

Table S1: Participation of ceRNAs in cancer.

lncRNA	miRNA	mRNA	type of cancer	PMID
AFAP1-AS1	miR-146b-5p	EGFR	pancreatic cancer	(Zhou et al., 2018a)
ATB	miR-590-5p	YAP1	melanoma	(Mou et al., 2018)
ATB	miR-141-3p	TGFβ	Gastric cancer	(Lei et al., 2017b)
ATB	miR-200a	TGFB2	Glioma	(Ma et al., 2016)
BARD1 9'L	miR-203 miR-101	BARD1	Breast, Lung, Prostate (cancer cell lines)	(Pilyugin and Irminger-Finger, 2014)
BC032469	miR-1207-5p	hTERT	Gastric Cancer	(Lu et al., 2016b)
CASC2	miR-18a	PIAS3	Colorectal cancer	(Huang et al., 2016)
CASC2	miR-21	PTEN	cervical cancer	(Feng et al., 2017)
CASC2	miR-367	FBXW7	hepatocellular carcinoma	(Wang et al., 2017b)
CCAT1	miR-155	C-MYC	Acute Myeloid Laukemia	(Chen et al., 2016a)
CCAT1	miR-181b	FGFR3 PDGFRα	Glioma	(Cui et al., 2017)
CCAT1	miR-410	ITPKB	Colon cancer	(Li et al., 2017a)
CCAT1	miR-143	FTC-133	thyroid carcinoma	(Yang et al., 2018c)
CCAT1	miR-33a	n.d.	Melanoma	(Lv et al., 2018)
CCAT2	miR-424	n.d.	Ovarian Cancer	(Hua et al., 2018)
CCR492	Let-7	C-MYC	MEFs	(Maldotti et al., 2016)
CRNDE	miR-451	n.d.	Multiple Myeloma	(Meng et al., 2017)
CTNNAP1	miR-141	CTNNA1	Colorectal Cancer	(Chen et al., 2016b)
DANCR	miR-335-5p, miR-1972	ROCK1	osteosarcoma	(Wang et al., 2018d)
DANCR	miR-149	MSI2	bladder cancer	(Zhan et al., 2018)
FAL1	miR-1236	n.d.	hepatocellular carcinoma	(Li et al., 2018a)
FER1L4	miR-106a-5p	n.d.	Colon Cancer	(Yue et al., 2015)
FER1L4	miR-106a-5p	PTEN RB1 RUNX1 VEGFA CDKN1A E2F1, HIPK3 IL-10, PAK7	Gastric Cancer	(Xia et al., 2014)
FLVCR1-AS1	miR-573	E2F 3	lung cancer	(Gao et al., 2018b)
FOXD2-AS1	miR-143	ABCC3	bladder cancer	(An et al., 2018)
FOXD2-AS1	miR-485-5p	KLK7	papillary thyroid cancer	(Zhang et al., 2018e)
FOXD2-AS1	miR-185-5p	CCND2	glioma malignancy	(Shen et al., 2018a)
FOXD2-AS1	miR-363-5p	S100A1	nasopharyngeal carcinoma	(Chen et al., 2018a)
FOXD2-AS1	miR-206	ANXA2	hepatocellular carcinoma	(Chang et al., 2018b)
FOXD2-AS1	miR-185-5p	cdc42	Colorectal cancer	(Zhu et al., 2018b)

