

Supplementary materials

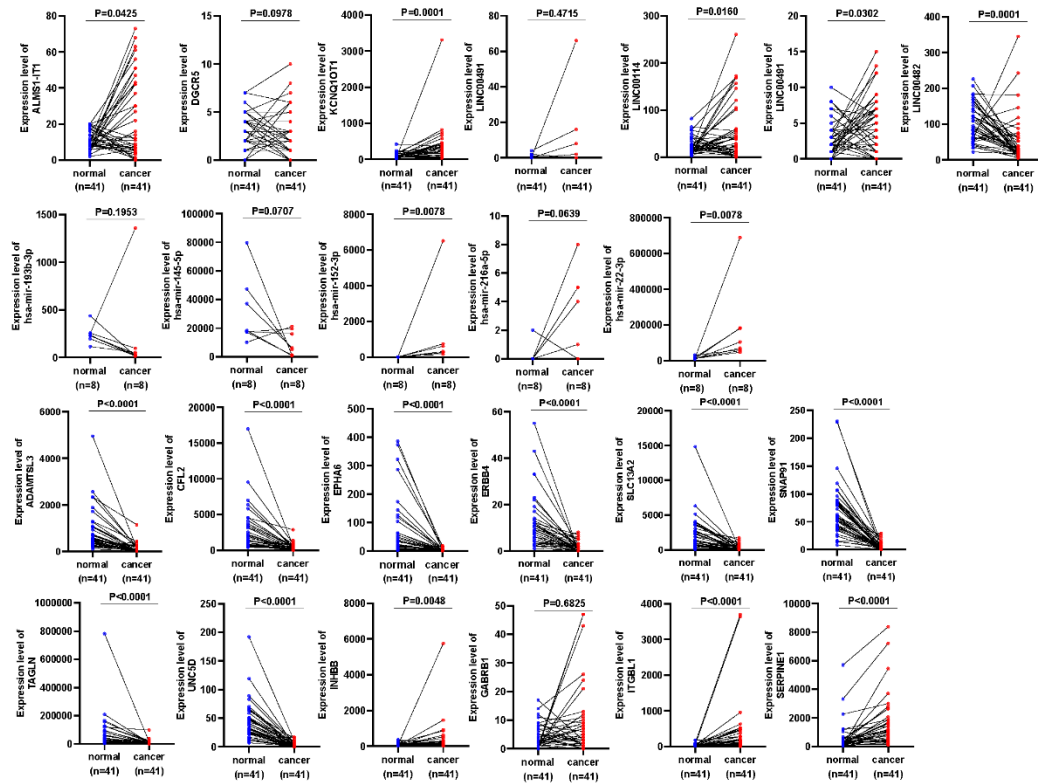


Figure S1. The expression of lncRNAs, miRNAs and mRNAs in the survival-related lncRNA-miRNA mRNA axis in CC and paired adjacent normal tissues.

