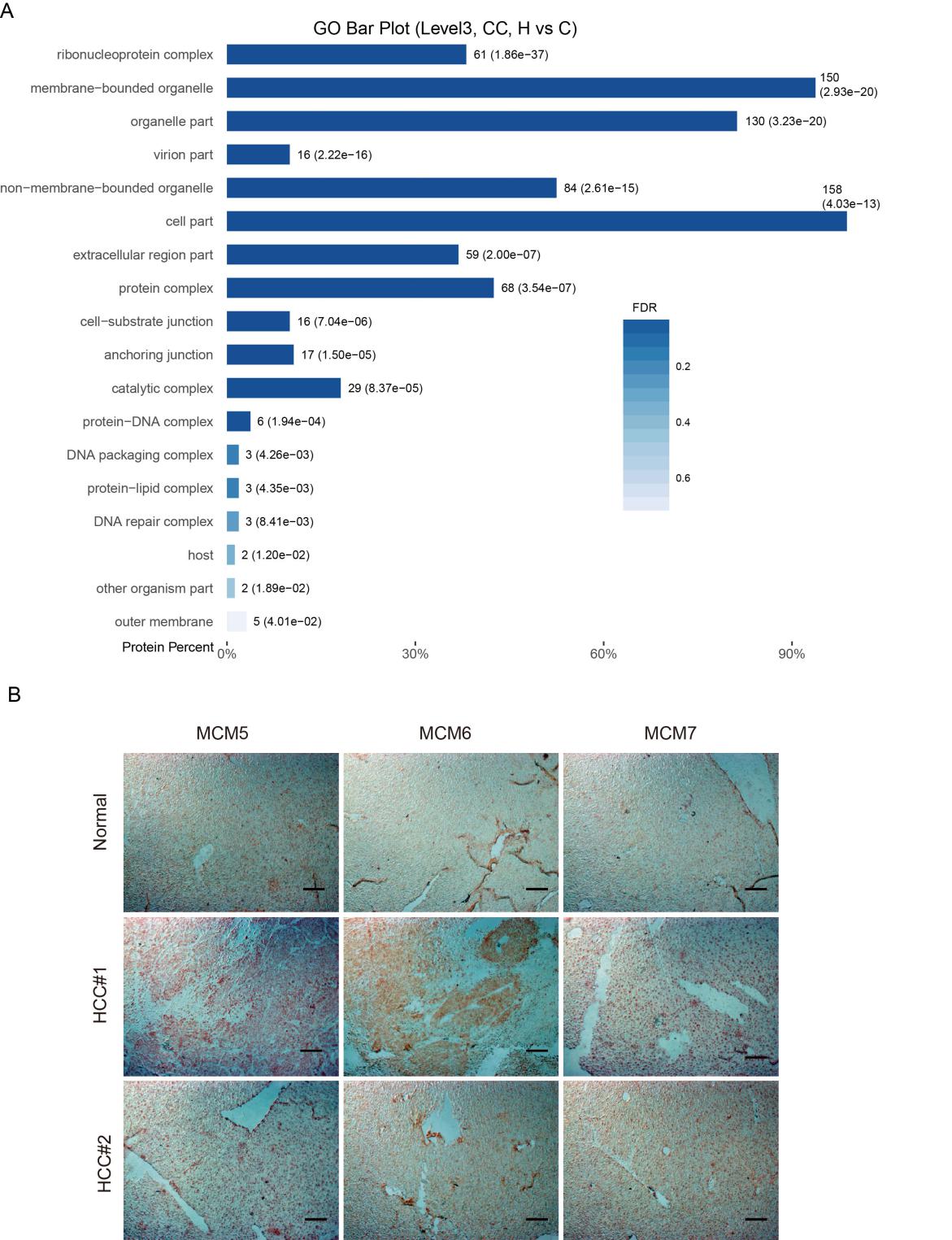
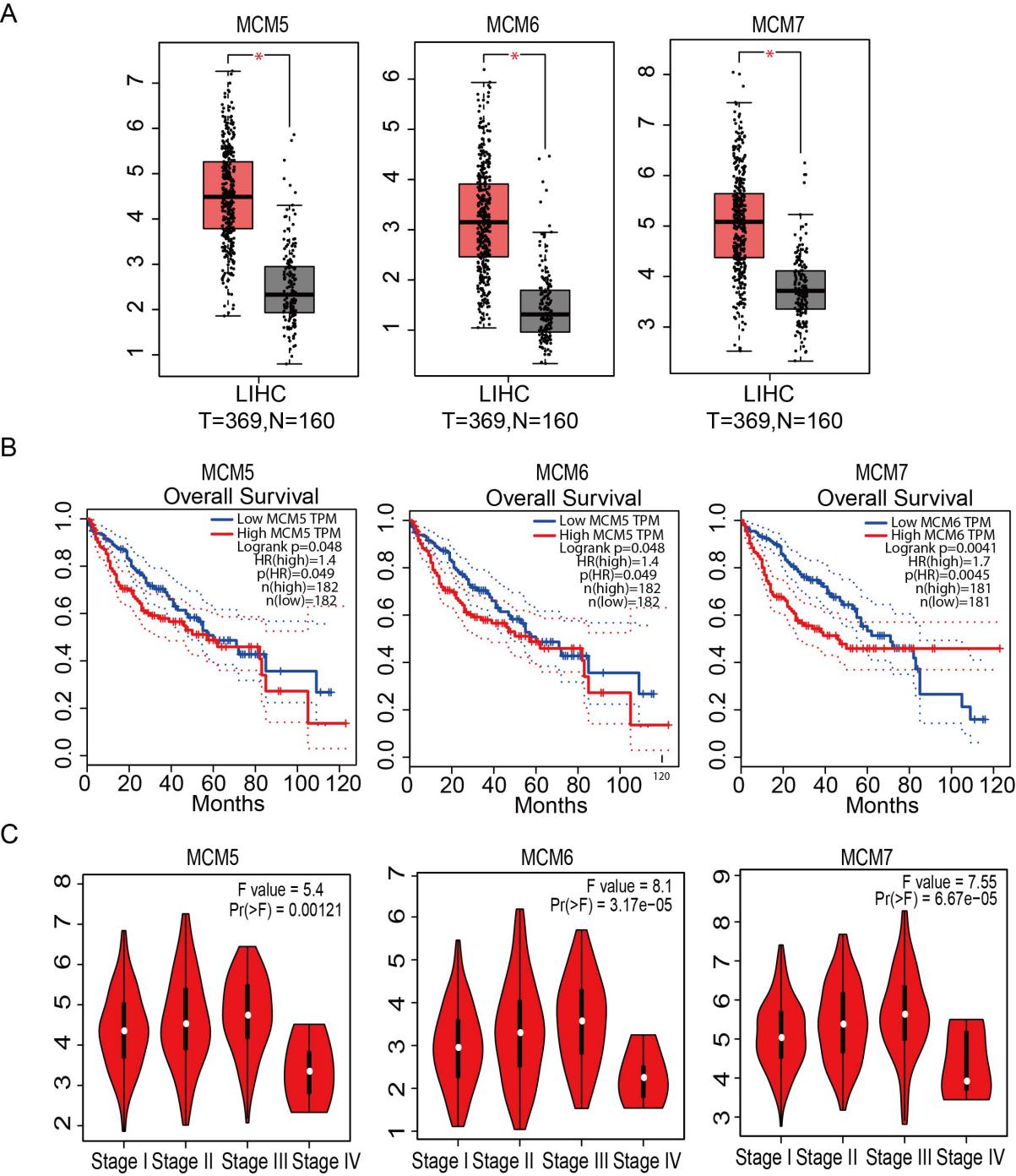
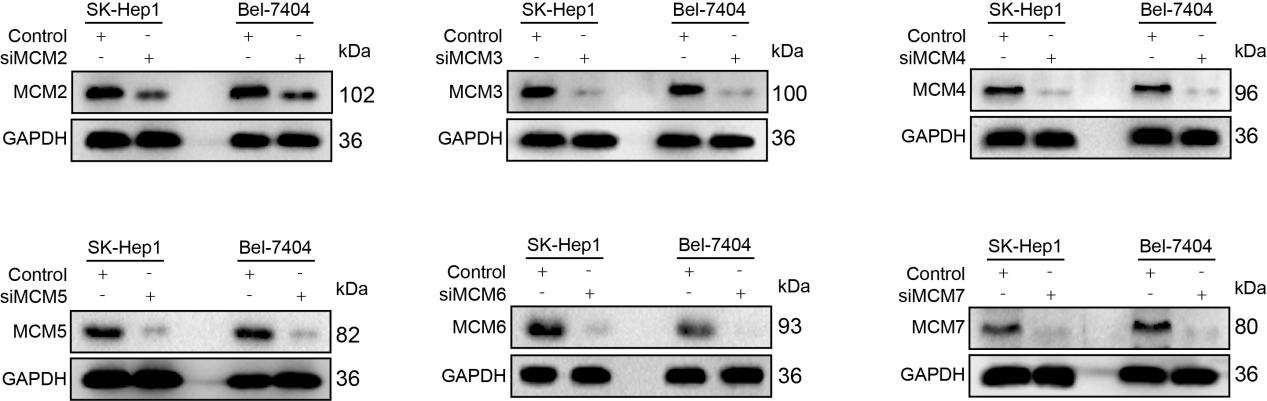
**Supplementary materials**