FTH1P3	miR-224-5p	Fizzled 5	Oral squamous cell carcinoma	(Zhang, 2017b)
GACAT3	miR-497	CCND2	breast cancer	(Zhong et al., 2018)
GAS5	MiR-23a	ATG3	Breast Cancer	(Gu et al., 2018)
GAS5	miR-135b	n.d.	Non-Small Cell Lung Cancer	(Xue et al., 2017)
GAS5	196a-5p	FOXO1	triple negative breast cancer	(Li et al., 2018c)
H1	miR-138	EZH2	oral squamous cell carcinoma	(Hong et al., 2018)
H19	Let-7a/b	IL-6	Cholangiocarcinoma	(Wang et al., 2016d)
H19	miR-342-3p	FOXO1	Gallbladder cancer	(Wang et al., 2016a)
H19	miR-17-5p	YES1	Thyroid cancer	(Liu et al., 2016a)
H19	miR-200 family	ZEB1, ZEB2	Osteosarcoma	(Li et al., 2016a)
H19	miR-138 miR-200a	VIM, ZEB1, ZEB2	Colorectal Cancer	(Liang et al., 2015)
H19	miR-29b-3p	DNMT3B	bladder cancer	(Lv et al., 2017)
HCAL	miR-15a miR-196a miR-196b	LAPTM4B	hepatocellular Carcinoma	(Xie et al., 2017)
HIF1A-AS2	miR-129-5p	DNMT3A	colorectal cancer	(Lin et al., 2018)
HNF1A-AS1	miR-30b-5p	ATG5	Hepatocellular Carcinoma	(Liu et al., 2016b)
HNF1A-AS1	miR-34a	SIRT1,p53	colon cancer	(Fang et al., 2017a)
HOTAIR	miR-138, miR-200c miR-204 miR-217	ADAM9 CCND2 EZH2 VEGFA VIM ZEB1 ZEB2	Renal cell carcinoma	(Ding et al., 2018b)
HOTAIR	miR-23b-3p	ZEB1	hepatocellular carcinoma	(Yang et al., 2018b)
HOTAIR	miR-217	HIF1 $\mu\alpha$	Renal cell carcinoma	(Hong et al., 2017)
HOTAIR	miR-373	RAB22A	Ovarian Cancer	(Zhang et al., 2016)
HOTAIR	miR-141	SKA2	Glioma	(Bian et al., 2016)
HOTAIR	miR-331-3p	HER2	Gastric Cancer	(Liu et al., 2014)
HOTAIR	miR-125 miR-143	HK2	oesophageal squamous cell carcinoma	(Ma et al., 2017)
HOTAIR	miR-206	CCND1 CCND2	Ovarian Cancer	(Chang et al., 2018a)
HOXA11-AS	miR-454-3p	Stat3	lung adenocarcinoma	(Zhao et al., 2018)
HOXA11-AS	miR-214-3p	EZH2	glioma	(Xu et al., 2017a)
HOXA-AS2	miR-520c-3p	S100A4	Papillary Thyroid Cancer	(Xia et al., 2018)
HOXD-AS1	miR-130a	E2F8	glioma	(Chen et al., 2018b)
HOXD-AS1	miR-130a-3p	SOX4	hepatocellular carcinoma	(Wang et al., 2017a)
HULC	miR-372	CXCR4	Cholangiocarcinoma	(Wang et al., 2016d)

