

Table SI. lncRNAs interact with epigenetic and epitranscriptomic regulators to mediate biological processes in cancer genome

A, DNA modification				
First author, year	lncRNA	Interactions with epigenetic/epitranscriptomic regulators	Function	(Refs.)
Liu <i>et al.</i> , 2020	<i>ADAMTS9-AS2</i>	DNMT3s	Mediates <i>CDH3</i> promoter methylation in esophageal cancer	(26)
Zhang <i>et al.</i> , 2020	<i>HOTAIR</i>	DNA modification	Regulates <i>MTHFR</i> and <i>GSTP1</i> genes in esophageal cancer chemoresistance	(27)
Wang <i>et al.</i> , 2016	<i>lnc34a</i>	DNMT3A	Silences <i>miR-34a</i> expression and promotes colorectal cancer proliferation	(28)
Lai <i>et al.</i> , 2019	<i>TTY15</i>	DNMT3A	Induces dysregulation of <i>TBX4</i> gene expression in esophageal squamous cell tumor metastasis	(29)
Li <i>et al.</i> , 2012	<i>AS1DHRS4</i>	DNMT3s	Suppresses the expression of <i>DHRS4</i> gene cluster in carcinogenesis	(30)
Su <i>et al.</i> , 2021	<i>MROS-1</i>	DNMT3A	Modulates <i>PRUNE2</i> expression to promote oral cancer cell migration by interacting with DNMT3A	(31)
Li <i>et al.</i> , 2020	<i>IRAIN</i>	DNMT3A/3B	Inhibits <i>VEGFA</i> expression to suppress renal carcinoma tumor growth	(32)
Cheng <i>et al.</i> , 2018	<i>HOTAIR</i>	DNMTs	Suppresses <i>miR-122</i> expression via DNMT-mediated DNA methylation and hepatocarcinogenesis	(149)
Jin <i>et al.</i> , 2020	<i>PVT1</i>	DNMT1	Forms <i>PVT1/miR-18b-5p/HIF1A</i> regulation axis in gallbladder cancer	(38)
Yoon <i>et al.</i> , 2018	<i>LUCAT1</i>	DNMT1	Increases expression of <i>UHRF1</i> in esophageal squamous cell carcinoma	(34)
Guo <i>et al.</i> , 2019	<i>HAGLR</i>	DNMT1	Regulates <i>E2F1</i> gene to inhibit lung adenocarcinoma cell proliferation	(33)

Jones <i>et al.</i> , 2021	<i>CCDC26</i>	DNMT1	Induces hepatocellular carcinoma death by increasing double-stranded DNA breaks	(35)
Xu <i>et al.</i> , 2019	<i>DBCCR1-003</i>	DNMT1	Regulates <i>DBCCR1</i> promoter region DNA methylation and expression in bladder cancer	(36)
Zhu <i>et al.</i> , 2019b	<i>Oplr16</i>	TET2	Regulates <i>OCT4</i> expression in tumorigenesis	(44)
Liu <i>et al.</i> , 2015	<i>Platr10</i>	TET2	Mediates DNA demethylation at the <i>Oct4</i> promoter loci	(45)
Zhou <i>et al.</i> , 2019	<i>TETILA</i>	TET2	Mediates TET2 subcellular localization by binding the DSBH domain of TET2 in acute myeloid leukemia	(42)
Chen <i>et al.</i> , 2020	<i>MAGI2-AS3</i>	TET2	Induces upregulation of <i>LRIG1</i> , thereby decreasing leukemic stem cell proliferation	(46)
Nie <i>et al.</i> , 2019	<i>RUNXOR</i>	TETs	Activates expression of <i>RUNX1</i> gene to suppress breast cancer proliferation	(47)

#### B, Histone modification

First author, year	lncRNA	Interactions with epigenetic/epitranscriptomic regulators	Function	(Refs.)
Luo <i>et al.</i> , 2019	<i>HOTTIP</i>	MLL/WDR5/DOT1L complex	Mediates <i>HOXA9</i> oncogene expression leading to leukemogenesis	(18)
Hu <i>et al.</i> , 2021	<i>lncRNA ROR</i>	MLL	Recruits histone methyltransferase MLL1 to upregulate TIMP3 expression, contributing to breast cancer proliferation and progression	(53)
Wang <i>et al.</i> , 2020	<i>LAMP5-AS1</i>	DOT1L	Regulates self-renewal and differentiation block in MLL leukemia	(55)
Rinn <i>et al.</i> , 2007; Tsai <i>et al.</i> , 2010; Gupta <i>et al.</i> , 2010	<i>HOTAIR</i>	LSD1/CoREST	Recruits LSD1/CoREST/REST epigenetic complexes to decrease H3K4me2 to downregulate <i>p21</i> expression	(59,63,66)

