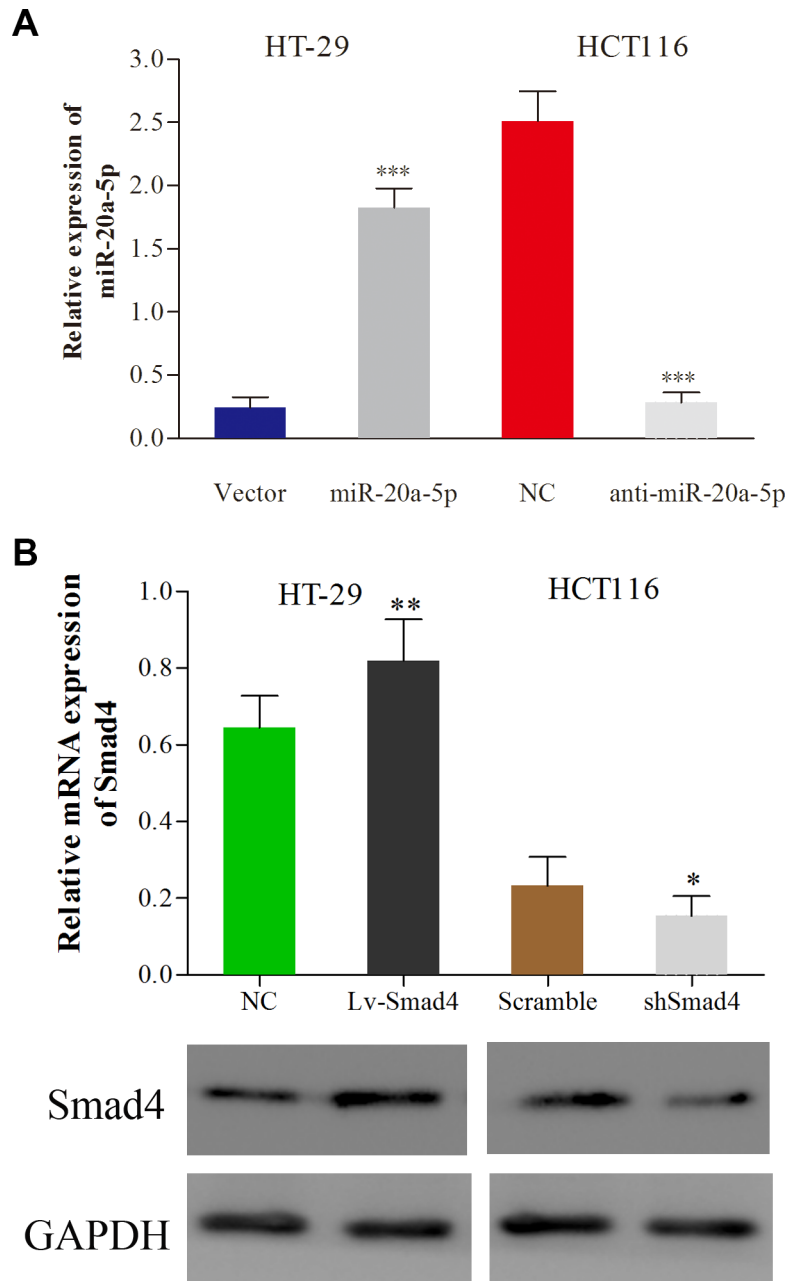


## MicroRNA-20a-5p promotes colorectal cancer invasion and metastasis by downregulating Smad4

### Supplementary Materials



**Supplementary Figure S1: Transfection efficiency of miR-20a-5p and Smad4.** (A) The changes of miR-20a-5p expression level after transfecting miR-20a-5p or anti-miR-20a-5p mimics into HT29 cells or HCT116 cells ( $***P < 0.001$ ). (B) The mRNA and protein levels of Smad4 after over-expressing in HT 29 cells and silencing in HCT116 cells ( $*P < 0.05$   $**P < 0.01$ ).