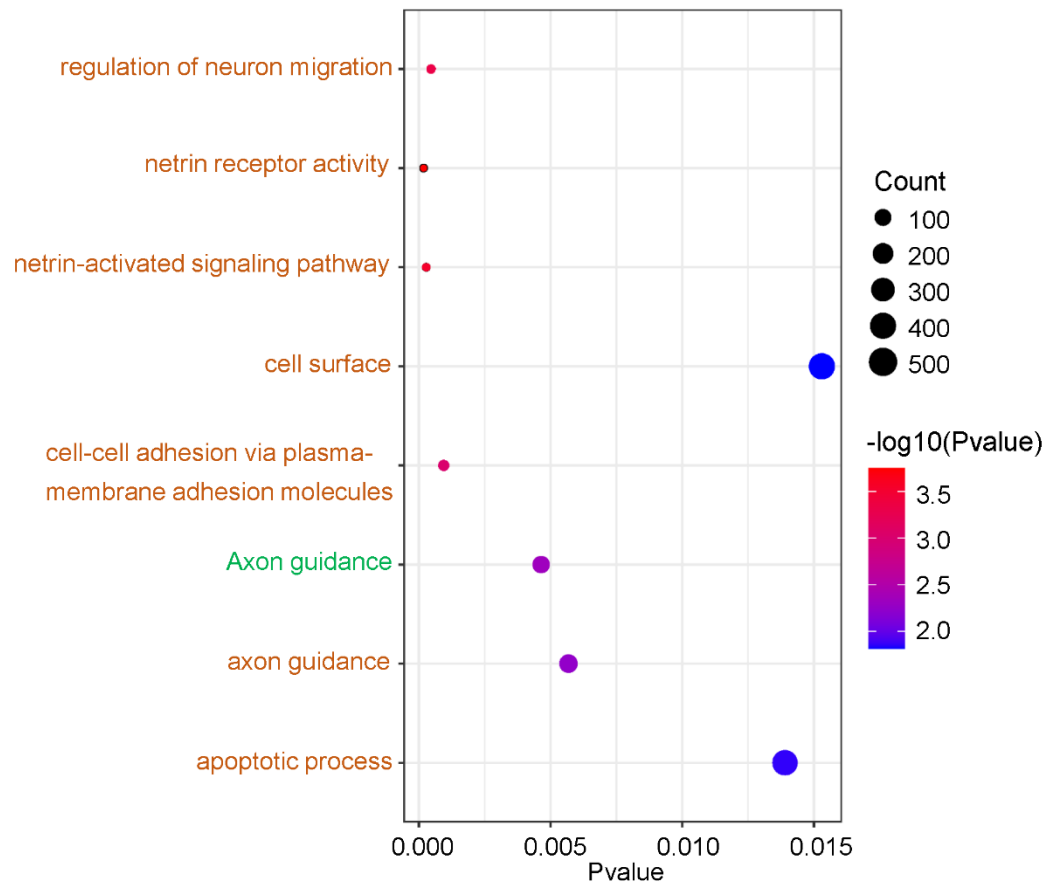


Figure S2. Analysis of potential function (including GO analysis and KEGG analysis) of target gene included in ceRNA network¹

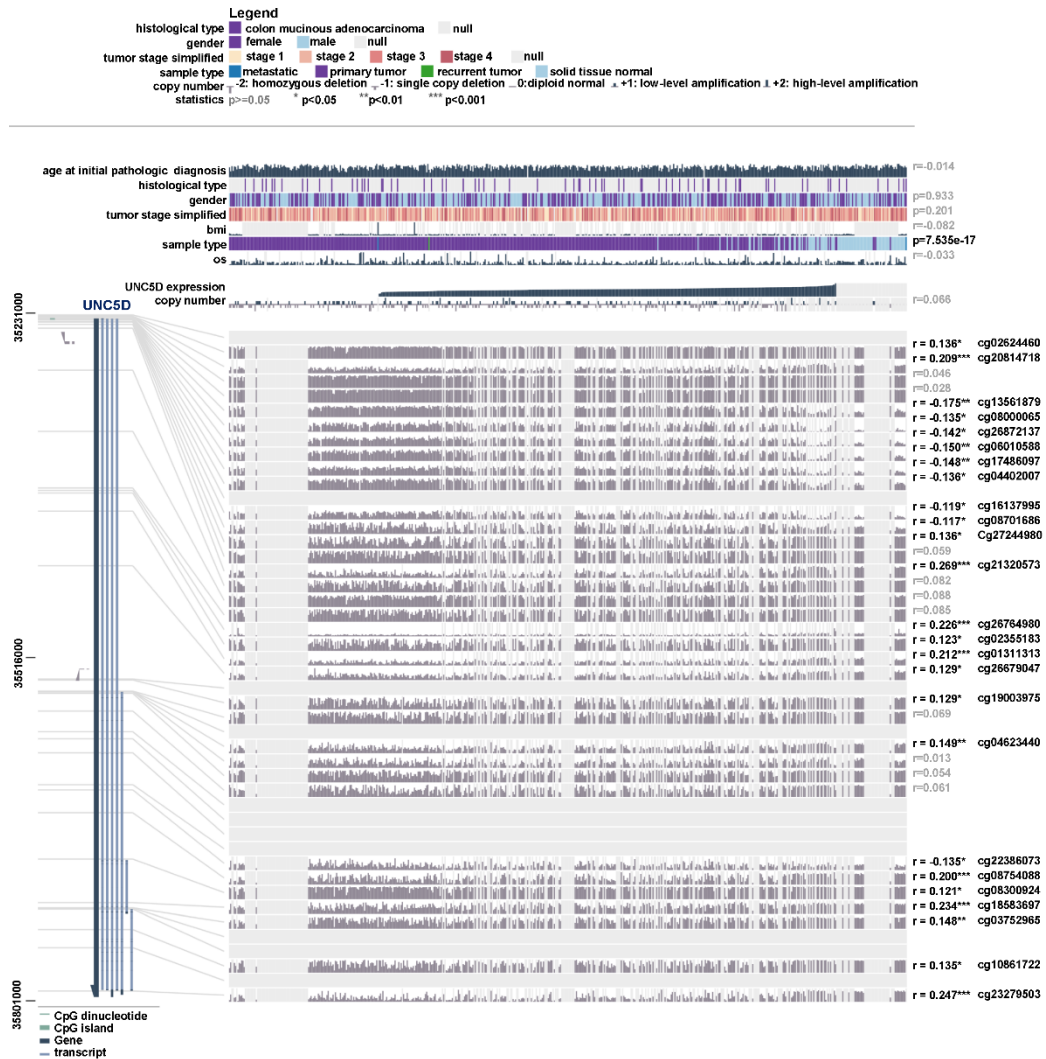


Figure S3. The relationship between UNC5D DNA methylation and gene expression in different CpG site by using MEXPRESS.