Chi <i>et al.</i> , 2017; Meseure <i>et al.</i> , 2016	<i>ANRIL</i>	PRC1 and PRC2 complexes	Suppresses the tumor- suppressor genes such as <i>p15/CDKN2B</i> , <i>p16/CDKN2B</i> and <i>p14ARF</i> gene clusters	(71,72)
Deng <i>et al.</i> , 2016; Zhu <i>et al.</i> , 2021	<i>HOXBLOC</i>	Set1/MLL	Regulate anterior oncogenic HOXB gene expression	(50, 92)
Lai <i>et al.</i> , 2017	<i>MIAT</i>	MLL	Degrades enzyme MMP9 to decrease proliferative capacity and cell migration in NSCLC	(54)
Chu <i>et al.</i> , 2020; Wanowska <i>et al.</i> , 2022	<i>PHACTR2- AS1</i>	EZH2	Mediates H3K9me of ribosomal DNA to suppress rRNA transcription and inhibits breast cancer cell metastasis	(56,57)
Zhang <i>et al.</i> , 2020	<i>LINC01419</i>	EZH2	Mediates histone methylation at the RECK promoter to regulate hepatocellular carcinoma metastasis	(77)
Chen <i>et al.</i> , 2021	<i>lnc-ATB</i>	EZH2	Regulates cell proliferation, invasion and migration in ovarian cancer	(78)
Li <i>et al.</i> , 2019	<i>UCA1</i>	EZH2	Confers tamoxifen resistance in breast cancer via regulation of the EZH2/p21 axis and PI3K/AKT signaling pathway	(81)
Huo <i>et al.</i> , 2017; Amodio <i>et al.</i> , 2018	<i>MALAT1</i>	PRC2	Suppresses <i>E- cadherin</i> expression, thus promoting osteosarcoma metastasis	(69,70)
Zhang <i>et al.</i> , 2019	<i>XIST</i>	PRC2	Facilitates cell proliferation, migration and invasion in neuroblastoma by interacting with PRC2 complex to downregulate <i>DKK1</i> gene expression	(80)
Pandey <i>et al.</i> , 2008	<i>Kcnq1ot1</i>	PRC2	Mediates silencing of a 200 kb locus surrounding the transcription site in the <i>Kcnq1</i> gene, leading to tumorigenesis	(58)

Puvvula <i>et al.</i> , 2014	<i>PANDA</i>	PRC2	Recruits PRC complexes to regulate transcription of apoptosis- and senescence-promoting genes in cancer cells	(73)
Kumar <i>et al.</i> , 2020; Liu <i>et al.</i> , 2013	<i>HOTAIR</i>	PRC2	Increases tumor cell proliferation by increasing H3K27me3 and downregulating <i>p21</i> expression	(64, 65)
Wang <i>et al.</i> , 2020	<i>circAGFG1</i>	EZH2	Regulates proliferation and cell cycle progression in cervical cancer	(76)
Wu <i>et al.</i> , 2021	<i>LINP1</i>	EZH2	Recruits EZH2 to the promoter regions of tumor suppressors <i>KLF2</i> and <i>PRSS8</i> , controlling apoptosis in cervical cancer	(79)
Dong <i>et al.</i> , 2018	<i>AGAP2-ASI</i>	CBP/P300	Mediates H3K27 acetylation at the promoter of carcinogenic protein MyD88, resulting in progression and chemo-resistance of breast cancer	(82)
C, Chromatin organization				
First author, year	lncRNA	Interactions with epigenetic/epitranscriptomic regulators	Function	(Refs.)
Luo <i>et al.</i> , 2022	<i>HOTTIP</i>	CTCF/Cohesin complex	Form topological organization in posterior HOXA and Wnt/ $\beta$ -catenin target genes	(91)
Deng <i>et al.</i> , 2016; Lai <i>et al.</i> , 2023; Zhu <i>et al.</i> , 2021	<i>HOXB LINC</i>	CTCF/Cohesin complex	Mediates 3D organization to regulate the anterior HOXB gene expression	(50, 92, 93)
Engreitz <i>et al.</i> , 2013; Kung <i>et al.</i> , 2015	<i>Xist</i>	CTCF	Mediates long-range chromosomal interactions at special genome loci for X-chromosome inactivation	(80, 89)
Venkatraman <i>et al.</i> , 2013	<i>H19</i>	CTCF	Regulates paternally associated Igf2 gene pathway, leading to FoxO3-mediated cell cycle arrest and cancer	(94)

