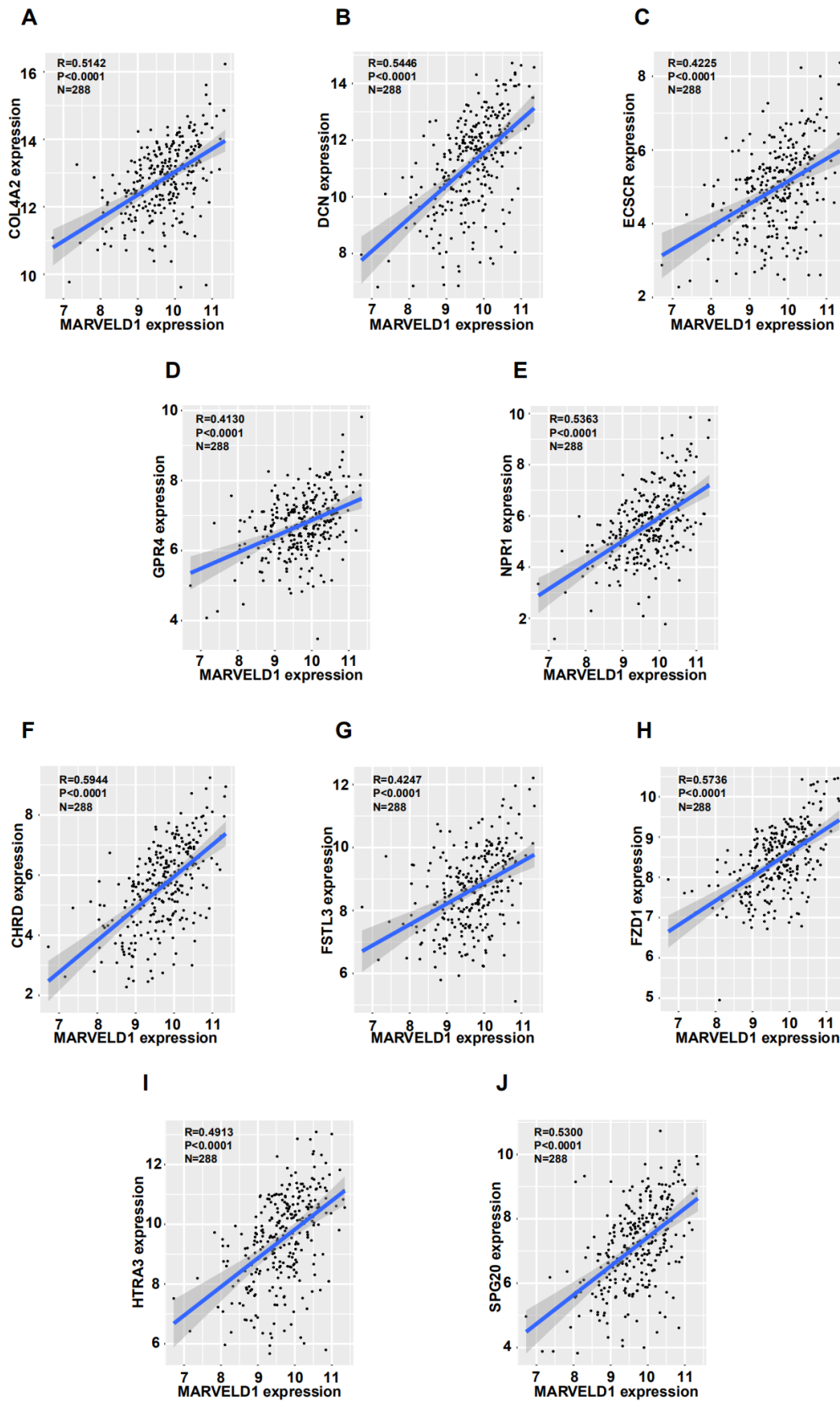
