

PrimePCR™ Assays and Panels for Real-Time PCR



Proven Performance

Real-Time PCR Assays That Go Beyond a Guarantee

Our PrimePCR Gene Expression Assays give you confidence in your real-time PCR results. Each assay is expertly designed and wet-lab validated, and its specificity is verified using next-generation sequencing (NGS) for proven assay performance. Each assay for the human, mouse, and rat genomes was experimentally tested for optimal efficiency, specificity, sensitivity, and linear dynamic range. Assays are available as individual assays, custom plates, and predesigned pathway and disease panels.



Four Experiments to Try Using PrimePCR Assays and Panels

1

Find the Best Reference Gene(s) for Your Set of Experiments

Use the PrimePCR Reference Gene Panel and the reference gene selection tool in PrimePCR Analysis Software to determine the most stable reference gene for your samples.

2

Identify More Genes of Interest from Your Samples

Choose from more than 1,100 predesigned panels spanning diseases, canonical pathways, and biological processes. Assays come preplated with control and reference gene assays for easy experiment setup.

3

Assess the Quality and Performance of Your Real-Time PCR Reactions and Samples

Before you start an experiment, make sure your samples and reactions will provide the best possible data. Choose from PrimePCR RNA Quality, Reverse Transcription, Positive PCR, and DNA Contamination Control Assays to provide insight into each step of the gene expression workflow.

4

Compare Your Current Assay to a PrimePCR Assay

Do a head-to-head comparison of your genes of interest using your current assays versus Bio-Rad's expertly designed and wet-lab validated PrimePCR Assays. Compare data to see if your assays are performing optimally.



Predesigned SYBR® Green Assays

Transcriptome-wide primer assays for SYBR® Green gene expression analysis are available in 200, 1,000, or 2,500 reaction sizes.



DNA Templates

Gene-specific synthetic DNA templates are designed to give a positive real-time PCR result when used with the corresponding gene assay.



Predesigned Probe Assays

Transcriptome-wide probe assays for gene expression analysis are available in 500, 1,000, or 2,500 reaction sizes.



PreAmp Assays

Primers are available for target-specific preamplification of limited nucleic acid.



Experimental Controls

Control assays can be used to assess reverse transcription, RNA quality, genomic DNA (gDNA) contamination, and PCR performance.



Reference Gene Assays

SYBR® Green and probe assays can be used to normalize for variations in input mRNA.

Real-Time PCR Workflow

1 Sample Preparation



Aurum™ Total RNA Mini Kit

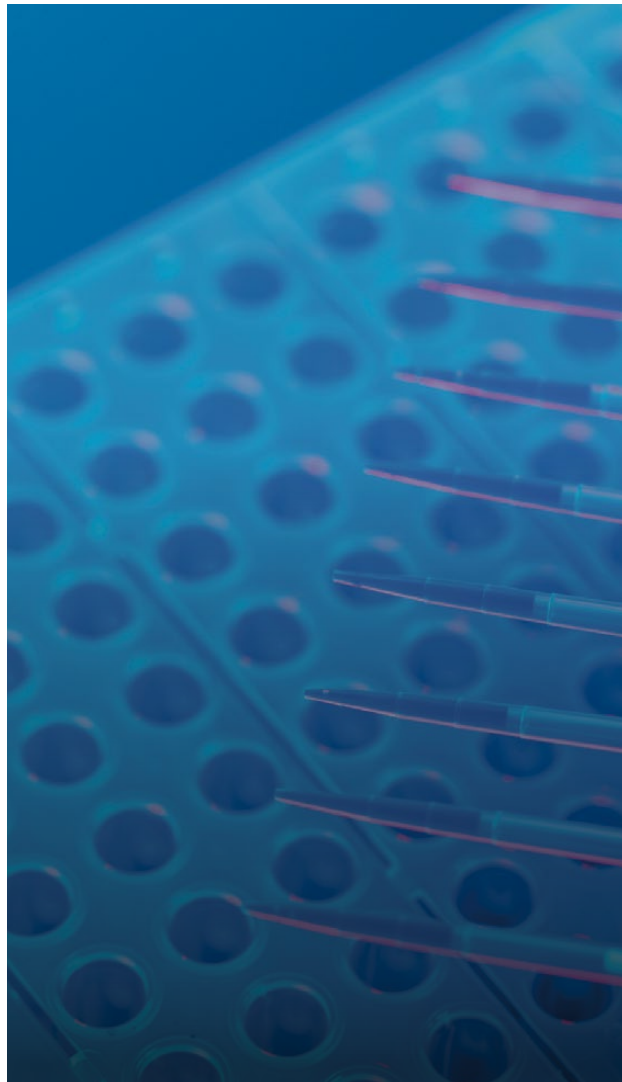
The Aurum Total RNA Mini Kit produces high-quality DNA-free total RNA from a wide range of starting materials, including cultured cells, bacteria, and yeast, as well as animal and plant tissues.

