**Supplementary Table 3.** The subsets of SNPs that led to the highest classification accuracy among all subsets of SNPs with the same size from the MDR results.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Size** | **Subset of SNPs** | **Classification**  **Accuracy** | **Prediction**  **Accuracy** | **CVC** | **Permutation**  ***p*-value** |
| 1 | {*APOE* (rs429358)} | 0.6969 | 0.6969 | 10/10 | < 0.001 |
| 2 | {*APOE* (rs429358), *ADAMTS18* (rs11640912)} | 0.7143 | 0.7143 | 10/10 | < 0.001 |
| 3 | {*APOE* (rs429358), *ADAMTS18* (rs11640912), *PLAAT5* (rs940611)} | 0.7330 | 0.6876 | 5/10 | < 0.001 |
| 4 | {*APOE* (rs429358), *IL10RA* (rs2256111), *IQCN* (rs8110972), *PXMP4* (rs910397)} | 0.7650 | 0.6740 | 5/10 | < 0.001 |
| 5 | {*APOE* (rs429358), *ADAMTS18* (rs11640912), *IL10RA* (rs2256111),  *IQCN* (rs8110972), *PXMP4* (rs910397)} | 0.8115 | 0.6464 | 6/10 | < 0.005 |
| 6 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912),  *IL10RA* (rs2256111), *IQCN* (rs8110972), *PXMP4* (rs910397)} | 0.8568 | 0.6435 | 9/10 | < 0.005 |
| 7 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912),  *IL10RA* (rs2256111), *IQCN* (rs8110972), *MINDY4* (rs10216063),  *PXMP4* (rs910397)} | 0.8965 | 0.6379 | 10/10 | < 0.005 |
| 8 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912),  *IL10RA* (rs2256111), *IQCN* (rs8110972), *MINDY4* (rs10216063),   *PLAAT5* (rs940611), *PXMP4* (rs910397)} | 0.9137 | 0.6373 | 8/10 | < 0.005 |
| 9 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912), *APOE* (rs7412), *IL10RA* (rs2256111), *IQCN* (rs8110972), *MINDY4* (rs10216063), *PLAAT5* (rs940611), *PXMP4* (rs910397)} | 0.9250 | 0.6484 | 10/10 | < 0.005 |
| 10 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912), *APOE* (rs7412), *IL10RA* (rs2256111), *IQCN* (rs3746186), *IQCN* (rs8110972), *MINDY4* (rs10216063), *PLAAT5* (rs940611), *PXMP4* (rs910397)} | 0.9250 | 0.6484 | 10/10 | < 0.005 |
| 11 | {*APOE* (rs429358), *ABHD1* (rs2304678), *ADAMTS18* (rs11640912), *APOE* (rs7412), *IL10RA* (rs2256111), *IQCN* (rs8104533), *IQCN* (rs3746186), *IQCN* (rs8110972), *MINDY4* (rs10216063), *PLAAT5* (rs940611), *PXMP4* (rs910397)} | 0.9250 | 0.6484 | 10/10 | < 0.005 |

The sizes of the subsets of SNPs varied from one to eleven. The optimal subset of SNPs that led to the highest prediction accuracy consisted of two SNPs. The null hypothesis of no association between each subset of SNPs and the disease was tested using a permutation test where the test statistic was the prediction accuracy. CVC denotes cross-validation consistency.