

Supplemental materials

DDX21 Interacts with WDR5 to Promote Colorectal Cancer Cell Proliferation by Activating CDK1 Expression

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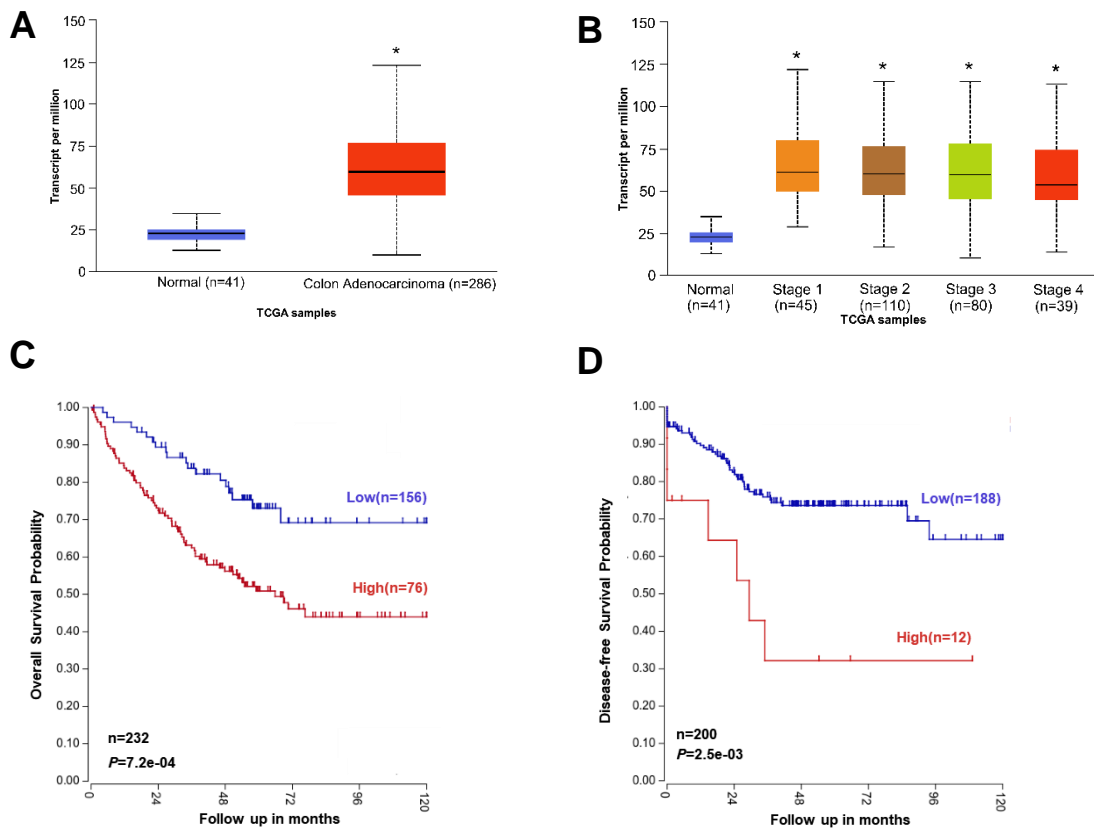


Figure. S1 DDX21 is overexpressed in CRC and correlated with poor prognosis. A, DDX21 is highly expressed in colon adenocarcinoma compared with normal tissues. B, DDX21 is overexpressed from stage 1 to stage 4 of colon adenocarcinoma. Analysis was performed by UALCAN. C, D, Overall survival and progression-free survival curves indicates that CRC patients with high DDX21 expression have obviously lower overall survival rates than those with low DDX21 expression (GSE17538). * $P < 0.05$.