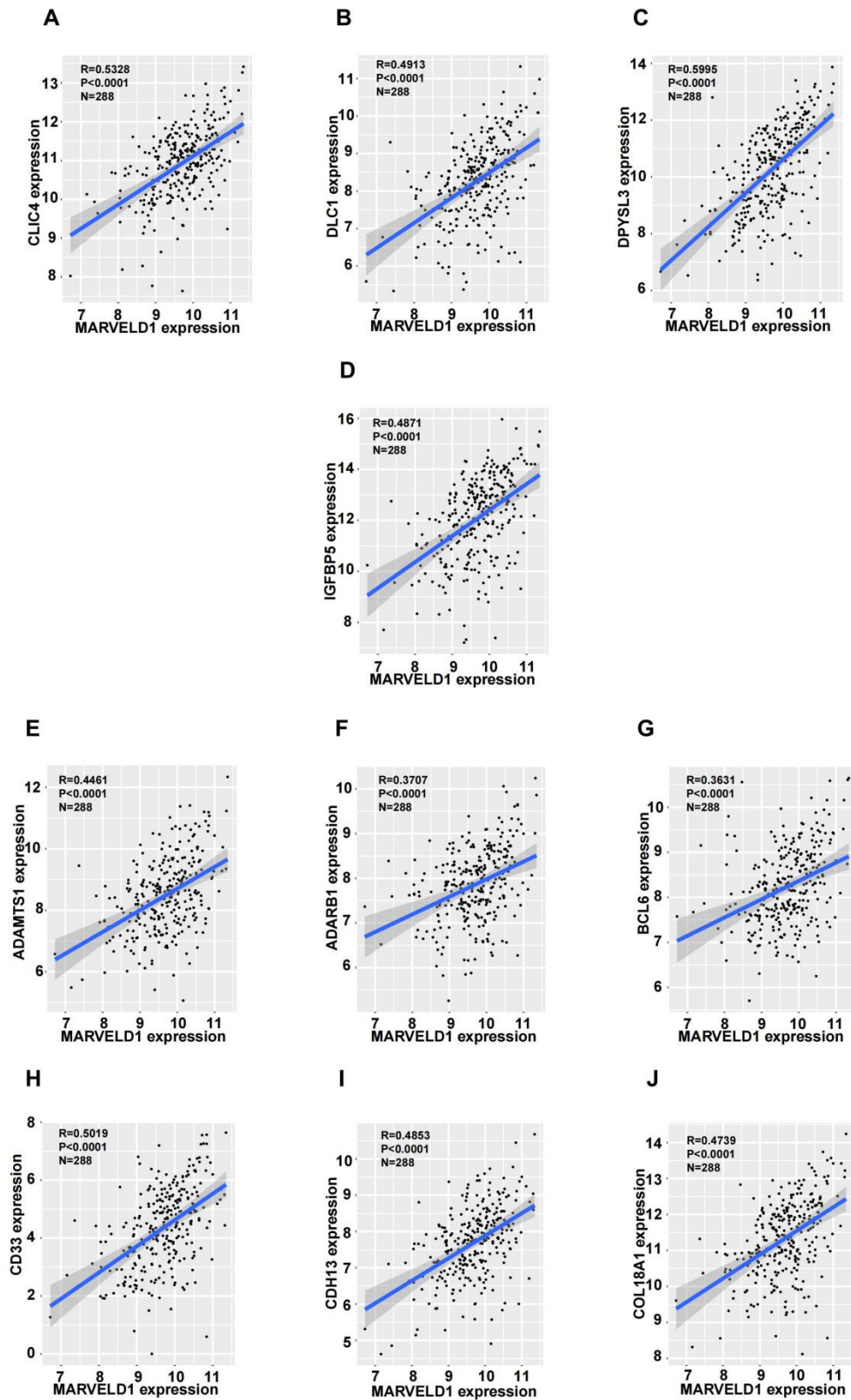


