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Erratum
tRF-20-M0NK5Y93-induced MALAT1 promotes colon cancer metastasis through alternative splicing of SMC1A: Am J Cancer Res. 2023; 13(3): 852-871

Na Luan[1], Jiaojiao Wang[2], Biao Sheng[2], Qin Zhou[1], Xun Ye[1], Xiaoling Zhu[2], Jianguo Sun[3], Zhe Tang[2], Jianwei Wang[1]

[1]Department of Colorectal Surgery and Oncology, Key Laboratory of Cancer Prevention and Intervention, Ministry of Education, 2nd Affiliated Hospital, Zhejiang University School of Medicine, Jiefang Road 88th, Hangzhou, Zhejiang, China; [2]Department of Surgery, 4th Affiliated Hospital, School of Medicine, International Institutes of Medicine, Zhejiang University, Yiwu, Zhejiang, China; [3]Department of Surgical Oncology, Taizhou Central Hospital (Taizhou University Hospital), Taizhou, Zhejiang, China

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Due to the large number of transwell experiments at the time and manual position adjustments under the microscope for multiple field-of-view (FOV) acquisitions per transwell, confusion during image storage and data organization could easily occur, resulting in duplication of certain images within our article in **Figures 1D**, **1E**, **2H**, **6C**, S3C, S6A-S6C. Hence, we would like to publish this erratum to displace the wrong figures and reflect changes. The corrections made in this erratum do not affect the original conclusions. The authors apologize for any inconvenience or misunderstanding that these errors may have caused. The corrected **Figures 1**, **2**, **6**, S3, S6 are as follows.

Address correspondence to: Dr. Jianwei Wang, Department of Colorectal Surgery and Oncology, Key Laboratory of Cancer Prevention and Intervention, Ministry of Education, 2nd Affiliated Hospital, Zhejiang University School of Medicine, Jiefang Road 88th, Hangzhou, Zhejiang, China. E-mail: sypzju@zju.edu.cn; Dr. Zhe Tang, Department of Surgery, 4th Affiliated Hospital, School of Medicine, International Institutes of Medicine, Zhejiang University, Yiwu, Zhejiang, China. E-mail: 8xi@zju.edu.cn

