Table S1: The number of samples in the 37 datasets after CD-HIT removal of redundancy

|  |  |  |  |
| --- | --- | --- | --- |
| ***Dataset*** | ***Number*** | ***Train*** | ***Test*** |
| AGO1 | 17318 | 13854 | 3464 |
| AGO2 | 20000 | 16000 | 4000 |
| AGO3 | 3124 | 2499 | 625 |
| ALKBH5 | 770 | 616 | 154 |
| AUF1 | 2896 | 2316 | 580 |
| C17ORF85 | 1016 | 813 | 203 |
| C22ORF28 | 5292 | 4234 | 1058 |
| CAPRIN1 | 5298 | 4238 | 1060 |
| DGCR8 | 20000 | 16000 | 4000 |
| EIF4A3 | 20000 | 16000 | 4000 |
| EWSR1 | 4695 | 3756 | 939 |
| FMRP | 20000 | 16000 | 4000 |
| FOX2 | 605 | 484 | 121 |
| FUS | 20000 | 16000 | 4000 |
| FXR1 | 927 | 742 | 185 |
| FXR2 | 5635 | 4508 | 1127 |
| HNRNPC | 4197 | 3358 | 839 |
| HUR | 20000 | 16000 | 4000 |
| IGF2BP1 | 20000 | 16000 | 4000 |
| IGF2BP2 | 10000 | 8000 | 2000 |
| IGF2BP3 | 20000 | 16000 | 4000 |
| LINA8A | 18277 | 14622 | 3655 |
| LIN28B | 7888 | 6310 | 1578 |
| METTL3 | 2664 | 2131 | 533 |
| MOV10 | 5889 | 4711 | 1178 |
| PTB | 20000 | 16000 | 4000 |
| PUM2 | 2329 | 1863 | 466 |
| QKI | 1033 | 826 | 207 |
| SFRS1 | 8595 | 6876 | 1719 |
| TAF15 | 1467 | 1174 | 293 |
| TDP43 | 5484 | 4387 | 1097 |
| TIA1 | 2202 | 1762 | 440 |
| TIAL1 | 5456 | 4365 | 1091 |
| TNRC6 | 1101 | 881 | 220 |
| U2AF65 | 8224 | 6579 | 1645 |
| WTAP | 446 | 357 | 89 |
| ZC3H7B | 13119 | 10495 | 2624 |
| **TOTAL** | **325947** | **260757** | **65190** |

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| --- | --- | --- |
| Table S2: The motif analysis on 37 CircRNA datasets using MEME Suite | | |
| AGO1 | AGO2 | AGO3 |
| **AGO1** | **AGO2** | **AGO3** |
| ALKBH5 | AUF1 | C17ORF85 |
| **ALKBH5** | **AUF1** | **C17ORF85** |
| C22ORF28 | CAPRIN1 | DGCR8 |
| **C22ORF28** | **CAPRIN1** | **DGCR8** |
| EIF4A3 | EWSR1 | FMRP |
| **EIF4A3** | **EWSR1** | **FMPR** |
| FOX2 | FUS | FXR1 |
| **FOX2** | **FUS** | **FXR1** |
| FXR2 | HNRNPC | HUR |
| **FXR2** | **HNRNPC** | **HUR** |
| IGF2BP1 | IGF2BP2 | IGF2BP3 |
| **IGF2BP1** | **IGF2BP2** | **IGF2BP3** |
| **LIN28A** | **LIN28B** | **METTL3** |
| **LIN28A** | **LIN28B** | **METTL3** |
| MOV10 | PTB | PUM2 |
| **MOV10** | **PTB** | **PUM2** |
| QKI | SFRS1 | TAF15 |
| **QKI** | **SFRS1** | **TAF15** |
| TDP43 | TIA1 | TIAL1 |
| **TDP43** | **TIA1** | **TIAL1** |
| TNRC6 | U2AF65 | WTAP |
| **TNRC6** | **U2AF65** | **WTAP** |
| ZC3H7B |  |  |
| **ZC3H7B** |  |  |

