LETTER

MRTFB regulates the expression of NOMO1 in colon

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Kodama et al. (1) report the function of myocardin-related transcription factor B (MRTFB) in colorectal cancer (CRC). They perform whole transcriptome RNA sequencing in MRTFB small interference RNA knockdown primary human colon cells and find that spindle apparatus coiled-coil protein 1 (SPDL1) and melanoma cell adhesion molecule (MCAM) show different expression. Subsequently, they conduct gene knockout experiments to prove that the deletion of these two genes can aggravate CRC. Finally, they concluded that MRTFB suppresses CRC development by regulating SPDL1 and MCAM. We deeply agree with Kodama et al.'s views on the function of MRTFB. However, they do not explore the function of single-nucleotide polymorphism (SNP) in MRTFB in regulating expression of other genes, which may also play an important role in suppressing CRC.

To verify our assumption, we first investigated the expression quantitative trait loci (eQTLs) of MRTFB in two colon tissues (sigmoid colon and transverse colon). As shown in Table 1, three SNPs of MRTFB have been found to regulate NODAL Modulator 1(NOMO1) in the Genotype-Tissue Expression eQTL dataset (2). The rs113092833, rs28480506, and rs73509146 all have quite low *P* values, which means they have a high risk of affecting NOMO1 expression. In addition, NOMO1 has been found to have tissue specificity and mainly express in colon tumor tissue and in adjacent normal colonic mucosa (3). Furthermore, some researchers have already found the important function of NOMO1 in early-age onset CRC (4, 5). Therefore, we can reasonably speculate that MRTFB regulates the expression of NOMO1 and then affects the development of CRC.

In order to further explore the relationship between CRC and NOMO1 regulated by MRTFB, single-cell RNA sequencing (RNA-seq) data from Roerink et al. (6) was used to explore the expression of NOMO1 in different colon cell types. They dissected colon tumor of three untreated patients into four to six pieces. The expression of NOMO1 showed significant differences in different pieces (lowest *P* value is 1.07e-5).

Overall, the eQTL dataset shows the high probability that SNPs in MRTFB regulate the expression of NOMO1 in colon, and the important function of NOMO1 in CRC has been proved by other researchers and single-cell RNA-seq data. Therefore, the regulation of MRTFB in the expression of NOMO1 in colon is one of the reasons for MRTFB influencing the development of CRC.

Acknowledgments

This work has been supported by the National Key Research and Development Program of China (Grant 2016YFC0901605).

Table 1. SNPs of MRTFB regulating NOMI1 in human colon tissues

SNP	Tissue	Reference allele	Alternate allele	*P* value
rs113092833	Sigmoid colon	G	A	6.8e-7
	Transverse colon	G	A	6.0e-5
rs28480506	Sigmoid colon	G	A	3.1e-6
	Transverse colon	G	A	7.6e-5
rs73509146	Sigmoid colon	G	A	3.1e-6
	Transverse colon	G	A	7.6e-5

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Author contributions: T. Zhao performed research; Y.H. and T. Zang contributed new reagents/analytic tools; L.C. analyzed data; and T. Zhao and L.C. wrote the paper.

The authors declare no competing interest.

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First published March 17, 2020.

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