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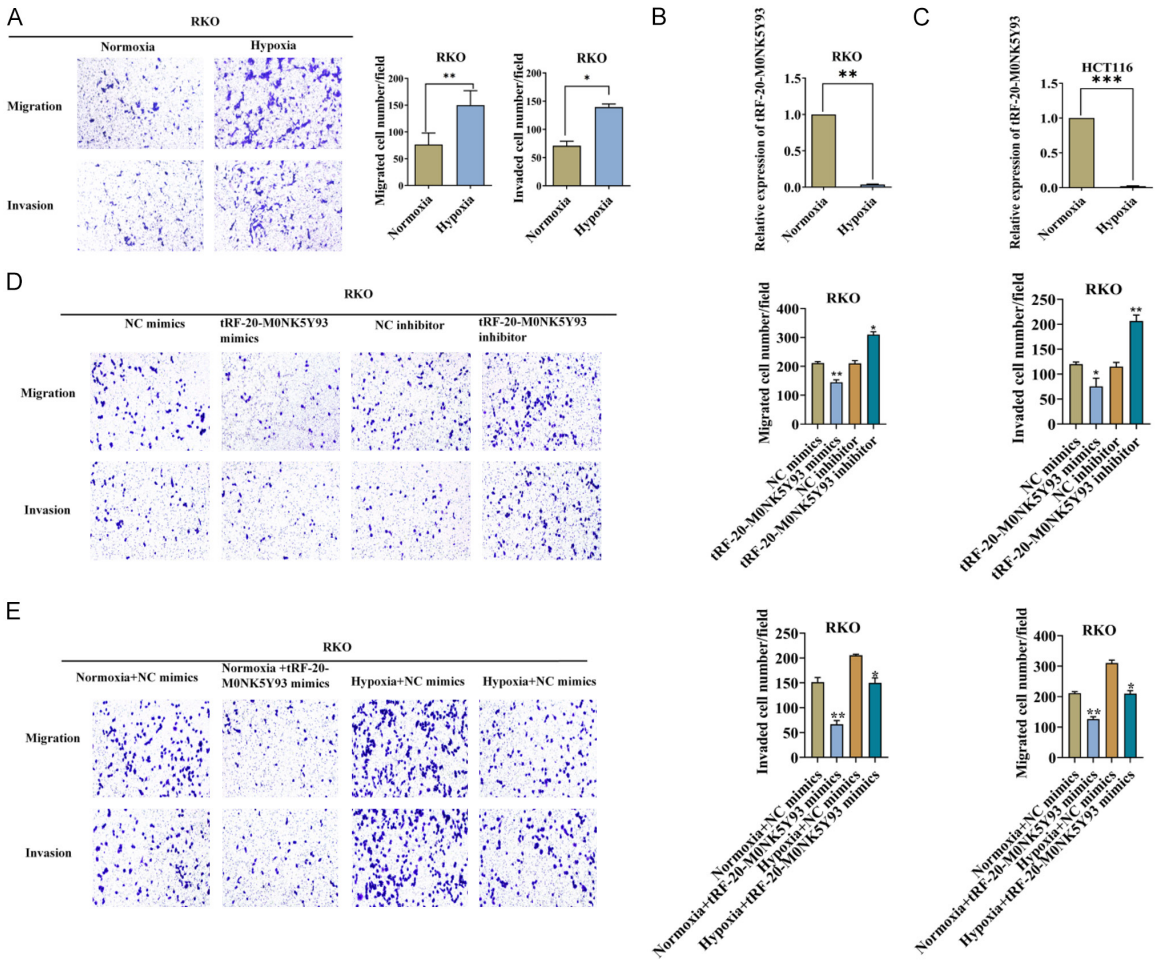
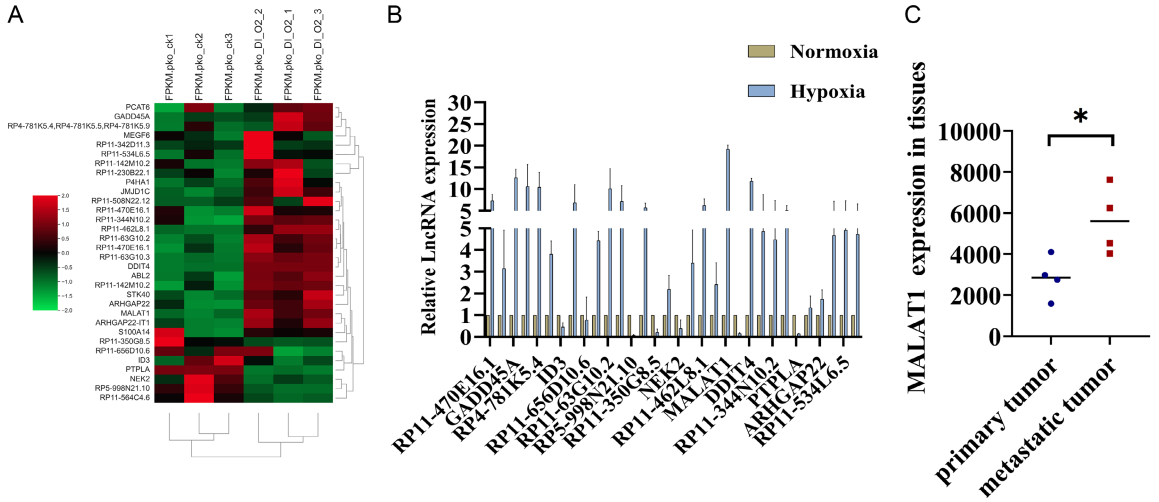


Figure 1. tRF-20-M0NK5Y93 regulates the malignant activities of colon cancer cells under hypoxia in vitro. A. The invasion and migration abilities of RKO cells were elevated under hypoxia. Scale bar = 120 μm. B, C. The transfection efficiency was tested by qRT-PCR. D. tRF-20-M0NK5Y93 overexpression suppressed RKO cell invasion and migration by Transwell assay compared to NC, while tRF-20-M0NK5Y93 knockdown promoted cell invasion and migration. Scale bar = 150 μm. E. Overexpression of tRF-20-M0NK5Y93, which inhibited the invasion and migration of RKO cells, effectively rescued the promoting role of hypoxia. Scale bar = 150 μm. Values are triplicate-replicated and displayed as the mean ± SD. *P < 0.05, **P < 0.01, ***P < 0.001.



