



Simplified Long Noncoding RNA Discovery



Innovative Tools to Simplify lncRNA Discovery

Begin exploring the long noncoding transcriptome with sensitive and simple-to-use lncRNA assays and reagents.

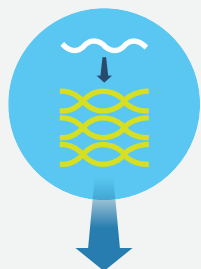
Accelerate your research with streamlined protocols that help you get to answers sooner.



The lncRNA qPCR Workflow

Get from sample to data faster with solutions designed to work together seamlessly.

Sample to Discovery in Three Straightforward Steps



1

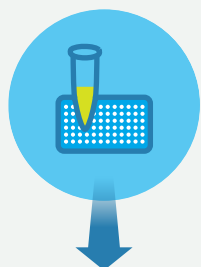
Generate Preamplified cDNA in a Single Step

iScript™ Explore One-Step RT and PreAmp Kit

- Combine cDNA synthesis and preamplification into a single step
- Achieve sensitive detection of lncRNAs expressed at low copy number

PrimePCR™ lncRNA PreAmp Assays

- Obtain unbiased detection of limited lncRNA
 - Save time using Preblended PreAmp Assay Pools available for predesigned lncRNA arrays
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2

Rapidly Set Up lncRNA qPCR Reactions

PrimePCR lncRNA Expression Assays and Arrays

- Attain high specificity with guaranteed performance

SsoAdvanced™ Universal Supermixes

- Increase processivity and achieve robust amplification of challenging targets with Sso7d fusion enzyme technology

CFX Real-Time PCR Detection System

- Start a PrimePCR run with a single click
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3

Simplify lncRNA Expression Analysis

CFX Maestro™ Software

- Streamline data analysis by integrating with all PrimePCR products
 - Import PrimePCR plate maps and run conditions by dragging and dropping a PrimePCR run file into CFX Maestro Software
 - Include optional control assays to arrays to quickly perform quality control of data
- Use push-button data analysis and statistical tests

iScript Explore One-Step RT and PreAmp Kit

Simplified preamplification without sacrificing performance

Use this kit to carry out unbiased target-specific preamplification of up to 100 targets. It contains all the reagents for gDNA clearance, reverse transcription, and preamplification; just add RNA and PreAmp Assays.



Developed and Optimized for lncRNA qPCR Research Needs

gDNA Clearance

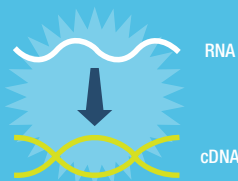
Amplify only your target of interest



Enables accurate detection of low-expressing lncRNA by eliminating gDNA contamination.

Reaction Booster

For enhanced RT performance



Aids in the detection of lncRNA targets with complex secondary structures.

Validated

Developed and tested for compatibility with PrimePCR lncRNA Assays



Ensures peace of mind that your reagents and lncRNA primers are guaranteed to deliver high performance.

Single Step

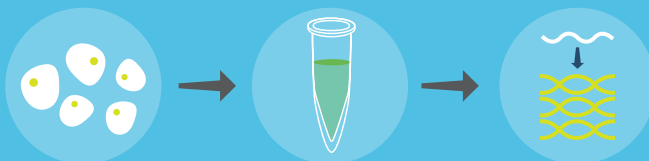
Go directly from RNA to preamplified cDNA in one step



Allows the addition of preamplification without additional pipetting steps.

Skip RNA Extraction and Purification

Compatible with SingleShot™ Cell Lysis Kits



Simplifies upstream work by eliminating the RNA purification step.