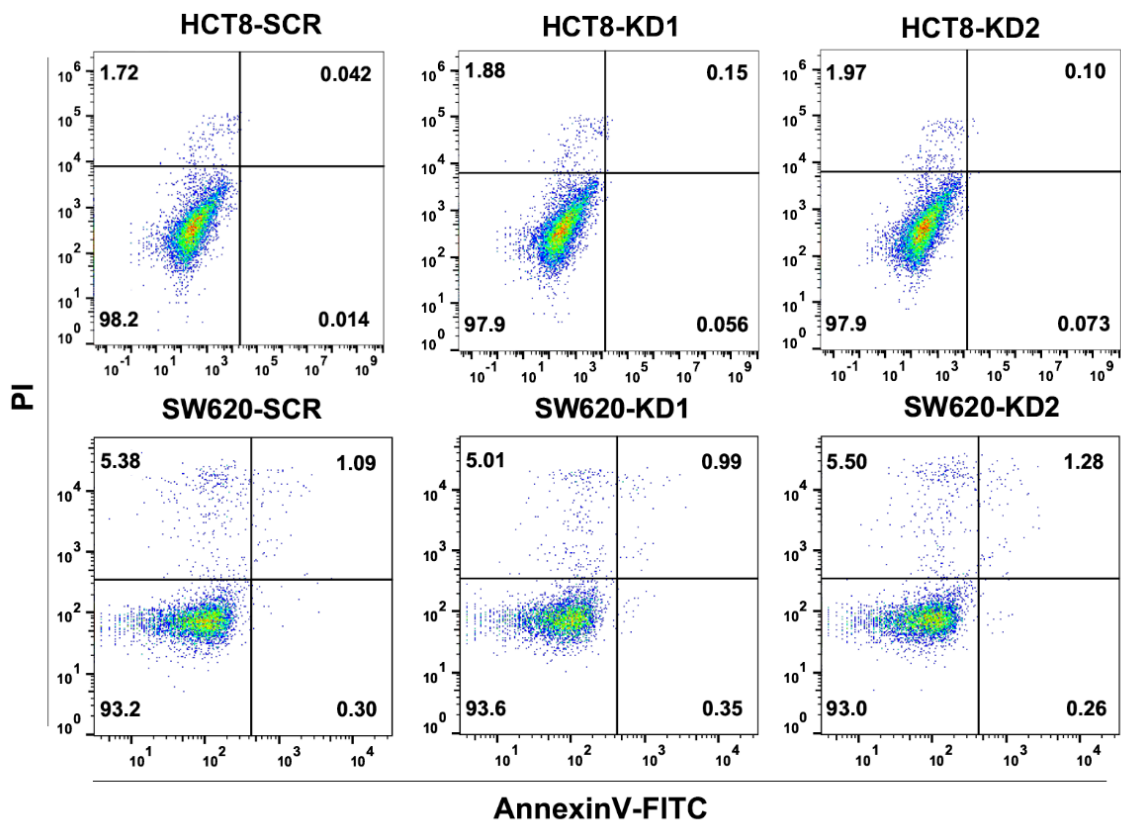


Figure. S2 Knocking down DDX21 does not affect apoptosis. Flow cytometry analyses the effects of DDX21 blockade on HCT8 and SW620 cell apoptosis.