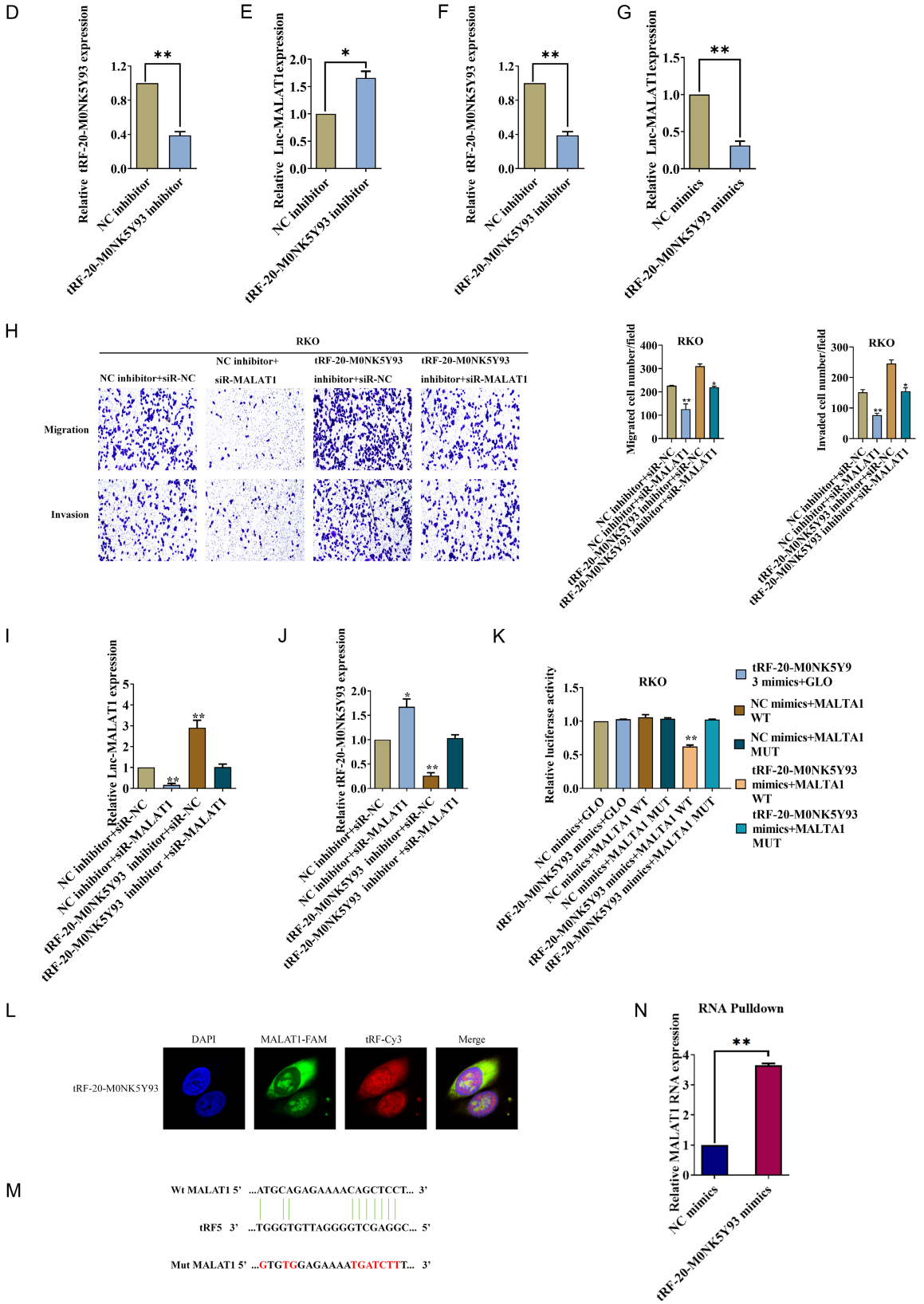