2 Reverse Transcription



iScript™ Advanced cDNA Synthesis Kit for RT-qPCR

The iScript Advanced cDNA Synthesis Kit for RT-qPCR is a simple, fast, and sensitive first-strand cDNA synthesis kit for gene expression analysis using real-time quantitative PCR (qPCR).



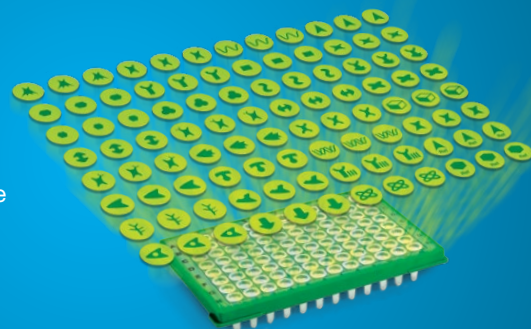
Predesigned PCR Plates

- Disease panels
- Pathway panels
- Collection panels



Custom PCR Plates

- 96-well plates
- 384-well plates
- Choose a template or create from a blank plate



3 Real-Time PCR Reaction Setup



PrimePCR Assays

Experimentally validated real-time PCR primer assays are available as individual SYBR® Green and probe assays, preplated pathway- and disease-specific panels, and custom-configured plates.



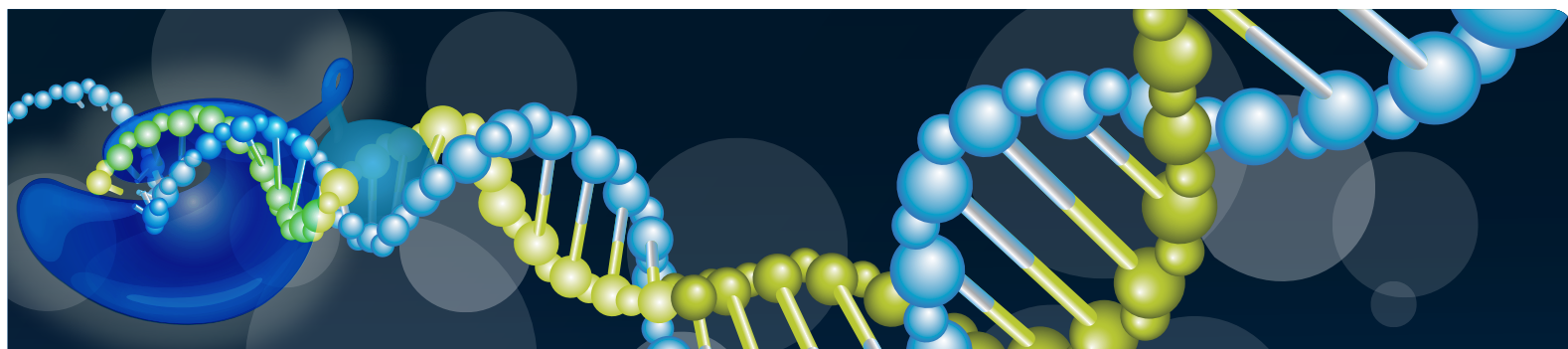
SsoAdvanced™ Universal Supermixes

These supermixes are available for SYBR® Green- and probe-based detection chemistries. They are formulated to provide superior inhibitor tolerance, increased speed, and optimal performance with complex target sequences and challenging sample types, on any instrument, without affecting qPCR sensitivity, efficiency, or reproducibility.