	miR-373			
HULC	miR-200a-3p	ZEB1	Hepatocellular carcinoma	(Li et al., 2016b)
KRTAP5-AS1 TUBB2A	miR-596 miR-3620-3p	CLDN4	gastric cancer	(Song et al., 2017)
LIFR-AS1	miR-29a	TNFAIP3	colorectal cancer	(Liu et al., 2018c)
LINC00152	miRNA-206	NRP1	colorectal cancer	(Chen et al., 2018c)
LINC00174	miR-1910-3p	TAZ	colorectal carcinoma	(Shen et al., 2018b)
LINC00511	miR-765	LAMC2	tongue squamous cell carcinoma	(Ding et al., 2018a)
LINC00668	miR-297	n.d.	oral squamous cell carcinoma	(Zhang, 2017a)
LINC00858	miR-422	KLK4	Non-small Cell Lung Cancer	(Zhu et al., 2017)
Linc00974	miR-642	KRT19	Hepatocellular Carcinoma	(Tang et al., 2014)
linc01561	miR-145-5p	MMP11	breast cancer	(Jiang et al., 2018b)
LOC728196	miR-513c	TCF7	glioma carcinogenesis	(Wang et al., 2018c)
MALAT1	miR-211	PHF19	ovarian carcinoma	(Tao et al., 2018)
MALAT1	miR-143-3p	ZEB1	Hepatocellular Carcinoma	(Chen et al., 2017b)
MALAT1	miR-183	ITG1	melanoma	(Sun et al., 2017b)
MALAT1	miR-202	GLI2	Gastric Cancer	(Zhang et al., 2017d)
MALAT1	miR-363-3p	MCL-1	Gallbladder Cancer	(Wang et al., 2016b)
MALAT1	miR-22	MMP14 SNAIL1	Melanoma	(Luan et al., 2016)
MALAT1	miR-206	ANXA2 KRAS	Gallbladder cancer	(Wang et al., 2016c)
MALAT1	miR-1	CDC42	Breast Cancer	(Chou et al., 2016)
MALAT1	miR-145	Nd.	Cervical Cancer	(Lu et al., 2016a)
MALAT1	miR-320a	FOXO1		(Sun et al., 2017a)
MALAT1	miR-211	PHF19	ovarian carcinoma.	(Tao et al., 2018)
MALAT1	miR-195	EGFR	hepatoma cells	(Liu et al., 2018a)
MALAT1	miR-125b	STAT3	oral squamous cell carcinoma	(Chang and Hu, 2018)
MEG3	miR-181	BCL2	Gastric Cancer	(Peng et al., 2015)
MEG3	miR-19a	PTEN	glioma	(Qin et al., 2017)
MEG3	hsa-miR-9	E-cadherin FOXO1	Esophageal Cancer	(Dong et al., 2017)
MIAT	MiR-29c	LOXL2	Clear Cell Renal Cell Carcinoma	(Qu et al., 2018)
MKI67IP-3	Let-7e	IKB β	Inflammatory response	(Lin et al., 2017)
MNX1-AS1	miR-218-5p	SEC61A1	colon adenocarcinoma.	(Ye et al., 2018)
MT1JP	miR-214-3p	RUNX3	Gastric Cancer	(Xu et al., 2018)
NEAT1	miR-186-5p	HIF-1 α	osteosarcoma	(Tan and Zhao, 2018)
NEAT1	miR-339-5p	TGF- β 1	osteosarcoma	(Zhang et al., 2019)
NEAT1	mir-139-5p	TGF- β 1	hepatocellular carcinoma	(Tu et al., 2018)
NEAT1	miR-485	STAT3	hepatocellular carcinoma	(Zhang et al., 2018d)

