

## Supplementary

**Table S1** GSEA analysis of genes associated with the expression of RBM39

| Description                   | NES   | P. adjust | Q value | Core enrichment  |
|-------------------------------|-------|-----------|---------|--|
| KEGG_CELL_CYCLE               | 2.751 | 0.0286    | 0.0228  | CDC45/CDC20/CCNB2/CCNA2/CDK1/MAD2L1/TTK/CHEK1/CCNB1/MCM5/PTTG1/MCM2/CDC25A/CDC6/PLK1/BUB1B/ESPL1/CCNE1/ORC6/ORC1/CCNE2/MCM6/MCM4/DBF4/SKP2/CDC25B/BUB1/MYC/PCNA/E2F1/CDKN2A/CDC7/MCM7/SFN/HDAC2/E2F3/CDKN2C/PKMYT1/CDC25C/CDK4/MCM3/RAD21/CHEK2/TFDP1/E2F5/YWHAZ |
| KEGG_DNA_REPLICATION          | 2.356 | 0.0286    | 0.0228  | MCM5/MCM2/MCM6/MCM4/FEN1/RFC4/PCNA/RNASEH2A/DNA2/POLE2/POLA2/MCM7/RFC2/PRIM1/PRIM2/MCM3/POLD1/RFC3/POLD2/POLE3/RPA3  |
| KEGG_P53_SIGNALING_PATHWAY    | 1.823 | 0.0286    | 0.0228  | CCNB2/RRM2/CDK1/CHEK1/CCNB1/GTSE1/CCNE1/CCNE2/SERPINB5/CDKN2A/SFN/CYCS/CDK4/BID/ADGRB1/CHEK2   |
| KEGG_PRIMARY_IMMUNODEFICIENCY | 2.044 | 0.0286    | 0.0228  | ICOS/TAP1/LCK/IL2RG/IL7R/CD3D/CD40LG/CD8A/PTPRC/CD3E/ADAM/UNG/TAP2/CD19  |

GSEA, gene set enrichment analysis; RBM39, RNA-binding motif protein 39; NES, Normalized Enrichment Score.

**Table S2** Correlation between RBM39 expression and clinical characteristics of 66 HCC patients

| Characteristic            | Low expression of RBM39 | High expression of RBM39 | P     |
|---------------------------|-------------------------|--------------------------|-------|
| Gender, n (%)             |                         |                          | >0.99 |
| Female                    | 5 (7.58)                | 4 (6.06)                 |       |
| Male                      | 28 (42.42)              | 29 (43.94)               |       |
| Age, n (%)                |                         |                          | 0.196 |
| ≤60                       | 24 (36.36)              | 19 (28.79)               |       |
| >60                       | 9 (13.64)               | 14 (21.21)               |       |
| Pathological stage, n (%) |                         |                          | 0.284 |
| I-II                      | 21 (31.82)              | 25 (37.88)               |       |
| III                       | 12 (18.18)              | 8 (12.12)                |       |
| T stage, n (%)            |                         |                          | 0.428 |
| T1                        | 21 (31.82)              | 24 (36.36)               |       |
| T2-T3                     | 12 (18.18)              | 9 (13.64)                |       |
| N stage, n (%)            |                         |                          | >0.99 |
| N0                        | 32 (48.48)              | 33 (50.00)               |       |
| N1                        | 1 (1.52)                | 0 (0.00)                 |       |
| M stage, n (%)            |                         |                          | >0.99 |
| M0                        | 33 (50.00)              | 32 (48.48)               |       |
| M1                        | 0 (0.00)                | 1 (1.52)                 |       |
| Clinical stage, n (%)     |                         |                          | >0.99 |
| I-II                      | 28 (42.42)              | 29 (43.94)               |       |
| III-IV                    | 5 (7.58)                | 4 (6.06)                 |       |
| Recurrence, n (%)         |                         |                          | 0.460 |
| No recurrence             | 18 (27.27)              | 15 (22.73)               |       |
| Relapse                   | 15 (22.73)              | 18 (27.27)               |       |

RBM39, RNA-binding motif protein 39; HCC, hepatocellular carcinoma.