |
| B193 | Validation | 0.0740  | Low Risk | No |
| B192 | Validation | 0.4915  | Low Risk | No |
| B194 | Validation | 0.9542  | High Risk | No |
| B179 | Validation | 0.9996  | High Risk | No |
| B195 | Validation | 0.9872  | High Risk | No |
| B196 | Validation | 0.9893  | High Risk | No |
| B204 | Validation | 0.0442  | Low Risk | No |
| C118 | Validation | 0.3041  | Low Risk | No |
| B191 | Validation | 0.9804  | High Risk | No |
| B200 | Validation | 0.9107  | High Risk | No |
| B201 | Validation | 0.4933  | Low Risk | No |
| B202 | Validation | 0.0529  | Low Risk | No |
| B197 | Validation | 0.9908  | High Risk | No |
| C448 | Validation | 0.8102  | High Risk | No |
| B199 | Validation | 0.8145  | High Risk | No |
| B116 | Validation | 0.0275  | Low Risk | No |
| C833 | Validation | 0.9886  | High Risk | No |
| C757 | Validation | 0.0861  | Low Risk | No |
| C866 | Validation | 0.9973  | High Risk | Yes |
| C872 | Validation | 0.5868  | High Risk | Yes |
| B126 | Validation | 0.0502  | Low Risk | No |
| C795 | Validation | 0.1725  | Low Risk | Yes |
| D405 | Validation | 0.8758  | High Risk | Yes |
| D406 | Validation | 0.0665  | Low Risk | Yes |
| D408 | Validation | 0.8909  | High Risk | Yes |
| D407 | Validation | 0.6425  | High Risk | Yes |
| C960 | Validation | 0.3014  | Low Risk | Yes |
| C962 | Validation | 0.9921  | High Risk | Yes |
| C963 | Validation | 0.2435  | Low Risk | Yes |
| C964 | Validation | 0.1290  | Low Risk | Yes |
| C965 | Validation | 0.9488  | High Risk | Yes |
| C966 | Validation | 0.3589  | Low Risk | No |
| B132 | Validation | 0.8929  | High Risk | No |
| D413 | Validation | 0.6411  | High Risk | Yes |
| D411 | Validation | 0.7786  | High Risk | Yes |
| D412 | Validation | 0.9124  | High Risk | Yes |