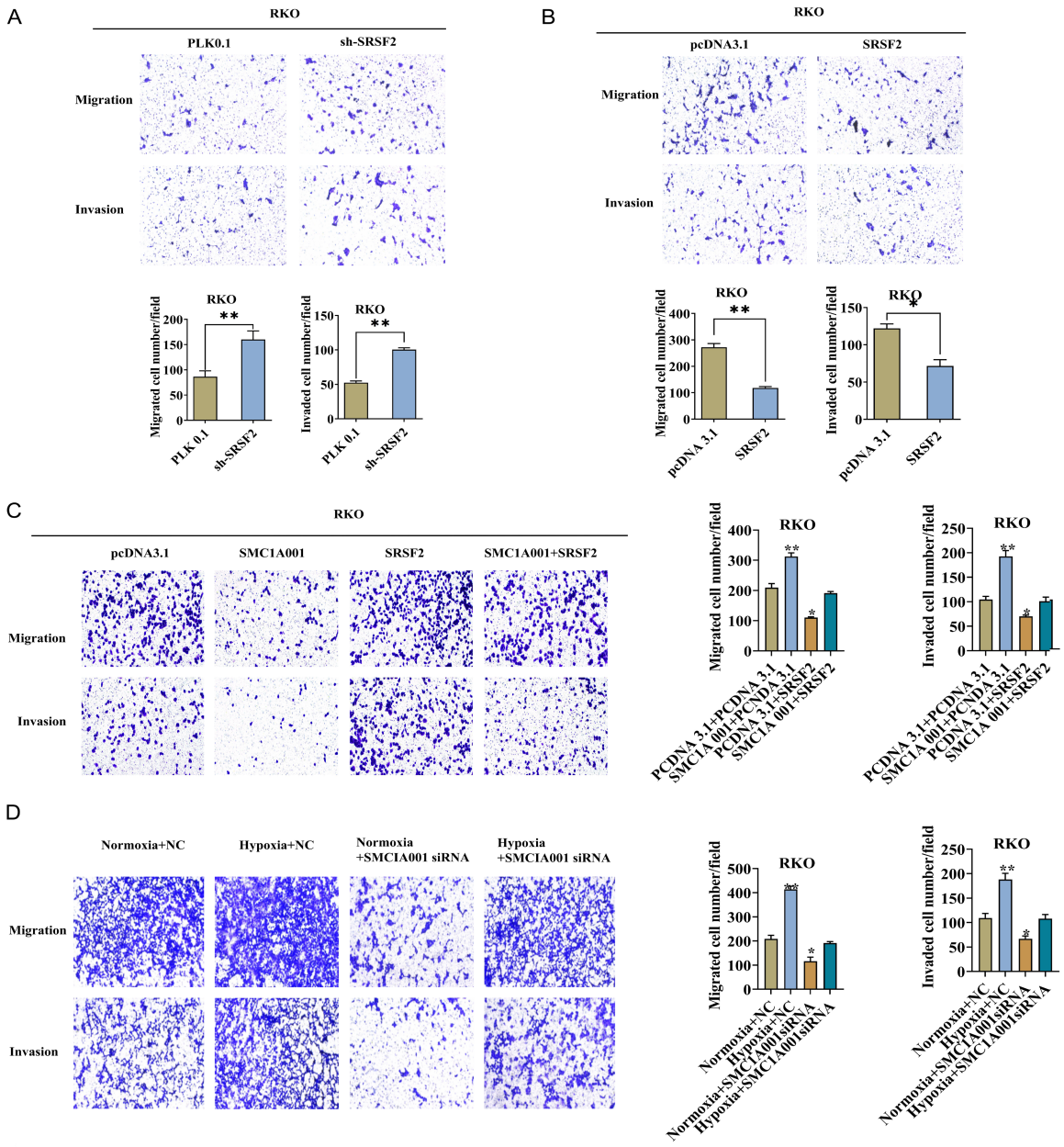