Table S3: Comparison of prediction performance under different classification models on 37 CircRNA datasets.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Datasets** | ***CircRB*** | ***CRIP*** | ***PASSION*** | ***iCircRBP-***  ***DHN*** | ***CRPBsites*** | ***CRBSP*** |
| **AGO1** | 0.7048 | 0.9017 | 0.9315 | **0.9554** | 0.8793 | 0.9436 |
| **AGO2** | 0.6522 | 0.8034 | 0.8526 | **0.8969** | 0.801 | 0.8505 |
| **AGO3** | 0.6527 | 0.8909 | 0.939 | 0.7772 | 0.8753 | **0.9780** |
| **ALKBH5** | 0.5437 | 0.7554 | 0.813 | 0.8831 | 0.7377 | **0.9733** |
| **AUF1** | 0.88 | 0.9818 | 0.9872 | 0.9782 | 0.9805 | **0.9903** |
| **C17ORF85** | 0.6854 | 0.8429 | 0.908 | 0.9454 | 0.8256 | **0.9548** |
| **C22ORF28** | 0.7823 | 0.8617 | 0.9193 | **0.9703** | 0.8567 | 0.9415 |
| **CAPRIN1** | 0.7046 | 0.8384 | 0.8946 | 0.8858 | 0.8358 | **0.9197** |
| **DGCR8** | 0.7607 | 0.9093 | 0.9326 | 0.8538 | 0.9062 | **0.9493** |
| **EIF4A3** | 0.7193 | 0.8044 | 0.8476 | **0.8823** | 0.8045 | 0.8532 |
| **EWSR1** | 0.7430 | 0.9342 | 0.9583 | 0.7829 | 0.9300 | **0.9752** |
| **FMRP** | 0.7753 | 0.8988 | 0.9202 | 0.9111 | 0.8886 | **0.9355** |
| **FOX2** | 0.6507 | 0.7778 | 0.8392 | 0.861 | 0.8137 | **0.9733** |
| **FUS** | 0.6903 | 0.8368 | 0.8892 | **0.9321** | 0.8447 | 0.8982 |
| **FXR1** | 0.7691 | 0.9504 | 0.9664 | 0.8261 | 0.9081 | **0.9826** |
| **FXR2** | 0.7398 | 0.9369 | 0.9585 | **0.9754** | 0.9218 | 0.9674 |
| **HNRNPC** | 0.9505 | 0.9638 | **0.9865** | 0.8895 | 0.9799 | 0.9844 |
| **HUR** | 0.7080 | 0.8528 | 0.9098 | **0.9571** | 0.8741 | 0.9172 |
| **IGF2BP1** | 0.7167 | 0.8276 | 0.8645 | 0.8382 | 0.8481 | **0.9049** |
| **IGF2BP2** | 0.6857 | 0.7919 | **0.8692** | 0.8316 | 0.8216 | 0.8615 |
| **IGF2BP3** | 0.6702 | 0.7911 | 0.8472 | 0.7902 | 0.8060 | **0.8866** |
| **LIN28A** | 0.7149 | 0.8423 | 0.8946 | 0.7784 | 0.8528 | **0.8960** |
| **LIN28B** | 0.6645 | 0.8755 | 0.9079 | 0.8294 | 0.8723 | **0.9108** |
| **METTL3** | 0.7479 | 0.8402 | 0.8925 | 0.8617 | 0.8178 | **0.9415** |
| **MOV10** | 0.7012 | 0.8356 | 0.8575 | 0.8347 | 0.8326 | **0.8929** |
| **PTB** | 0.6781 | 0.917 | 0.8532 | 0.8289 | 0.8226 | **0.8589** |
| **PUM2** | 0.8817 | 0.9525 | 0.9655 | 0.7756 | 0.9527 | **0.9782** |
| **QKI** | 0.8315 | 0.917 | 0.9368 | 0.9429 | 0.8996 | **0.9837** |
| **SFRS1** | 0.8962 | 0.9584 | 0.9728 | 0.9708 | 0.9601 | **0.9758** |
| **TAF15** | 0.7929 | 0.9652 | 0.9845 | 0.9588 | 0.9808 | **0.9872** |
| **TDP43** | 0.8613 | 0.927 | 0.9415 | **0.9591** | 0.9306 | 0.9470 |
| **TIA1** | 0.8724 | 0.9345 | 0.9510 | 0.9225 | 0.9372 | **0.9580** |
| **TIAL1** | 0.8530 | 0.8993 | 0.9232 | **0.9507** | 0.9000 | 0.9249 |
| **TNRC6** | 0.5804 | 0.7363 | 0.8413 | 0.8994 | 0.7598 | **0.9229** |
| **U2AF65** | 0.8484 | 0.9268 | 0.9468 | 0.9437 | 0.9192 | **0.9525** |
| **WTAP** | 0.5886 | 0.7503 | 0.8059 | 0.9091 | 0.8079 | **0.9897** |
| **ZC3H7B** | 0.6566 | 0.7693 | 0.8369 | 0.797 | 0.7884 | **0.8800** |
| **AVG** | **0.7516** | **0.8702** | **0.9067** | **0.8861** | **0.8696** | **0.9362** |

Figure S1~Figure S37

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