All-in-One Kit

gDNA clearance, RT, and preamplification reagents — all in a single kit



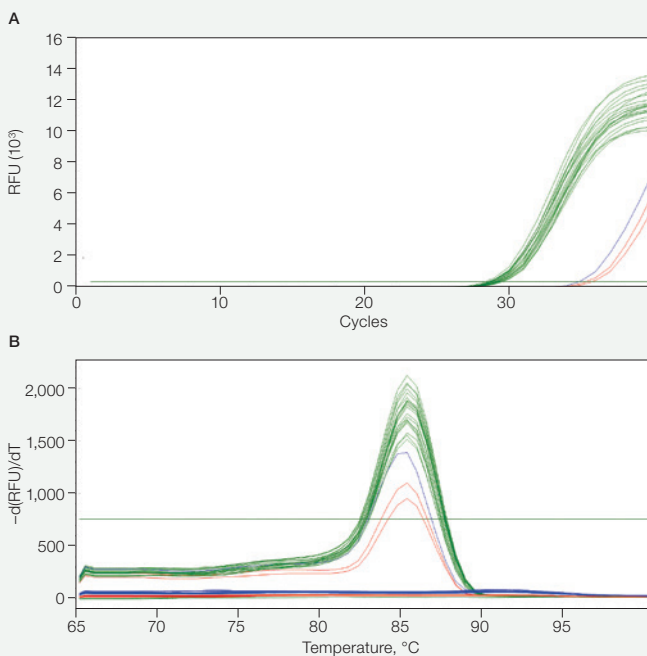
Provides confidence that all reagents are designed and QC'd to work together.

iScript Explore One-Step RT and PreAmp Kit

Exceptional reagent performance

Highly Sensitive Target Detection at Low Copy Number

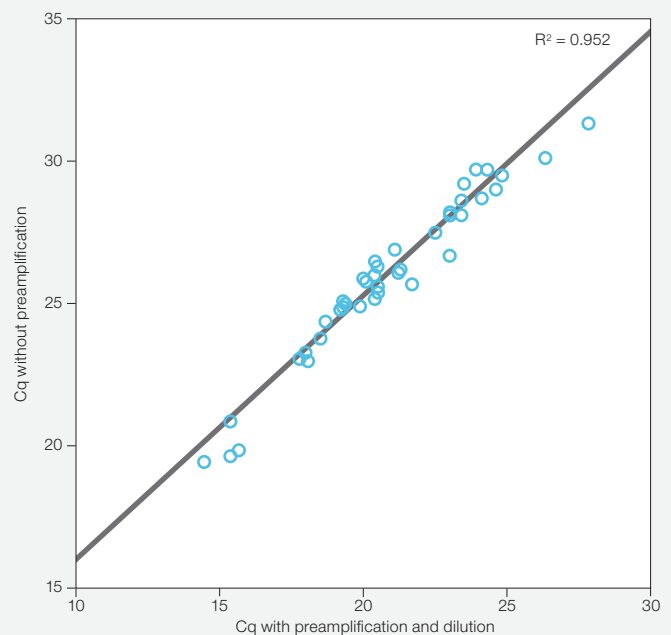
The iScript Explore Kit enables sensitive detection of rare transcripts in limited samples, allowing the detection of targets down to the single copy level. This kit is ideal for lncRNA detection because lncRNAs are on average present at much lower levels than messenger RNAs.



The iScript Explore Kit enables sensitive detection of rare transcripts. RNA samples containing a single copy of target RNA were reverse transcribed and preamplified using the iScript Explore Kit (—), reverse transcribed using the iScript Advanced cDNA Synthesis Kit (—), or reverse transcribed using a third-party reverse transcriptase (—). Resulting cDNA samples were run in 20 replicate qPCR reactions to determine target detection. **A**, only the iScript Explore Kit provides consistent detection of rare targets in each of the qPCR reactions (20 of 20 reactions are positive). Single copy targets were not reliably detected in the absence of preamplification. **B**, melt curve analysis demonstrates a single peak in all positive samples, suggesting that a single, specific product was produced in all cases.

Unbiased Preamplification

The iScript Explore Kit includes patented* Sso7d fusion technology to provide truly unbiased preamplification regardless of the targets present in the reaction master mix, enabling more data to be obtained from a limited source.



