

Supplementary files

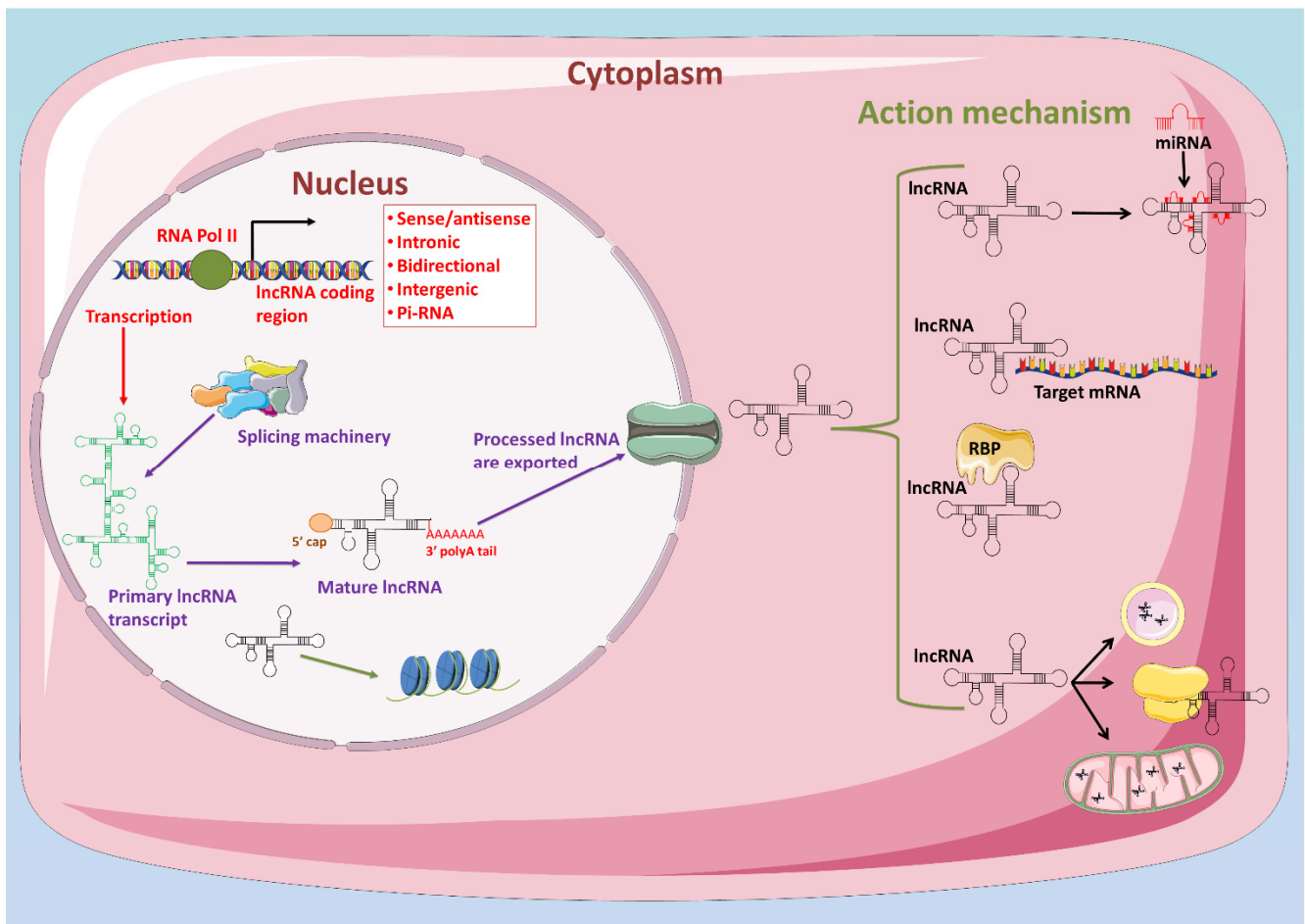


Figure S1. lncRNA biogenesis and function. lncRNAs are transcribed by RNA Polymerase II. Immature lncRNA molecules undergo splicing processing similar to messenger RNA (mRNA). Effective processing culminates in the formation of a mature lncRNA molecule containing a capped 5' end (5' UTR) and a polyadenylated 3' end (poly A tail). The processed lncRNA molecule is exported to the cytoplasm, where it can have different fates, many of which are relatively unknown. Mature lncRNAs can interact with and regulate other molecules, including RNA molecules (miRNAs and even mRNAs). Mature lncRNAs can also interact with diverse RNA-binding proteins (RBPs) and associate with ribosomes through 'pseudo' 5' untranslated regions (UTRs). Several lncRNAs are sorted into mitochondria and can also be found in other organelles, such as exosomes; this recruitment of lncRNAs is accomplished by unknown mechanisms. lncRNAs that are inefficiently processed are retained in the nucleus. They can remain on chromatin and bind to chromatin-modifying complexes and direct them to a specific target, activating or repressing the target.

Table S1. Landscape regulation of lncRNA in DCIS

lncRNA	Modulation of molecular pathways and process	Premalignant phenotypic alteration	In vivo / in vitro alterations	Modulation of neighboring genes	Target gene	References
HOTAIR	Drug resistance; EMT, AP1, HIF1A; Autophagy	Growth; Invasion; Migration; Proliferation	Recurrence score; Increased in more aggressive DCIS lesions; Upregulated between normal breast and DCIS	N.D	N.D	[48, 52-55]
LINC00885	CDK6; MYC; ERBB; P53; EREG	Growth; Motility and migration; Cell proliferation	N.D	N.D	N.D	[59]
BHLHE40-AS1	IL-6 / STAT3	Increased invasive potential; Invasion; Migration	Immuno-permissive microenvironment; Disease progression; Upregulated between early-stage DCIS and IBC	N.D	N.D	[66]
MALINC1	Ap1; Cell adhesion; Tumor microenvironment remodeling; Extracellular matrix organization; Cell proliferation; Innate and adaptive immune response	N.D	Modulation of molecular pathways and process	N.D	N.D	[72, 73]
RP11-379F4.4	NF-kB	N.D	Potential indicator of DCIS-IBC progression	STAT	RARRES1	[88]
RP11-465B22.8	NF-kB	N.D	Potential indicator of DCIS-IBC progression	STAT	miR-200b; miR-200b	[88]

* N.D = Not Determined.