Figure 2. tRF-20-M0NK5Y93 directly interacts with lncRNA MALAT1 and regulates MALAT1 expression in colon cancer cells. A. The lncRNA MALAT1 had the highest upregulation among the upregulated lncRNAs. B. qRT-PCR assays were performed to verify the results. C. LncRNA MALAT1 expression in tumors with liver metastasis is higher than in

primary colon cancer tissues in 4 pairs of colon cancer patients without preoperative treatment. D. The transfection efficiency of the tRF-20-M0NK5Y93 inhibitor was measured by qRT-PCR. E. MALAT1 expression was significantly higher in the tRF-20-M0NK5Y93 downregulation group than that in the negative control group. F. The transfection efficiency of tRF-20-M0NK5Y93 mimics was measured by qRT-PCR. G. The RNA expression level of MALAT1 was clearly lower in the tRF-20-M0NK5Y93 mimic-transfected group. H. Knockdown of MALAT1 significantly attenuated the promoting effects of tRF-20-M0NK5Y93 on the metastasis of RKO cells. Scale bar = 120 μm. I. The expression levels of tRF-20-M0NK5Y93 and MALAT1 in the cells were simultaneously knocked down, and the expression level of MALAT1 was increased compared with that of knockdown of MALAT1 only. J. The expression level of tRF-20-M0NK5Y93 was increased when both were knocked down at the same time compared with that when only tRF-20-M0NK5Y93 was knocked down. K. A dual-luciferase reporter assay was performed to confirm that tRF-20-M0NK5Y93 could target MALAT1 directly. L. tRF-20-M0NK5Y93 localized to the nucleus. tRF-20-M0NK5Y93 and MALAT1 both localize in the same cellular compartment, the cell nucleus. Scale bar = 20 μm. M. tRF-20-M0NK5Y93 has regions that can bind to MALAT1, and the binding sites are located in the 4957-4976 region of MALAT1. N. RNA pulldown assays further revealed that tRF-20-M0NK5Y93 could directly bind with lncRNA MALAT1.