Preamplification does not introduce bias. The potential for bias was evaluated on RNA targets using External RNA Controls Consortium (ERCC) transcripts, which are RNA standards of known copy number. ERCC target concentrations ranging from single copy to 16,000 copies were used to assess bias across a wide dynamic range. Preamplified RNA samples were reverse transcribed using the iScript Advanced cDNA Synthesis Kit or reverse transcribed and preamplified using the iScript Explore One-Step RT and PreAmp Kit. The R² value of 0.952 indicates a high correlation between samples with and without preamplification. The results demonstrate minimal bias for accurate relative gene expression, even down to single-copy levels of target RNA.

* U.S. Patents 6,627,424; 7,541,170; 7,560,260.

PrimePCR IncRNA Assays

Expertly designed assays guaranteed to work

Long noncoding RNA genes are often positioned in complex genomic sites with the potential to overlap with other transcripts, complicating qPCR assay design and validation. Our validated design process was used to create IncRNA assays with maximized transcript coverage and target specificity. Our human IncRNA assay portfolio eliminates the need for optimization and is guaranteed to perform.



PrimePCR IncRNA Assays were created in partnership with transcriptome experts at BioGazelle using a proprietary design algorithm optimized for specificity and sensitivity of IncRNA detection.

Assay Design Algorithm

- Avoids secondary structure in priming sites
- Achieves maximum transcript coverage
- Avoids common single nucleotide polymorphisms (SNPs)
- Considers data from top IncRNA databases
- Includes additional specificity checks to avoid off-target amplification of proximal transcripts overlapping the target of interest in a sense or antisense position

Download **bulletin 6990** for more information on the IncRNA assay and array design process.

Assay Formats to Fit Your Needs



- IncRNA SYBR® Green Primer Assays



- IncRNA Probes Assays compatible with multiplexing. Available reporter dyes: FAM, HEX, Texas Red 615, Cy5, and Cy5.5



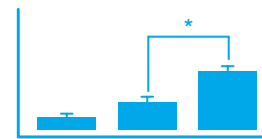
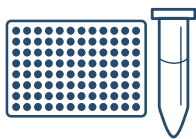
- Concentrated PreAmp Assays that can be used for both preamplification and downstream qPCR reactions



- DNA assay templates for every human IncRNA assay serve as a positive control

PrimePCR IncRNA Assays are also compatible with Droplet Digital™ PCR (ddPCR™) workflows.

Integration of PrimePCR Arrays with CFX Maestro Software Simplifies Data Analysis



Setup

- Rapidly set up custom and predesigned PrimePCR Arrays by simply dragging and dropping the PrimePCR run file to populate the array data and cycling program automatically

Analysis

- Confirm data quality with the PrimePCR control analysis module
- Efficiently organize and analyze data from multi-plate experiments

Insight

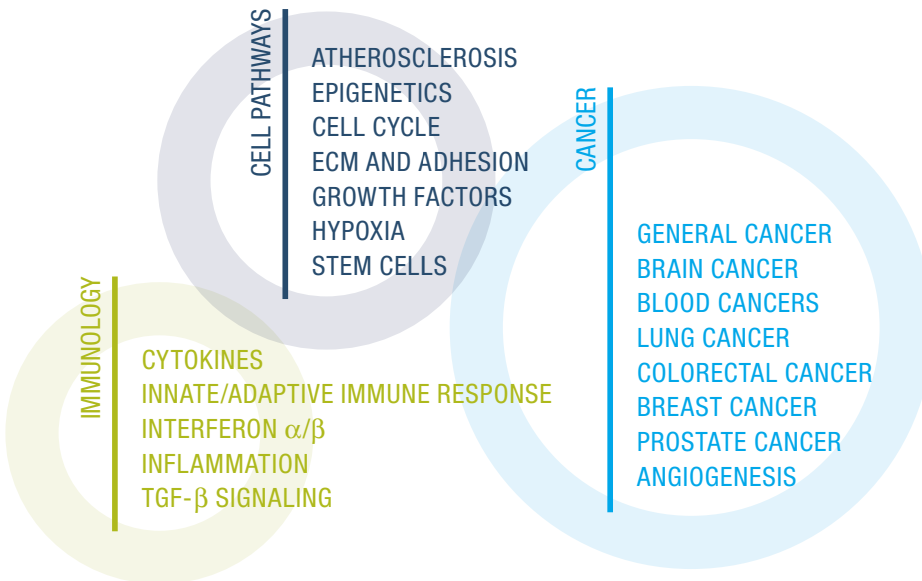
- Plot publication-ready graphics with just a few clicks
- Quickly visualize experimental data for easier interpretation