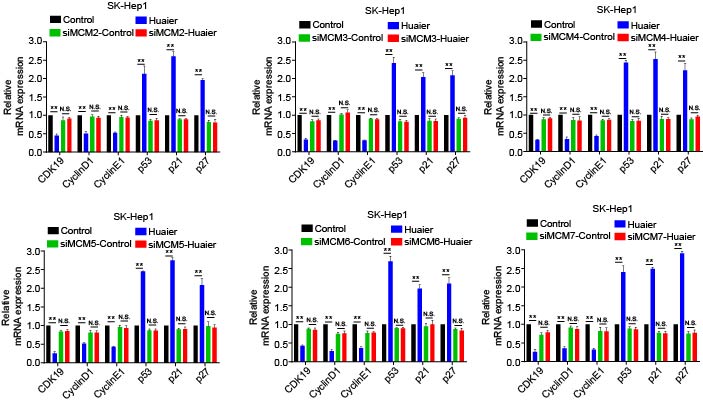
**Fig. S1 Bioinformatics analysis of differentially expressed proteins after Huaier treatment.** (A) Pie diagram of GO enrichment of differential proteins. The three basic classifications of Go term. CC: cellular component. (B) Representative IHC images of MCM5, MCM6, and MCM7 staining from normal liver tissues and HCC tissues, scar bar 100μm.