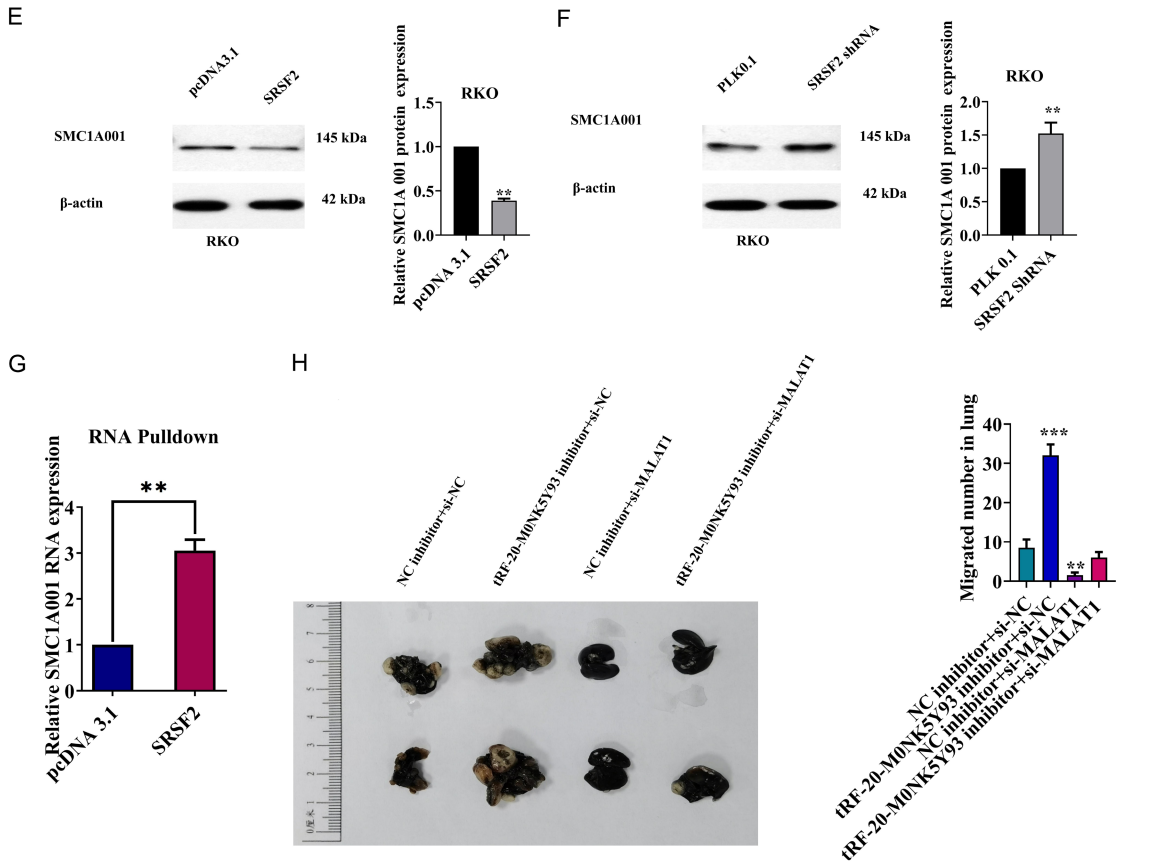
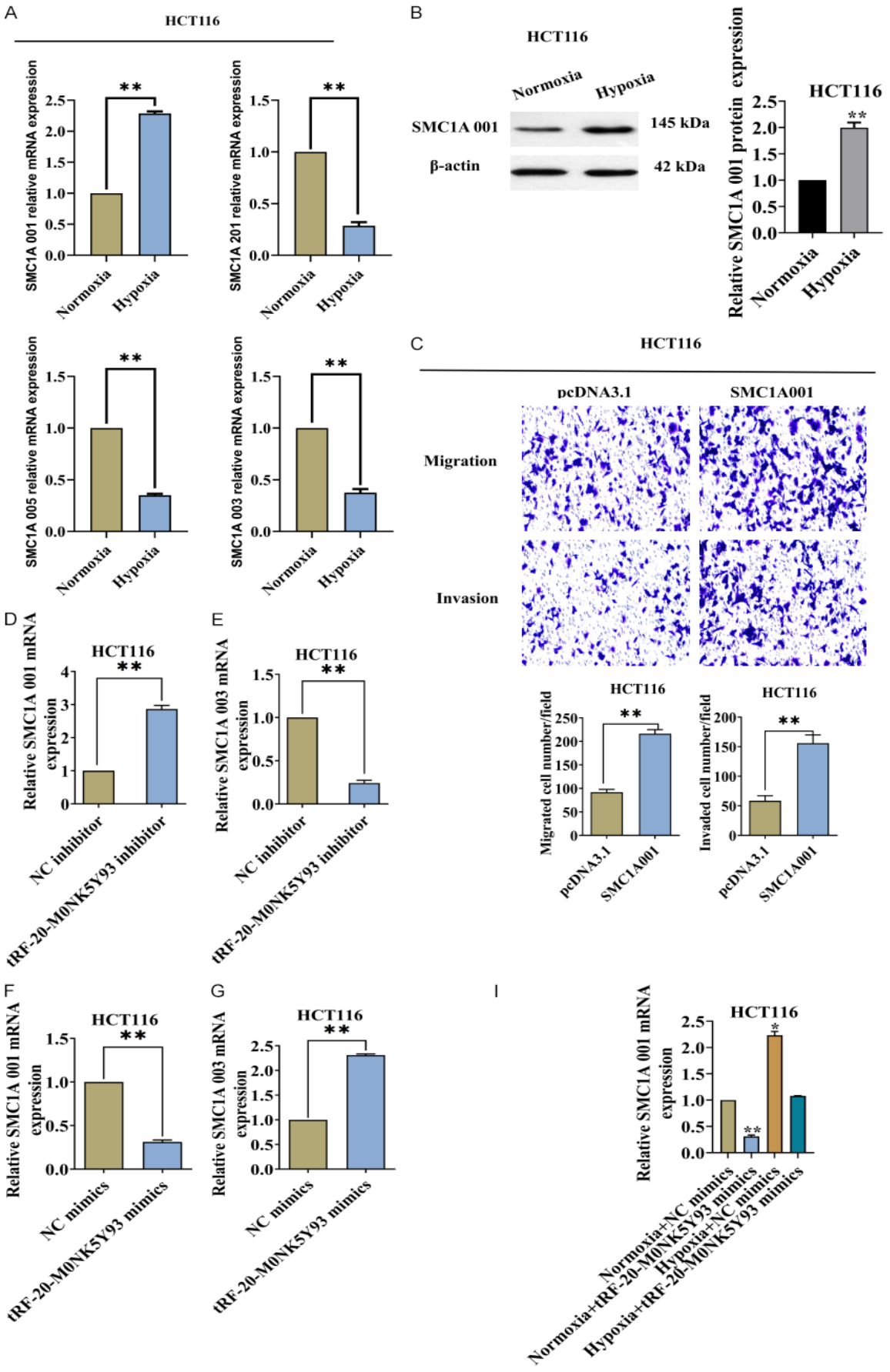