PrimePCR IncRNA Arrays

Predesigned and customizable options to drive discovery

PrimePCR IncRNA Arrays simplify IncRNA profiling by including lyophilized primers in each plate well. Plates compatible with every major real-time PCR instrument are available. The arrays are also available with PrimePCR Control Assays for results you can trust. Both predefined IncRNA arrays and custom arrays enable preamplification efficacy to be easily assessed by using the preamplification control assay.

Available IncRNA Arrays



Predesigned PrimePCR IncRNA Arrays

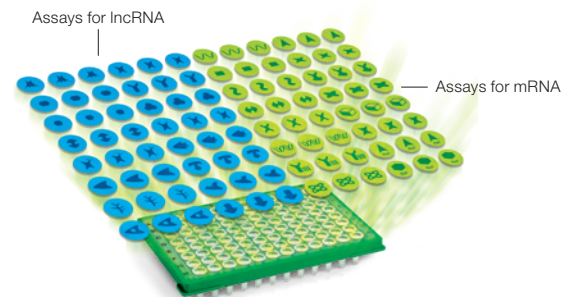
Predesigned PrimePCR IncRNA qPCR Arrays facilitate IncRNA discovery by offering panels associated with specific research areas. Each plate was curated to include a combination of highly cited IncRNAs as well as novel IncRNAs to aid in target discovery.

- Faster preamplification setup with matching PrimePCR IncRNA PreAmp Pools
- Extensively wet-lab validated to ensure stringent performance standards are met on all IncRNA assays on predefined plates
- Great companion for Predefined PrimePCR mRNA Arrays

Custom PrimePCR IncRNA Arrays

Custom PrimePCR IncRNA qPCR Arrays simplify IncRNA expression research. Easily expand upon next generation sequencing (NGS) and literature data mining projects by using qPCR arrays tailored to your specific research question. Our custom qPCR arrays help move your research forward by providing a well-accepted, highly sensitive, and cost-effective approach to gene expression research. Custom qPCR arrays enable you to go from RNA sample through data analysis in a single day.

- Choose from over 23,000 IncRNAs to customize array plates with only your targets of interest
- Simultaneously examine both IncRNA and mRNA expression patterns
- Design and include your own PCR primers on any custom plate



Ordering Information

Catalog #	Description
12004856	iScript Explore One-Step RT and PreAmp Kit , 50 x 50 µl reactions
17002826	iScript Explore One-Step RT and PreAmp Kit , 250 x 50 µl reactions
1725080	SingleShot Cell Lysis Kit , 100 x 50 µl reactions
1725271	SsoAdvanced™ Universal SYBR® Green Supermix , 500 x 20 µl reactions
1725281	SsoAdvanced Universal Probes Supermix , 500 x 20 µl reactions

Visit bio-rad.com/IncRNAqPCR for more information on the IncRNA qPCR workflow.

Visit bio-rad.com/PrimePCR to order PrimePCR IncRNA assays.

Cy is a trademark of GE Healthcare. FAM, HEX, and Texas Red are trademarks of Life Technologies Corporation. SYBR is a trademark of Life Technologies Corporation.

Bio-Rad Laboratories, Inc. is licensed by Life Technologies Corporation to sell reagent containing SYBR Green I for use in real-time PCR, for research purposes only.

Bio-Rad's thermal cyclers and real-time thermal cyclers are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.



**Bio-Rad
Laboratories, Inc.**

Life Science
Group

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France 33 01 47 95 69 65 **Germany** 49 89 31 884 0 **Hong Kong** 852 2789 3300 **Hungary** 36 1 459 6100 **India** 91 124 4029300 **Israel** 972 03 963 6050
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