Long non-coding RNAs

Long non-coding RNAs (LncRNAs) and large intergenic non-coding RNAs (lincRNAs) are emerging as master regulators of embryonic pluripotency, differentiation, patterning of the body axis and promoting developmental transitions. LncRNAs are larger than 200 nucleotides in length and are pervasively expressed across the genome. LncRNAs maintain the commitment to specific cellular fates through modification and remodeling of chromatin at the epigenetic level. Dysregulated expression of IncRNAs has been shown to be associated with a broad range of diseases such as Alzheimer’s, psoriasis and many cancers. Studying the expression patterns of IncRNAs will be a crucial method to understanding the roles they play in many model systems. SBI has built a sensitive, accurate and robust qPCR array to enable researchers to closely profile the expression changes in the top IncRNAs known to date. All of the IncRNAs on the qPCR array have validated primer sets for well-annotated IncRNAs that are registered in the IncRNA database created by Dr. John Mattick (www.lncrnadb.org).

Potential functions of IncRNAs

I. Signaling

Their expression can be stimulated in response to certain stimuli, such as cellular stress and temperature, like XIST and AIR.

II. Decoys

Specific IncRNAs are transcribed and then bind to and titrate away protein factors such as MALAT1.

III. Guides

LncRNAs can be molecular guides by localizing particular ribonucleoprotein complexes to specific chromatin targets. HOTTIP is a prime example.

IV. Scaffolds

LncRNAs can assemble of protein complexes to form new functions. HOTAIR and ANRIL are examples of scaffold IncRNAs.

LncProfiler™ qPCR arrays

Profile the expression of LncRNAs using qPCR

SBI’s LncProfiler™ are complete cDNA synthesis kits combined with a 96-well based qPCR assay sets for either Human or Mouse LncRNAs. The qPCR assays have been validated across numerous cell types for robust and specific performance. Some LncRNAs have endogenous polyA tails, while other LncRNAs do not. To enhance qPCR assay performance, the cDNA synthesis kit includes reagents to polyadenylate all LncRNAs before cDNA conversion using the oligo dT adaptor and random primers.

Human LncProfiler qPCR Array

Mouse LncProfiler qPCR Array

Subcellular reference controls

LncRNAs can localize and function in the nucleolus, nucleus and in the cytoplasm. The LncProfiler qPCR array includes RNA reference controls to allow for subcellular fractionation studies to identify and profile three separate subcellular compartments.

- Nucleolus: SnRNA RNU43 (and some 18S rRNA)
- Nucleus: Small Nuclear splicing snRNA U6B
- Cytoplasm: GAPDH, Lamin A/C (Human Array) or Beta-Actin (Mouse array) and 18S rRNA

Normalization references and controls

We Also Offer Custom Services

System Biosciences offers a wide-range of custom services to support your research, allowing you to spend less time making tools, and more time making discoveries. To learn more, visit our website at www.systembio.com/service or call us at 888-266-5066.

Profile LncRNAs in Cancer

Specificity tests using dissociation analysis