Supplementary FIGURE 1: MARVEL domain-containing 1 (MARVELD1) expression is downregulated in colon cancer. (A) The expression of MARVELD1 protein in colon cancer tissues and adjacent tissues by immunohistochemistry. (B) MARVELD1 expression is lower in colon cancer tissues than normal tissues in our cohort via qRT-PCR. (C) Colon cancer tissues were divided into MARVELD1 high expression group (n = 36) and low expression group (n = 60) according to the expression difference of MARVELD1 in colon cancer by immunohistochemistry. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.0001$ ; ns, no significance.

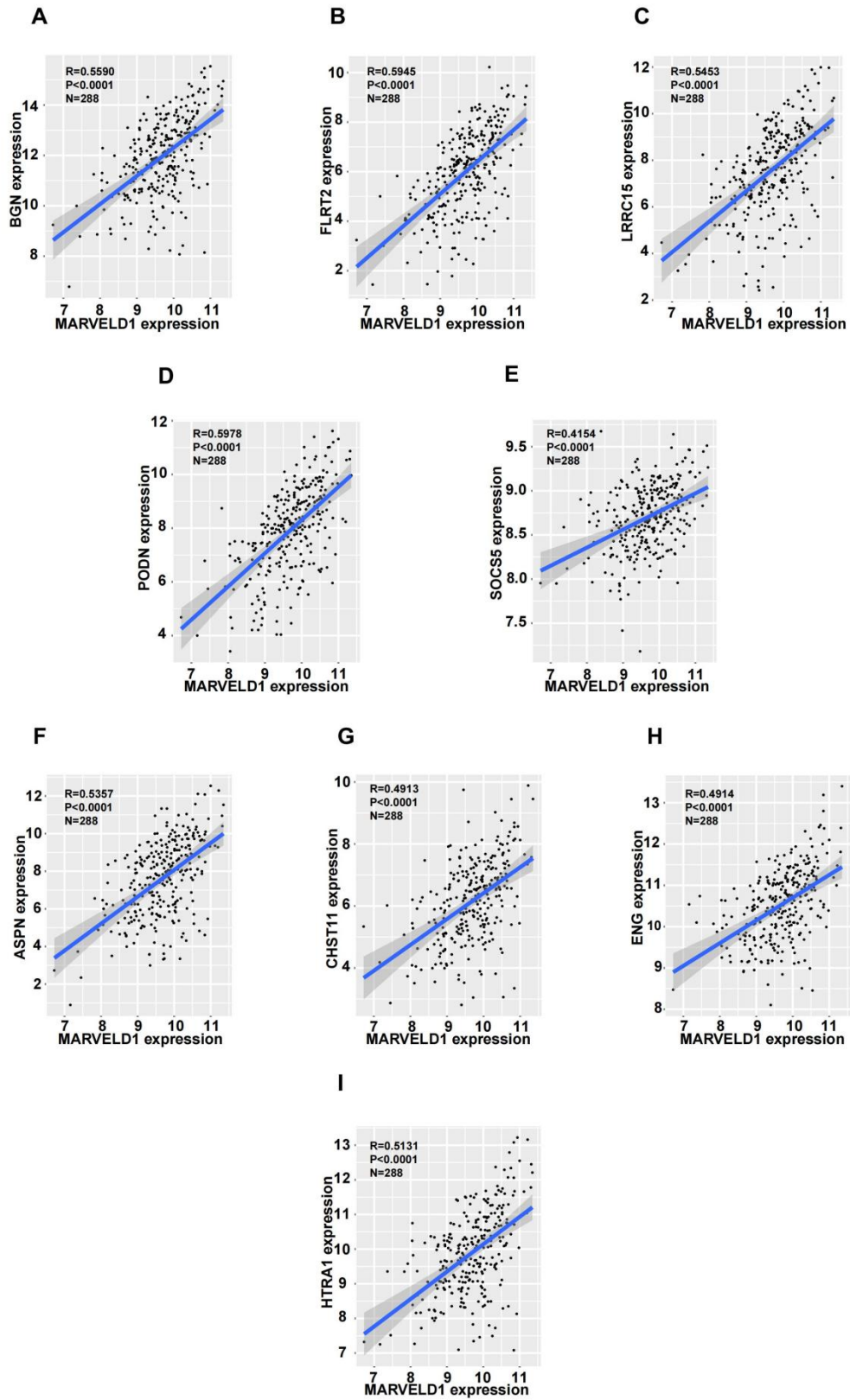


Supplementary FIGURE 2: MARVEL domain-containing 1 (MARVELD1) expression correlates with angiogenesis and the BMP signaling pathway. (A–E) MARVELD1 expression correlates