**Fig. S2** **Up-regulated of MCM proteins were closely correlated with shorter survival time and inhibited by Huaier.** (A) Relative expression levels of MCM5, MCM6, and MCM7 in 369 HCC tissues and 160 normal tissues retrieved form GEPIA database. (B) Kaplan-Meier survival curves for HCC patients with low (n=182) or high (n=182) MCM expressions (MCM5, MCM6, and MCM7) got from GEPAI database. (C) The correlations of MCM5, MCM6, and MCM7 proteins with clinicopathologic stages extract from database.



**Fig. S3 Western blot analysis of MCMs expressions in SK-Hep1 and Bel-7404 cells transfected with siRNA against indicated MCM.**

****

**Fig.S4 Huaier suppressed SK-Hep1 cell cycle via regulating MCM proteins. (A-F)** The mRNA levels of cell cycle related genes in SK-Hep1 cell lines treated with Huaier (0 and 15 mg/ml) for 24 h with or without a knockdown of indicated MCM.

**Table S1. Sequence for siRNAs**

|  |  |
| --- | --- |
| Name | Sequence (5’→3’) |
| siMCM2-F | GCGACAUGUGCAAAGAGAACC |
| siMCM2-R | UUCUCUUUGCACAUGUCGCUG |
| siMCM3-F | GGCUGAUUGUCAAUGUGAAUG |
| siMCM3-R | UUCACAUUGACAAUCAGCCGG |
| siMCM4-F | CGACAGCUAGAGUCAUUAAUC |
| siMCM4-R | UUAAUGACUCUAGCUGUCGAG |
| siMCM5-F | CGAACUUGAAGUAAGAUUAUU |
| siMCM5-R | UAAUCUUACUUCAAGUUCGUG |
| siMCM6-F | CGAAGAUUGAGAUAGUGAAAG |
| siMCM6-R | UUCACUAUCUCAAUCUUCGAG |
| siMCM7-F | CGACCGAGACAAUGACCUACG |
| siMCM7-R | UAGGUCAUUGUCUCGGUCGGG |

**Table S2. Primers for qRT-PCR**

|  |  |  |
| --- | --- | --- |
| Name | 5’－3’（Forward） | 5’－3’(Reverse) |
| GAPDH | GGGTGTGAACCATGAGAAGTATG | AGTAGAGGCAGGGATGATGTTCT |
| MCM2 | TGCCAGCATTGCTCCTTCCATC | AAACTGCGACTTCGCTGTGCCA |
| MCM3 | CGAGACCTAGAAAATGGCAGCC | GCAGTGCAAAGCACATACCGCA |
| MCM4 | CTTGCTTCAGCCTTGGCTCCAA | GTCGCCACACAGCAAGATGTTG |
| MCM5 | GACTTACTCGCCGAGGAGACAT | TGCTGCCTTTCCCAGACGTGTA |
| MCM6 | GACAACAGGAGAAGGGACCTCT | GGACGCTTTACCACTGGTGTAG |
| MCM7 | GCCAAGTCTCAGCTCCTGTCAT | CCTCTAAGGTCAGTTCTCCACT |
| CDK19 | GGATTTGTTTGAGTACGAAGGGT | CTACAAGCCGACATGGATATTCC |
| Cyclin D1 | GCTGCGAAGTGGAAACCATC | CCTCCTTCTGCACACATTTGAA |
| Cyclin E1 | AAGGAGCGGGACACCATGA | ACGGTCACGTTTGCCTTCC |
| p53 | CAGCACATGACGGAGGTTGT | TCATCCAAATACTCCACACGC |
| p21 | TGTCCGTCAGAACCCATGC | AAAGTCGAAGTTCCATCGCTC |
| p27 | AACGTGCGAGTGTCTAACGG | CCCTCTAGGGGTTTGTGATTCT |