NEAT1	miR-506	STAT3	gastric cancer	(Tan et al., 2018)
NEAT1	miR-448	ZEB1	breast cancer	(Jiang et al., 2018c)
NEAT1	mir-98-5p	MAPK6	non-small-cell lung cancer	(Wu et al., 2017a)
NEAT1	miR-9-5p	n.d.	cervical cancer	(Xie et al., 2018b)
NEAT1	miR-129	CTBP2	Esophageal Squamous Cell Carcinoma	(Li et al., 2017h)
NEAT1	miR-377-3p	E2F3	Non-small cell lung cancer	(Sun et al., 2016)
NEAT1	miR-382-3p	ROCK1	ovarian cancer	(Liu et al., 2018g)
NEAT1	Mir-193a-3p	USF1	Lung Adenocarcinoma	(Xiong et al., 2018)
NEAT1	miR-382-3p	ROCK1	Ovarian cancer	(Liu et al., 2018g)
NeD125	miR-19a-3p, miR-19b-3p miR-106a-5p	CDK6 MYCN SNCAIP KDM6A	Medulloblastoma	(Laneve et al., 2017)
NNT-AS1	miR-129-5p	n.d.	lung cancer	(Shen and Jiang, 2018)
NNT-AS1	miR-142-3p	ZEB1	breast cancer	(Zhang et al., 2018e)
NNT-AS1	miR-142-3p	ZEB1	breast cancer	(Li et al., 2018d)
NORAD	miR-590-3p	SIP1	cervical cancer	(Huo et al., 2018)
NORAD	miR-125a-3p	RhoA	pancreatic cancer	(Li et al., 2017c)
OIP5-AS1	miR-186a-5p	ZEB1	hepatoblastoma	(Zhang et al., 2018g)
OIP5-AS1.	miRNA-129-5p	SOX2	breast cancer	(Zeng et al., 2018)
PAGBC	miR-133b miR-511	n.d.	gallbladder tumorigenesis	(Wu et al., 2017b)
PCAT-1	miR-129-5p	HMGB1	hepatocellular carcinoma	(Zhang et al., 2017a)
PCAT7	miR-134-5p	ELF2	nasopharyngeal carcinoma	(Liu et al., 2017c)
PTENP1	miR-106b miR-93	PTEN	Gastric cancer	(Zhang et al., 2017b)
PTENP1	miR-19b	PTEN	breast cancer	(Li et al., 2017f)
PVT1	microRNA-30a	IGFR1.	papillary thyroid carcinoma	(Feng et al., 2018)
PVT1	miR-199a-5p	HIF1 α	non-small cell lung cancer	(Wang et al., 2018a)
PVT1	miR-424	n.d.	Cervical Cancer	(Gao et al., 2017)
PVT1-5	miR-126	SLC7A5	lung cancer	(Li et al., 2018b)
ROR	miR-145	N.d.	Colon Cancer	(Zhou et al., 2016)
ROR	miR-145	Nanog	Pancreatic Cancer	(Gao et al., 2016)
RoR	miR-145	MUC1	triple-negative breast cancer	(Ma et al., 2018)
ROR	miR-145	Oct4 Sox2 Nanog	Colon cancer	(Yan and Sun, 2018)
ROR	miR-145	FSCN1	esophageal squamous cell carcinoma	(Shang et al., 2018)
ROR	miR-145	Oct4	prostate cancer	(Liu et al., 2017b)
ROR	miR-145	n.d.	Endometrial Cancer	(Zhou et al., 2014)