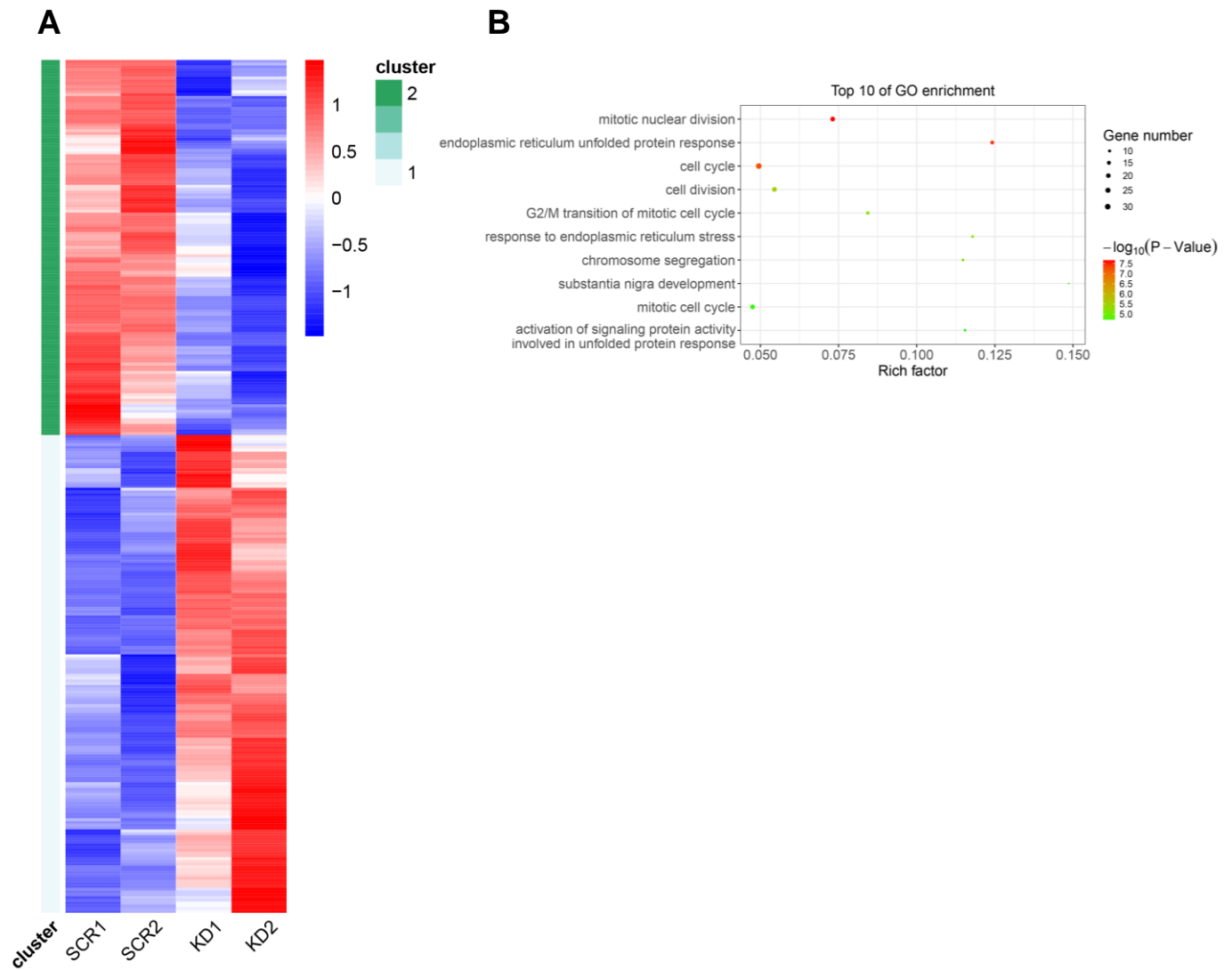


Figure. S3 RNAseq analysis of DDX21 knocking down cells. A, Heatmap of altered genes in DDX21 down expressed HCT8 cells compared with control cells. B, GO analysis for all genes with altered expressions, shows top 10 enrichment.

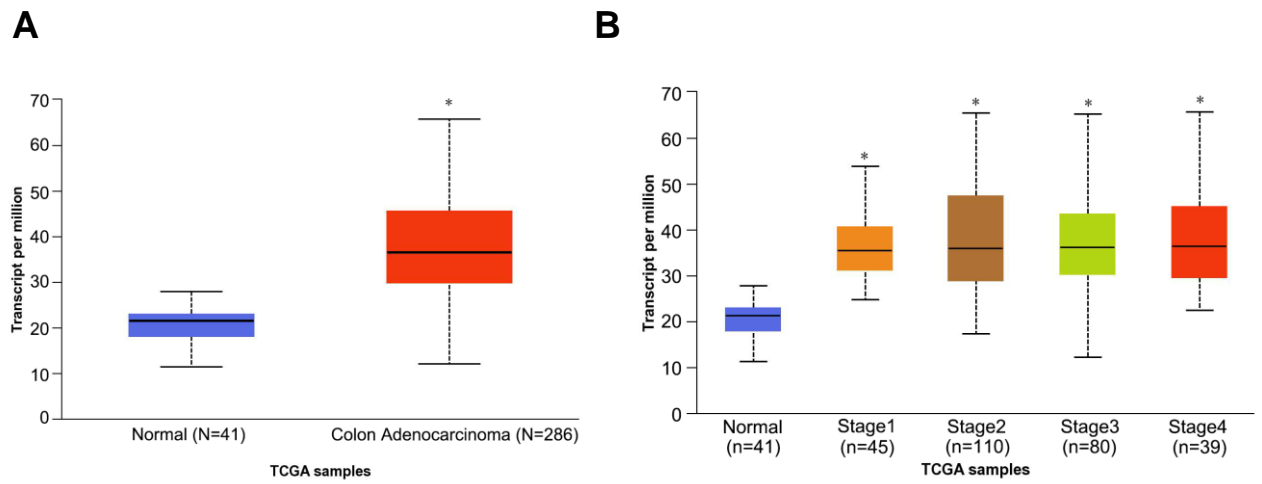


Figure. S4 WDR5 is overexpressed in CRC. WDR5 is highly expressed in colon adenocarcinoma compared with normal tissues. A, and is overexpressed from stage 1 to stage 4. B, Analysis was performed by UALCAN. * $P < 0.05$.