with COL4A2, DCN, ECSCR, GPR4, and NPR1, which are related to signaling that mediate angiogenesis. (F–J) MARVELD1 expression correlates with CHRD, FSTL3, FZD1, HTRA3, and SPG20 from the BMP signaling pathway. All statistical tests were two-tailed, and  $P < 0.05$  indicated statistical significance.

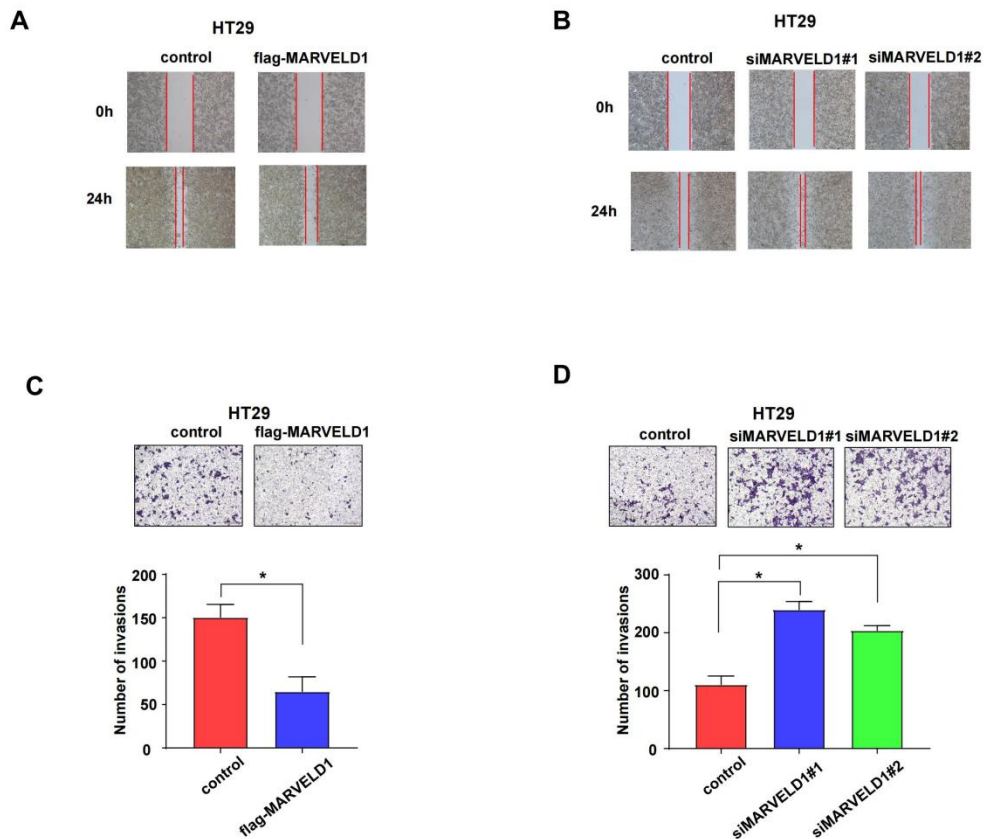


Supplementary FIGURE 3: MARVEL domain-containing 1 (MARVELD1) expression correlates with cell migration and cell proliferation. (A–D) MARVELD1

expression correlates with CLIC4, DLC1, DPYSL3, and IGFBP5, which are related to control cell migration. (E–J) MARVELD1 expression correlates with ADAMTS1, ADARB1, BCL6, CD33, CDH13, and COL18A1, which are related to mediate cell proliferation. All statistical tests were two-tailed, and  $P < 0.05$  indicated statistical significance.