RP11-79H23.3	miR-107	PTEN	Bladder Cancer.	(Chi et al., 2018)
RP4	miR-7-5p	SH3GLB1	colorectal cancer	(Liu et al., 2018d)
RSU1P2	let-7a	n.d.	cervical cancer	(Liu et al., 2017a)
SNHG1	miR-338	CST3	Esophageal cancer	(Yan et al., 2017)
SNHG1	miR-199a-3p	CDK7	Prostate cancer	(Li et al., 2017e)
SNHG1	miR-577	n.d.	osteosarcoma	(Jiang et al., 2018d)
SNHG1	miR-326	NOB1	osteosarcoma	(Wang et al., 2018b)
SNHG12	miR-199a/b-5p	MLK3	Hepatocellular Carcinoma	(Lan et al., 2017)
SNHG12	miR-195-5p	Notch2	osteosarcoma	(Zhou et al., 2018b)
SNHG16	miR-98	E2F5	Breast cancer	(Cai et al., 2017)
SNHG16	miR-20a-5p	E2F1	glioma	(Yang et al., 2018a)
SNHG5	miR-32	KLF4	Gastric cancer	(Zhao et al., 2017)
SNHG6-003	miR-26a/b	TAK1	Hepatocellular carcinoma	(Cao et al., 2017)
SNHG7	miR-193b	FAIM2-	non-small cell lung cancer	(She et al., 2018)
SPRY4-IT1	miR-101-3p	n.d.	colorectal cancer	(Jin et al., 2017)
STARD1	miR-9 miR-10b miR-125	CDH5 HOXD1, HOXD10	Breast Cancer	(Li et al., 2016c)
TINCR	miR-544a	FBXW7	lung cancer	(Liu et al., 2018f)
TP73-AS1	miR-449a	EZH2	non-small cell lung cancer	(Zhang et al., 2018a)
TP73-AS1	miR-124	iASPP	Glioma	(Xiao et al., 2018)
TP73-AS1	miR-200a	TFAM	breast cancer	(Yao et al., 2018)
TP73-AS1	miR-200a	ZEB1	breast cancer	(Zou et al., 2018)
TP73-AS1	miR-200a	HMGB1	hepatocellular carcinoma	(Li et al., 2017g)
TP73-AS1	miR-449a	EZH2	non-small cell lung cancer	(Zhang et al., 2018a)
TP73-AS1	miR-142	HMGB1	Brain Glioma	(Zhang et al., 2018c)
TUG1	mir-142-3p	ZEB1	Hepatocellular Carcinoma	(He et al., 2018)
TUG1	miR-335-5p	n.d.	Osteosarcoma	(Zhang et al., 2017b)
TUG1	miR-9-5p	POU2F1	Osteosarcoma	(Xie et al., 2016)
TUG1	miR-186	CPEB2	colorectal cancer	(Li et al., 2017b)
TUG1	miR-145	n.d.	papillary thyroid cancer	(Lei et al., 2017a)
TUG1	miR-212-3p	FOXA1	osteosarcoma	(Xie et al., 2018a)
TUSC7	miR-211	CDK6	Colorectal Cancer	(Xu et al., 2017b)
UCA1	miR-195	ARL2	Bladder Cancer	(Li et al., 2017d)
UCA1	miR-16	MDR1	Chronic Myeloid Leukemia	(Xiao et al., 2017)
UCA1	miR-204	SOX4	Esophageal Cancer	(Jiao et al., 2016)
UCA1	miR-193a	HMGB1	lung cancer cell	(Wu and Zhou, 2018)
UCA1	miR-193a-3p	ERBB4	non-small cell lung cancer	(Nie et al., 2016)
UCA1	miR-184	SF1	oral squamous cell carcinoma	(Fang et al., 2017b)
UCA1	miR-196a-5p	CREB	bladder cancer	(Pan et al., 2016)

UCA1	hsa-miR-145	ZEB1 ZEB2 FSCN1	bladder cancer	(Xue et al., 2016)
UCA1	miR-204-5p	ZEB1 COL5 A1	glioma	(Liang et al., 2018)
UCA1	miR-204	Sox4	esophageal cancer	(Jiao et al., 2016)
UCA1	miR-16	MDR1	Myeloid Leukemia Cells	(Xiao et al., 2017)
UCA1	MiR-195	ARL2	Bladder Cancer	(Li et al., 2017d)
UCA1	miR-204	ATF2	prostate cancer	(Zhang et al., 2017c)
UCA1	miR129	SOX4	renal cell carcinoma	(Liu et al., 2018e)
UCA1	miR-125a	HK2	pediatric AML	(Zhang et al., 2018f)
UICLM	microRNA-215	ZEB2	colorectal cancer	(Chen et al., 2017a)
Unigene56159	miR-140-5p	SLUG	Hepatocellular carcinoma	(Lv et al., 2016)
USP16	miR-21 miR-590-5p	PTEN	Hepatocellular carcinoma	(Sui et al., 2017)
XIST	miR-34a	MET	thyroid cancer	(Liu et al., 2018b)
XIST	miR-200a	Fus	cervical cancer	(Zhu et al., 2018a)
XIST	miR-137	PXN	non-small cell lung cancer	(Jiang et al., 2018a)
XIST	miR-185	TGF- β 1	gastric cancer	(Zhang et al., 2018b)
XIST	miR-21-5p	PDCD4	osteosarcoma	(Zhang and Xia, 2017)
XLOC_006390	miR-338-3p miR-331-3p	PKM2 EYA2 NRP2	cervical cancer	(Luan and Wang, 2018)
XLOC_008466	miR-874	MMP2 XIAP	Non-small Cell Lung Cancer	(Yang et al., 2017)
ZEB2-AS1	miR-204	HMGB1	pancreatic cancer	(Gao et al., 2018a)

References (Table S1.)

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