Figure 6. SRSF2 promotes the migration and invasion of colon cancer cells and regulates alternative splicing of SMC1A. A. sh-SRSF2 transfection promoted the migration and invasion of both RKO cell lines. Scale bar = 120 μm. B. Transwell assays revealed that SRSF2 inhibited the migration of RKO cells. Scale bar = 120 μm. C. The assays showed that overexpression of SRSF2 could rescue the promoting role of SMC1A001 on the metastasis of colon cancer. Scale bar = 150 μm. D. SMC1A001 also promoted cell migration and invasion under hypoxia. Scale bar = 120 μm. E, F. SMC1A001 expression was downregulated when SRSF2 was overexpressed, and vice versa. G. RNA pulldown assays also confirmed that SMC1A001 was enriched when SRSF2 enriched much more SMC1A001 in RKO cells transfected with SRSF2 overexpression plasmids normalized to that in the pcDNA3.1 group, indicating that SRSF2 binds to SMC1A001 directly. H. The in vivo results showed that the tRF-20-M0NK5Y93 inhibitor promoted lung metastasis, while si-MALAT1 inhibited lung metastasis, and cotransfection of both inhibitors rescued the effect on the NC group.


A
HCT116
SMC1A 001 relative mRNA expression
SMC1A 201 relative mRNA expression
SMC1A 005 relative mRNA expression
SMC1A 003 relative mRNA expression
Normoxia
Hypoxia
B
HCT116
Normoxia
Hypoxia
SMC1A 001
β-actin
145 kDa
42 kDa
Relative SMC1A 001 protein expression
C
HCT116
pcDNA3.1
SMC1A001
Migration
Invasion
Migrated cell number/field
Invaded cell number/field
D
HCT116
Relative SMC1A 001 mRNA expression
NC inhibitor
tRF-20-M0NK5Y93 inhibitor
E
HCT116
Relative SMC1A 003 mRNA expression
F
HCT116
Relative SMC1A 001 mRNA expression
NC mimics
tRF-20-M0NK5Y93 mimics
G
HCT116
Relative SMC1A 003 mRNA expression
I
HCT116
Relative SMC1A 001 mRNA expression
Normoxia+NC mimics
Normoxia+tRF-20-M0NK5Y93 mimics
Hypoxia+NC mimics
Hypoxia+tRF-20-M0NK5Y93 mimics

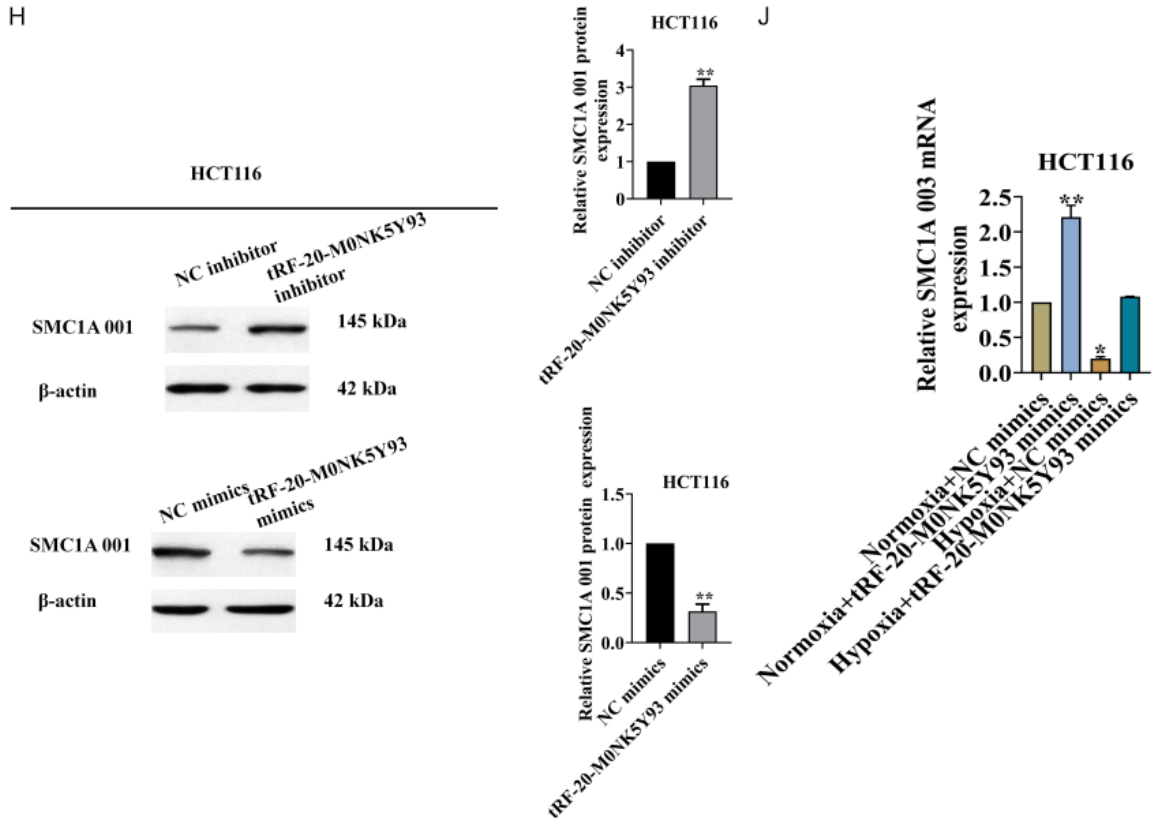


Figure S3. A. The expression of SMC1A transcript 001 increased under hypoxic conditions, while the expression of other transcripts 201, 005, and 003 decreased (**Figure 3A**). B. The results of Western blot assays also showed that SMC1A001 increased under hypoxia in comparison to normoxia. C. The assay results showed that SMC1A001 overexpression clearly promoted HCT116 cell migration and invasion in comparison to the negative control groups. D, F, H. The results suggested that the SMC1A001 expression level in the tRF-20-M0NK5Y93 inhibitor group was clearly higher than that in the negative control inhibitor group, while its expression level in the tRF-20-M0NK5Y93 mimic group was significantly lower than that in the negative control mimic group. E, G. However, the change in the expression of SMC1A003 was the opposite. I, J. When we took hypoxia into consideration, the overexpression of tRF-20-M0NK5Y93 weakened the effect of hypoxia in modulating the expression of SMC1A001 and SMC1A003.