Table S1 Primers for mRNA qRT-PCR

| Gene Symbol | Forward (5'-3') | Reverse (5'-3') |
|--------------------|-------------------------|-------------------------|
| GAPDH | GAAGGTGAAGGTCGGAG | GAAGATGGTGATGGGATTTTC |
| DDX21 | TCATCAAGGACGCACTATCATCT | CCTTTCAGGGTGATTCCCTTT |
| CDK1 | AAACTACAGGTCAAGTGGTAGCC | TCCTGCATAAGCACATCCTGA |
| GMNN | AAAACGGAGAAAGGCGCTGTA | GGCGGGCAATTTTCATTGTCC |
| NUSAP1 | AGCCCATCAATAAGGGAGGG | ACCTGACACCCGTTTTAGCTG |
| CCNA2 | TGGAAAGCAAACAGTAAACAGCC | GGGCATCTTCACGCTCTAATT |
| CEP55 | AGTAAGTGGGGATCGAAGCCT | CTCAAGGACTCGAATTTTCTCCA |
| NEK2 | TGCTTCGTGAACTGAAACATCC | CCAGAGTCAACTGAGTCATCACT |
| PTTG1 | ACCCGTGTGGTTGCTAAGG | ACGTGGTGTTGAAACTTGAGAT |
| DLGAP5 | AAGTGGGTCGTTATAGACCTGA | TGCTCGAACATCACTCTCGTTAT |
| CCNB1 | AATAAGGCGAAGATCAACATGGC | TTTGTTACCAATGTCCCAAGAG |
| AURKA | GAGGTCCAAAACGTGTTCTCG | ACAGGATGAGGTACTACTGGTTG |
| TPX2 | ATGGAAGTGGAGGGCTTTTTTC | TGTTGTCAACTGGTTTCAAAGGT |
| CDCA2 | TGCCGAATTACCTCCTAATCCT | TGCTCTACGGTACTGTGGAAA |
| NES | GAAGGGCAATCACAACAGGTG | GGGGCCACATCATCTTCCA |
| BUB1 | TGGGAAAGATACATACAGTGGGT | AGGGGATGACAGGGTTCCAAT |
| FEN1 | ATGACATCAAGAGCTACTTTGGC | GGCGAACAGCAATCAGGAACT |
| HJURP | GATTCAAAAGCGGTGAGGTCG | CTCACCGCTTTTTGAATCGGC |
| NCAPD3 | TGGTGTCCGCTGGATCTTAGA | AGTCACACGTACATCCCTTCC |
| SPAG5 | TTGAGGCCCGTTTAGATACCA | GCTTTCCTTGGAGCAATGTAGTT |
| CDT1 | CGGTGGACGAGGTTTCCAG | CGGTGGACGAGGTTTCCAG |
| CCND1 | GCTGCGAAGTGGAACCATC | CCTCCTTCTGCACACATTTGAA |

Table S2 Antibodies

| Name | Source | Identifier |
|--------------------------------|---------------|-------------------|
| Rabbit monoclonal anti-DDX21 | abcam | ab182156 |
| Rabbit polyclonal anti-WDR5 | proteintech | 15544-1-AP |
| Rabbit polyclonal anti-CDK1 | proteintech | 19532-1-AP |
| Rabbit polyclonal anti-H3K4me3 | abcam | ab8580 |
| Rabbit polyclonal anti-HSP70 | ABclonal | A0284 |
| Mouse monoclonal anti-GAPDH | proteintech | HRP-60004 |
| Rabbit monoclonal anti-ACTB | ABclonal | AC026 |
| Rabbit polyclonal anti-Flag | proteintech | 20543-1-AP |

Table S3 Primers for ChIP qRT-PCR

| Primer of CDK1 Promoter | Forward (5'-3') | Reverse (5'-3') |
|--------------------------------|-------------------------|--------------------------|
| P1 | TCCAATTATCATCCTGCTCC | GCTATCATCTTGGCAAATACAGT |
| P2 | CACCAGATGATAGATGCAGCTC | CCCAAATCAGGATATGGAATGGA |
| P3 | ACTGCAGTAAGTGCAGAAATCTC | ACCACGCCTGGCTTAAATATAATT |
| P4 | TGTTCGCTCCGTTCTTCT | ACTATACACTCCTAACCCCTAA |
| P5 | GCGTAGCTGGGCTCTGATT | GCCACTGTACCCGGCTTATT |
| P6 | GCGGAGTAGCAGGCTCTTTC | CACGAGTTCCAGGATCGGTTT |