Cardenas <i>et al.</i> , 2018; Huang <i>et al.</i> , 2019	<i>MALAT1</i>	BRG1	Induces chromatin remodeling, epigenetically promoting inflammation-associated hepatocellular carcinoma progression	(101, 102)
Neve <i>et al.</i> , 2018	<i>UCA1</i>	Chromatin remodeling	Interacts with BRG1 to prevent binding to the p21 promoter locus in gallbladder cancer	(103)
Reddy <i>et al.</i> , 2023	<i>NEAT1</i>	Subunit ARID1B of the cBAF-type SWI/SNF	Mediates nuclear paraspeckles assembly in tumorigenesis	(97)
Prensner <i>et al.</i> , 2013	<i>SChLAP1</i>	SWI/SNF	Promotes aggressive prostate cancer invasion and metastasis	(107)
Li <i>et al.</i> , 2021; Wang <i>et al.</i> , 2015	<i>LncTCF7</i>	SWI/SNF	Promotes activation of the <i>TCF7</i> and Wnt signaling pathways, leading to increased stemness of cancer cells	(105, 106)
D, RNA modification				
First author, year	lncRNA	Interactions with epigenetic/epitranscriptomic regulators	Function	(Refs.)
Chung-Pei <i>et al.</i> , 2019	<i>HIF1A-AS2</i>	ADAR1	Mediates ADAR1-dependent A-to-I editing in breast cancer development	(118)
Salameh <i>et al.</i> , 2015	<i>PCA3</i>	ADAR1	Regulates expression of the tumor suppressor gene <i>PRUNE2</i> undergoing RNA A-to-I editing, leading to the development of prostate cancer	(119)
de Santiago <i>et al.</i> , 2021	<i>LINC00944</i>	ADAR1	Interacts with Dicer or Staufen proteins to mediate poor survival rates in patients with breast cancer	(110)
Zhao <i>et al.</i> , 2021	<i>MALAT1</i>	METTL3	Controls epithelial-mesenchymal transition, migration and invasion of breast cancer cells	(121)
Sun <i>et al.</i> , 2023	<i>AI662270</i>	METTL3	Promotes CTGF expression in carcinogenesis	(111)

Zhu <i>et al.</i> , 2019	<i>ARHGAP5-ASI</i>	METTL3	Stabilizes <i>ARHGAP5</i> and promotes chemoresistance in gastric cancer	(115)
Sun <i>et al.</i> , 2020	<i>LNC942</i>	METTL14	Facilitates cell proliferation and cancer progression	(122)
Mao <i>et al.</i> , 2021	<i>HCG11</i>	IGF2BP2	Enhances expression of LATS1 for growth of lung adenocarcinoma	(116)
Zhu <i>et al.</i> , 2021	<i>KB-1980E6.3</i>	IGF2BP1	Stabilizes <i>c-Myc</i> mRNA, thereby maintaining breast cancer stem cell stemness	(130)
Wang <i>et al.</i> , 2021	<i>MALAT1</i>	YTHDC1	Maintains composition and genomic binding sites of nuclear speckles to regulate oncogene in carcinogenesis	(125)
Yang <i>et al.</i> , 2022	<i>CBSLR</i>	YTHDF2	Forms CBSLR/YTHDF2/CBS complex, leading to decrease of CBS mRNA stability in GC	(126)
Zhang <i>et al.</i> , 2017	<i>FOXMI-AS</i>	ALKBH5	Activates downstream targets in glioblastoma stem-like cells	(128)
Wang <i>et al.</i> , 2021	<i>lncNRON</i>	ALKBH5	Decreases <i>Nanog</i> m6A methylation and inhibits <i>Nanog</i> mRNA decay in gastric cancer	(127)

The abbreviations for all these items.