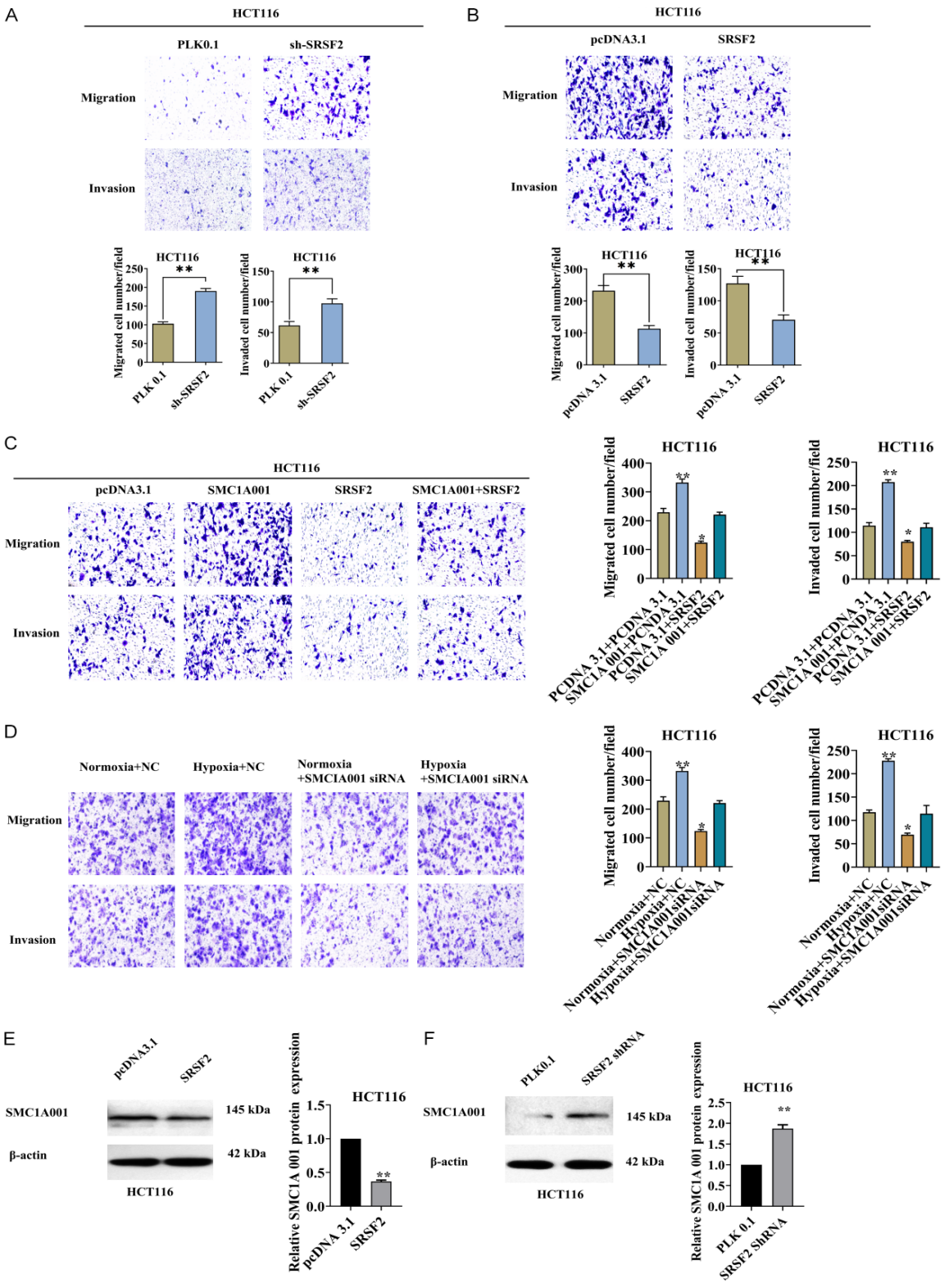


Figure S6. A. sh-SRSF2 transfection promoted the migration and invasion of both HCT116 cell lines. B. Transwell assays revealed that SRSF2 inhibited the migration of HCT116 cells. C. We cotransfected SRSF2 and SMC1A001 overexpression plasmids. The assays showed that overexpression of SRSF2 could rescue the promoting role of SMC1A001 on the metastasis of colon cancer. D. The results showed that SMC1A001 could also promote cell migration and invasion under hypoxia. E, F. SMC1A001 expression was downregulated when SRSF2 was overexpressed, and vice versa.