**Supplementary Table S1:**

name	geneName	position	targetScanSites	picTarSites	RNA22Sites	PITASites	miRandaSites	program Num	Cancer Num	Pearson Correlation r	P-value	False Discovery Rate
hsa-miR-34a-5p	SMAD4	chr18:48607832-48607839 [+]	86 [5]	86 [5]	0 [0]	0 [0]	86 [5]	3	8	-0.06986	0.228406	0.423708
hsa-miR-130a-3p	SMAD4	chr18:48606192-48606198 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	3	-0.16995	0.00319937	0.0180632
hsa-miR-34c-5p	SMAD4	chr18:48607832-48607839 [+]	86 [5]	86 [5]	0 [0]	0 [0]	86 [5]	3	4	-0.0926	0.11006	0.258842
hsa-miR-17-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	5	-0.29347	2.37E-07	5.82E-06
hsa-miR-19a-3p	SMAD4	chr18:48606191-48606197 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	6	-0.21511	0.0001782	0.00171915
hsa-miR-20a-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	4	-0.26577	3.16E-06	5.56E-05
hsa-miR-19b-3p	SMAD4	chr18:48606191-48606197 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	3	-0.24494	1.84E-05	2.54E-04
hsa-miR-454-3p	SMAD4	chr18:48606192-48606198 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	8	-0.19835	5.61E-04	0.00442873
hsa-miR-301a-3p	SMAD4	chr18:48606192-48606198 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	7	-0.06373	0.272025	0.474478
hsa-miR-301b	SMAD4	chr18:48606192-48606198 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	5	-0.03959	0.495222	0.685726
hsa-miR-130b-3p	SMAD4	chr18:48606192-48606198 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	8	-0.17432	0.00248733	0.0147924
hsa-miR-449a	SMAD4	chr18:48607832-48607839 [+]	86 [5]	86 [5]	0 [0]	0 [0]	86 [5]	3	3	0.06203	0.284975	0.488682
hsa-miR-449b-5p	SMAD4	chr18:48607832-48607839 [+]	86 [5]	86 [5]	0 [0]	0 [0]	86 [5]	3	3	0.0385	0.5072	0.695583
hsa-miR-93-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	6	-0.18584	0.00124593	0.00848447
hsa-miR-106b-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	6	-0.17659	0.00217809	0.0132988
hsa-miR-20b-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	2	0.00938	0.871679	0.935539
hsa-miR-106a-5p	SMAD4	chr18:48606194-48606200 [+]	423 [13]	423 [13]	0 [0]	0 [0]	423 [13]	3	3	-0.20399	3.85E-04	0.0032533

**Supplementary Table S2: Clinic-pathologic characteristics of 544 colorectal cancer patients**

Characteristics	No. of patients (%)	Relapse	
		No <i>n</i> = 327 (%)	Yes <i>n</i> = 217 (%)
Age			
< 65	208 (38.2)	130 (39.8)	78 (35.9)
≥ 65	336 (61.8)	197 (60.2)	139 (64.1)
Gender			
Female	264 (48.5)	165 (49.5)	99 (45.6)
Male	280 (51.5)	162 (50.5)	118 (54.4)
Location			
Right	124 (22.8)	76 (23.2)	48 (22.1)
Transverse	33 (6.1)	20 (6.1)	13 (6.0)
Left	387 (71.1)	231 (70.7)	156 (71.9)
pT stage			
pT1	23 (4.2)	20 (6.1)	3 (1.4)
pT2	94 (17.3)	72 (22.0)	22 (10.1)
pT3	236 (43.4)	152(46.5)	84 (38.7)
pT4	191 (35.1)	83 (25.4)	108 (49.8)
pN stage			
N0	314 (57.7)	216 (66.1)	98 (45.1)
N1	164 (30.1)	87 (26.6)	77 (35.5)
N2	66 (12.1)	24 (7.3)	42 (19.4)
pM stage			
M0	504	317 (96.9)	187 (86.2)
M1	40	10 (3.1)	30 (13.8)
AJCC stage			
I	93 (17.1)	76 (23.2)	17 (7.8)
II	208 (38.2)	136 (41.6)	72 (33.2)
III	204 (37.5)	106 (32.4)	98 (45.2)
IV	39 (7.2)	9 (2.8)	30 (13.8)
Differentiation			
Well	116 (28.0)	71 (21.7)	45 (20.7)
Moderate	336 (41.9)	201 (61.5)	135 (62.2)
Poor	92 (30.1)	55 (16.8)	37 (17.1)