ADAMTS9-AS2, ADAMTS9 Antisense RNA 2; DNMT3, DNA methyltransferase 3; CDH3, Cadherin 3; HOTAIR, HOX antisense intergenic RNA; MTHFR, Methylenetetrahydrofolate reductase; TTTY15, Testis Expressed Transcript, Y-Linked 15; TBX4, T-box gene 4; AS1DHRS4, DHRS4 Antisense RNA 1; DHRS4, Dehydrogenase/reductase member 4; MROS-1, Melkersson-Rosenthal Syndrome 1; PRUNE2, prune homolog 2 with BCH domain; IRAIN, IGF1R Antisense Imprinted Non-Protein Coding RNA; VEGFA, Vascular Endothelial Growth Factor A; PVT1, plasmacytomavariant translocation 1; HIF1A, hypoxia inducible factor 1 subunit alpha; LUCAT1, Lung Cancer Associated Transcript 1; UHRF1, Ubiquitin Like with PHD and Ring Finger Domains 1; HAGLR, HOXD Antisense Growth-Associated Long Non-Coding RNA; E2F1, E2F Transcription Factor 1; CCDC26, Coiled-Coil Domain Containing 26; DBCCR1, deleted in bladder cancer chromosome region 1; Oplr16, Oct4 promoter-interacting LncRNA 16; OCT4, Octamer-Binding Transcription Factor 4; TETILA, TET2-interacting lncRNA; TET, Ten-eleven translocation; MAGI2-AS3, MAGI2 Antisense RNA 3; LRIG1, leucine rich repeats and immunoglobulin like domains 1; RUNXOR, RUNX1 overlapping RNA; HOTTIP, HOXA transcript at the distal tip; MLL, Mixed-Lineage Leukemia, DOT1L, DOT1 Like Histone Lysine Methyltransferase; TIMP3, TIMP Metallopeptidase Inhibitor 3; LAMP5-AS1, LAMP5 Antisense RNA 1; LSD1, Lysine specific demethylase 1; CoREST, REST corepressor 1; ANRIL, Antisense Noncoding RNA in the INK4 Locus; PRC, polycomb repressive complex; HOXB LINC, HOXB Associated Long Intergenic Non-Coding RNA; MIAT, Myocardial Infarction Associated Transcript; MM9, matrix metallopeptidase 9; PHACTR2, Phosphatase And Actin Regulator 2; RECK, Reversion Inducing Cysteine Rich Protein With Kazal Motifs; LNC-ATB, LncRNA Activated By TGF-Beta; EZH2, Enhancer of Zeste Homolog 2; UCA1, Urothelial Cancer Associated 1;

PI3K, Phosphoinositide 3-kinase; MALAT1, Metastasis Associated Lung Adenocarcinoma Transcript 1; Xist, X inactive-specific transcript; DKK1, Dickkopf WNT Signaling Pathway Inhibitor 1; KCNQ1OT1, KCNQ1 Opposite Strand/Antisense Transcript 1; PANDA, PANICLE NUMBER AND GRAIN SIZE; circAGFG1, Circular RNA ArfGAP with FG repeats 1; LINP1, LncRNA In Non-Homologous End Joining Pathway 1; AGAP2-AS1, AGAP2 Antisense RNA 1; CBP, CREB-binding protein; CTCF, CCCTC-binding factor; Igf2, Insulin-Like Growth Factor 2; BRG1, Brahma-related gene 1; NEAT1, Nuclear enriched transcript 1; ARID1B, AT rich interactive domain 1B; SChLAP1, Second chromosome locus associated with prostate-1; SWI/SNF, SWitch/Sucrose Non-Fermentable; HIF1A-AS2, HIF1A Antisense RNA 2; ADAR1, adenosine deaminases acting on RNA; PRUNE2, prune homolog 2 with BCH domain; METTL3, methyltransferase-like 3; ARHGAP5, Rho GTPase Activating Protein 5; METTL14, Methyltransferase 14, N6-Adenosine-Methyltransferase Non-Catalytic Subunit; HCG11, HLA Complex Group 11; IGF2BP2, Insulin Like Growth Factor 2 mRNA Binding Protein 2; LATS1, Large tumor suppressor homolog 1; YTHDC1, YTH N6-Methyladenosine RNA Binding Protein C1; CBSLR, CBS mRNA Stabilizing LncRNA; CTGF, Connective tissue growth factor; YTHDF2, YTH Domain Family 2; FOXM1, Forkhead Box M1; lncNRON, Long Non-Coding Repressor Of NFAT; MYC, myelocytomatosis oncogene; ALKBH5, AlkB Homolog 5.