|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **OMIM disease** | **HI** | **HI and *de novo*** | **Essential Gene List** | Pearson’s *r* (*r2*) to ncRVIS |
| **Number of genes** | 1,232 | 87 | 47 | 1,098 | - |
| **RVIS (6503)** | **1.3x10-18**AUC=0.594[0.58-0.61] | **2.9x10-13**AUC=0.711[0.66-0.76] | **1.1x10-10**AUC=0.769[0.71-0.82] | **1.1x10-43**AUC=0.647[0.63-0.66] | 0.21 (0.042) |
| **ncRVIS (690)** | **0.42**AUC=0.506[0.49-0.52] | **1.9x10-5**AUC=0.610[0.55-0.67] | **1.4x10-6**AUC=0.637[0.56-0.71] | **5.5x10-13**AUC=0.581[0.56-0.60] | **1 (1)** |
| **ncRVIS (promoter)** | **0.19**AUC=0.510[0.49-0.53] | **0.024**AUC=0.563[0.50-0.62] | **0.064**AUC=0.557[0.48-0.63] | **3.1x10-4**AUC=0.548[0.53-0.57] | **0.50 (0.247)** |
| **ncRVIS (5’UTR)** | **0.025**AUC=0.511[0.49-0.53] | **0.012**AUC=0.560[0.50-0.62] | **0.088**AUC=0.554[0.46-0.64] | **5.1x10-6**AUC=0.546[0.53-0.56] | **0.44 (0.197)** |
| **ncRVIS (3’UTR)** | **0.98**AUC=0.506[0.49-0.52] | **1.2x10-4**AUC=0.587[0.53-0.65] | **1.4x10-7**AUC=0.631[0.55-0.71] | **2.0x10-8**AUC=0.568[0.55-0.59] | **0.89 (0.790)** |

**S3 Table.** Based on the intersecting 9,644 (57%) CCDS release 9 genes that had all the following RVIS “assessable” formulations: an original RVIS score (Petrovski et al 2013), a ncRVIS, a promoter ncRVIS, a 5’ UTR ncRVIS, and a 3’ UTR ncRVIS.

To obtain the presented levels of significance, we used a logistic regression model to regress the presence or absence of a gene, within the corresponding gene list, on each of the genic scores. The [95% CI] for the AUC estimates are provided for each cell. Correlation plots for the pairs of scores are available in Fig S1.