Supplementary FIGURE 4: MARVEL domain-containing 1 (MARVELD1) expression correlates with the JAK-STAT cascade and the TGF- $\beta$  receptor signaling pathway. (A–E) MARVELD1 expression correlates with BGN, FLRT2, LRRC15, PODN, and SOCS5 from the JAK-STAT cascade signaling pathway. (F–I) MARVELD1 expression correlates with ASPN, CHST11, ENG, and HTRA1 from the TGF- $\beta$  receptor signaling pathway. All statistical tests were two-tailed, and  $P < 0.05$  indicated statistical significance.



Supplementary FIGURE 5: MARVEL domain-containing 1 (MARVELD1) inhibites migration and invasion in HT29 cancer cell. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.0001$ ; ns, no significance.

Supplementary Table 1 Expression of MARVELD1 between cancer and normal tissues in different cancer types

Cancer type	Number of tumor and normal	P value
BLCA	Num(T)=407;Num(N)=19	**
BRCA	Num(T)=1104;Num(N)=114	****
CESC	Num(T)=305;Num(N)=3	**
COAD	Num(T)=288;Num(N)=41	***
KICH	Num(T)=66;Num(N)=25	****
LIHC	Num(T)=373;Num(N)=50	**
LUAD	Num(T)=517;Num(N)=59	**
LUSC	Num(T)=502;Num(N)=51	ns
PAAD	Num(T)=179;Num(N)=4	ns
PRAD	Num(T)=498;Num(N)=52	****
THYM	Num(T)=120;Num(N)=2	ns
UCEC	Num(T)=177;Num(N)=24	****
Pan-cancer	Num(T)=9649;Num(N)=885	***

Notes : \* p<0.05, \*\* p<0.01, \*\*\* p<0.001, \*\*\*\* p<0.0001, ns: no significance



Supplementary Table 2 Relationship between MARVELD1 and clinicopathological parameters in the colon cancer.

Parameter	Total	MARVELD1 expression		P value
		Low	High	
All patients	96	60	36	
Gender				
male	59	37	22	0.957
Female	37	23	14	
Age (years)				
<60	57	37	20	0.555
≥60	39	23	16	
Histological differentiation				
Well/Moderately	72	42	30	0.144
Poorly	24	18	6	
Depth of invasion				
T3	46	33	13	0.073
T4	50	27	23	
Lymph node metastasis				
N0	31	20	11	0.256
N1	29	21	8	

N2	36	19	17	
Distant metastasis				
M0	29	16	13	0.329
M1	67	44	23	
Pathologic stage				
II	15	7	8	0.385
III	14	9	5	
IV	67	44	23	

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Supplementary Table 3 Relationship between MARVELD1 and clinicopathological parameters in the pancreatic cancer.

Parameter	Total	MARVELD1 expression		P value
		Low	High	
All patients	37	23	14	
Gender				
male	26	17	9	0.534
Female	11	6	5	
Age (years)				

<60	20	11	9	0.33
≥60	17	12	5	
Histological differentiation				
Well/Moderately	19	10	9	0.219
Poorly	18	13	5	
Depth of invasion				
T1-T2	11	5	6	0.173
T3-T4	26	18	8	
Lymph node metastasis				
N0	29	17	12	0.398
N1	8	6	2	
Distant metastasis				
M0	33	20	13	0.575
M1	4	3	1	
Pathologic stage				
I	7	2	5	0.212
II	14	9	5	
III	12	9	3	
IV	4	3	1	

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