TableS1. Univariate and Multivariate analysis (Cox regression model) of mir-22-3p in HCC patients.

Factor	Univariate Cox			Multivariate Cox		
	HR	95% CI	P value (Log-rank test)	HR	95% CI	P value (Log-rank test)
Age	1.238	0.770-2.136	0.339			
Gender	0.824	0.538-1.261	0.317			
TNM stage	2.361	1.679-3.320	0.000	1.959	1.360-2.822	0.000
Diameter	2.482	1.141-5.400	0.022			
Lymph-node metastasis	2.793	1.808-4.316	0.000			
Distant metastasis	1.714	1.338-2.197	0.000	1.430	1.082-1.890	0.012
mir-22-3p expression (high/ low)	1.574	1.027-2.413	0.037			

TableS2. Correlation analysis between UNC5D and biomarkers of immune cells using TIMER, GEPIA and TCGA.

Description	Gene markers	TIMER		GEPIA		TCGA	
		Tumor purity		tumor		tumor	
		Cor	Pvalue	Cor	Pvalue	Cor	Pvalue
CD8+ T cell	CD8A	-0.02	6.91e-01	0.085	3.30e-01	-0.025	5.84e-01
	CD8B	-0.001	9.87e-01	0.031	6.00e-01	-0.035	4.38e-01
T cell (general)	CD3D	0.04	4.21e-01	0.120	*	-0.015	7.37e-01
	CD3E	0.088	7.80e-02	0.190	**	0.039	3.88e-01
	CD2	0.059	2.33e-01	0.150	*	0.039	3.88e-01
B cell	CD19	0.117	*	0.220	***	0.170	***
	CD79A	0.219	****	0.310	****	0.161	***
Monocyte	CD86	0.063	2.02e-01	0.170	**	0.086	5.90e-02
	CD115 (CSF1R)	0.155	**	0.240	****	0.127	**
TAM	CCL2	0.103	*	0.160	***	0.123	**
	CD68	0.061	2.19e-01	0.200	***	-0.047	3.05e-01
	IL10	0.068	1.74e-01	0.150	*	0.117	*
M1 Macrophage	INOS (NOS2)	0.036	4.67e-01	0.100	8.30e-02	-0.038	4.04e-01
	IRF5	0.036	4.67e-01	0.0072	9.00e-01	-0.076	9.50e-02
	COX2 (PTGS2)	0.147	**	0.230	***	0.193	***
M2 Macrophage	CD163	0.095	5.48e-02	0.110	7.00e-02	0.087	5.60e-02
	VSIG4	0.062	2.09e-01	0.140	*	0.054	2.34e-01
	MS4A4A	0.052	2.91e-01	0.150	*	0.079	8.20e-02
Neutrophils	CD66b (CEACAM8)	0.036	4.69e-01	0.097	1.10e-01	0.117	*
	CD11b (ITGAM)	0.056	2.57e-01	0.160	**	0.047	3.00e-01
	CCR7	0.207	****	0.300	****	0.173	***
Natural killer cell	KIR2DL1	-0.082	9.86e-02	-0.042	4.90e-01	-0.045	3.21e-01
	KIR2DL3	-0.174	***	-0.110	7.3e-02	-0.053	2.50e-01
	KIR2DL4	-0.054	2.81e-01	0.014	8.20e-01	-0.028	5.34e-01

