Table S1. Mechanisms by which gut microbes and their metabolites impact the development of CRC through the regulation of lncRNAs.

Name	LncRNAs	Possible mechanism	Results	References
Fusobacterium nucleatum	*EVADR*	*Fusobacterium nucleatum* upregulates *EVADR*, and elevated *EVADR* directs YBX1 to recruit EMT-related factors, thus enhancing the translation of them thereby inducing EMT.	Metastasis	[38–40]
	KRT7-AS	*Fusobacterium nucleatum* infection activates the NF-κB pathway, and activated NF-κB P-p65 may upregulate KRT7-AS by increasing the transcriptional activity of KRT7-AS, and then activates the downstream target of KRT7-AS, KRT7.	Metastasis	[17,45]
	ENO1-IT1	*Fusobacterium nucleatum* upregulates the binding efficiency of SP1 to the promoter region of lncRNA ENO1- IT1 to activate the transcription of lncRNA ENO1- IT1 and subsequently recruit KAT7 to the promoter of the ENO1 gene to regulate ENO1 transcription via epigenetic modulation.	Drug resistance	[49–51]
Enterotoxigenic *Bacteroides fragilis*	BFAL1	ETBF upregulates BFAL1, and BFAL1 competes with miR-155-5p and miR-200a-3p, thus impeding the inhibitory effect of miR-155-5p and miR-200a-3p on RHEB. RHEB can regulate the mTOR-signaling pathway, leading to the activation of the mTOR pathway.	Growth	[62]
	AERRIE	ETBF increases the levels of JMJD2B, and then induces the expression of lncRNA AERRIE, which in turn induces the expression of SULF1 to activate canonical Wnt pathway.	Proliferation and metastasis	[8,66,68,71]
Butyrate (metabolite)	LncLy6C	Butyrate-induced LncLy6C binds to the C/EBPβ and H3K4me3, specifically encouraging the enrichment of C/EBPβ and H3K4me3 marks on the promoter region of Nr4A1, thus enhancing the expression of Nr4A1. This promotes the differentiation of Ly6Chigh inflammatory monocytes into Ly6Cint/neg resident macrophages.	Reduction of inflammation	[37,76–78]
Lipopolysaccharide (metabolite)	LINC00152	Lipopolysaccharide introduces histone lactonization on the promoter of LINC00152 and reduces the binding efficiency of YY1 to LINC00152, thus upregulating the expression of LINC00152.	Migration and invasion	[36]

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