TableS2 | Continued

Description	Gene markers	TIMER		GEPIA		TCGA	
		Tumor purity		tumor		tumor	
		Cor	Pvalue	Cor	Pvalue	Cor	Pvalue
Dendritic cell	KIR3DL1	-0.129	**	-0.036	5.50e-01	-0.041	3.67e-01
	KIR3DL2	-0.008	8.65e-01	0.035	5.60e-01	-0.003	9.42e-01
	KIR3DL3	-0.062	2.11e-01	0.014	8.20e-01	-0.011	8.17e-01
	KIR2DS4	-0.051	3.02e-01	-0.004	9.50e-01	-0.011	8.08e-01
	HLA-DPB1	0.008	8.69e-01	0.120	*	-0.027	5.59e-01
	HLA-DQB1	0.043	3.82e-01	0.018	7.60e-01	-0.022	6.31e-01
	HLA-DRA	-0.005	9.13e-01	0.093	1.30e-01	-0.025	5.87e-01
	HLA-DPA1	0.036	4.75e-01	0.130	*	0.019	6.75e-01
	BDCA-1 (CD1C)	0.202	****	0.330	****	0.207	***
	BDCA-4 (NRP1)	0.104	*	0.200	**	0.100	*
Th1	CD11c (ITGAX)	0.070	1.57e-01	0.130	*	0.039	3.92e-01
	T-bet (TBX21)	0.019	6.96e-01	0.120	5.30e-02	0.027	5.56e-01
	STAT4	0.101	*	0.220	***	0.152	***
	STAT1	-0.013	7.99e-01	0.013	8.30e-01	0.000	9.97e-01
	IFN- γ (IFNG)	-0.057	2.48e-01	-0.060	3.20e-01	-0.035	4.45e-01
Th2	TNF- α (TNF)	0.110	*	0.160	**	0.054	2.37e-01
	GATA3	0.092	6.51e-02	0.170	**	0.104	*
	STAT6	0.103	*	0.130	*	-0.016	7.27e-01
	STAT5A	0.072	1.49e-01	0.063	3.00e-01	-0.030	5.13e-01
Tfh	IL13	-0.010	8.40e-01	0.069	2.50e-01	0.051	2.64e-01
	BCL6	0.089	7.20e-02	0.170	**	0.058	2.03e-01
	IL21	-0.022	6.65e-01	-0.070	2.50e-01	0.030	5.14e-01

TableS2 | Continued

Description	Gene markers	TIMER		GEPIA		TCGA	
		Tumor purity		tumor		tumor	
		Cor	Pvalue	Cor	Pvalue	Cor	Pvalue
Th17	STAT3	0.205	****	0.280	****	0.158	***
	IL17A	0.147	**	0.130	*	0.162	***
	FOXP3	0.150	**	0.240	****	0.068	1.38e-01
	CCR8	0.172	***	0.280	****	0.160	***
Treg	STAT5B	0.228	****	0.210	***	0.140	**
	TGFβ (TGFB1)	0.091	6.74e-02	0.150	*	-0.017	7.10e-01
	PD-1 (PDCD1)	-0.019	6.98e-01	0.042	4.90e-01	-0.066	1.50e-01
	CTLA4	0.070	1.59e-01	0.150	*	0.073	1.11e-01
T cell exhaustion	LAG3	-0.007	8.91e-01	0.066	2.80e-01	-0.047	3.01e-01
	TIM-3 (HAVCR2)	0.014	7.81e-01	0.110	6.50e-02	0.017	7.04e-01
	GZMB	-0.031	5.31e-01	-0.049	4.20e-01	-0.082	7.40e-02

References:

1. Kanehisa, M., Furumichi, M., Sato, Y., Matsuura, Y. & Ishiguro-Watanabe, M. KEGG: biological systems database as a model of the real world. *Nucleic Acids Res.* **53**, D672–D677 (2025).

湖南省人民医院/湖南师范大学第一附属医院

医学伦理委员会

医学伦理委员会临床科学研究审批表

(2021) 科研伦审第 (17) 号

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论文名称：LINC00482/miR-22-3p/UNC5D 分子调节轴在结肠癌
预后相关性的研究

论文作者： 肖志刚，石怡，李文

请在临床试验过程中严格遵循医学伦理道德原则，切实保障受试对象的权益，并及时向本伦理委员会报告研究中发生的意外事件。

湖南省人民医院（湖南师范大学第一附属医院）
医学伦理委员会

2021 年 12 月 10 日

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**Hunan Provincial People's Hospital / First Affiliated
Hospital of Hunan Normal University**

Medical ethics committee

**Medical Ethics Committee Clinical Scientific Research
Approval Form**

(2021) Scientific Research Ethics Review NO: (17)

(Specialty) : General Surgery

Consideration by Medical Ethics Committee of Hunan People's
Hospital (First Affiliated Hospital of Hunan Normal University), Agree to
conduct the following studies in accordance with the research plan and
application report:

Title of thesis: Prognostic correlation of LINC00482/miR-22-3p/UNC5D
molecular regulatory axis in colon cancer

Authors'name: Zhi gang Xiao, Yi Shi, Wen Li

Please strictly follow the principles of medical ethics during clinical
trials.To ensure the rights and interests of the subjects, and report the
unexpected events happened in the study to the Ethics Committee in a
timely manner.

Hunan Provincial People's Hospital (the first affiliated hospital of Hunan Normal
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