PCR Plastic Consumables

A large selection of thin-wall polypropylene PCR tubes, PCR plates, sealers, and accessories are precisely manufactured for optimal fit and cycling performance.



Design Feature

Design Feature	Why It's Important
Maximum transcript coverage	Detects the majority of expressed mRNA transcripts for each gene of interest
Intron-spanning assay design when possible	Detects only cDNA and not contaminating gDNA
Secondary structure avoided	Secondary structure of cDNA can lead to poor efficiency of the qPCR assay
Single nucleotide polymorphisms (SNPs) avoided	SNPs in primer and probe annealing sequences can lead to poor assay efficiency
Specific sequences identified	Avoids coamplification of nonspecific off-target sequences

Validation Feature

Validation Feature	Why It's Important
7-point serial dilution	Determines the dynamic range, R^2 , and efficiency of the assay
Amplification of gDNA	Determines whether the assay detects contaminating gDNA
Melt curve analysis	Confirms melt profile of expected qPCR product
Next-generation sequencing	Confirms specificity of the assay

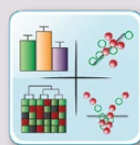
4 Real-Time PCR Run



Real-Time PCR Detection Systems

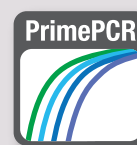
Real-time PCR detection systems combine thermal cyclers with optical reaction modules for singleplex and multiplex detection of fluorophores. All systems feature thermal gradient functionality.

5 Data Analysis



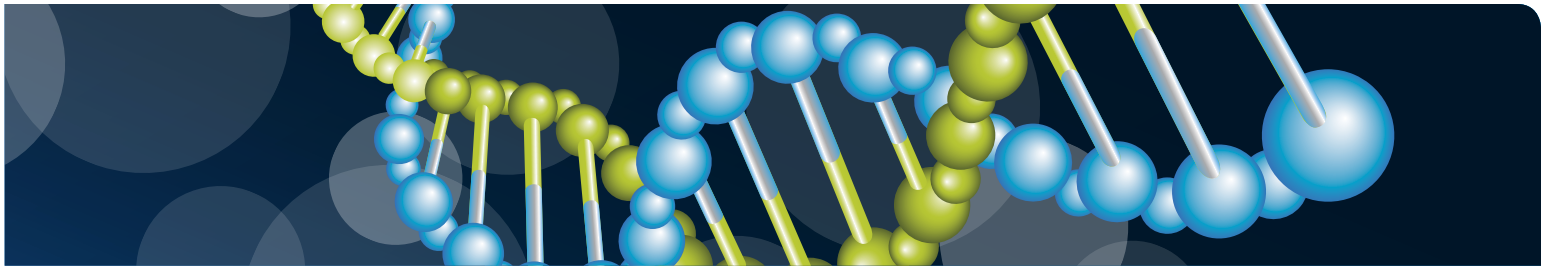
CFX Manager™ Software

CFX Manager Software allows for the collection and analysis of real-time data. Data analysis tools include ΔCq , $\Delta\Delta Cq$, bar chart, clustergram, scatter plot, volcano plot, and heat map.



PrimePCR Analysis Software

A stand-alone data analysis tool is available for non-Bio-Rad instruments. Visit bio-rad.com/PrimePCR to download the software.



PrimePCR Panels for a Broad Range of Pathways and Disease States

Diseases

- Bacterial infections and fungal mycoses
- Cancer and neoplasms
- Cardiac hypertrophy
- Cardiovascular diseases
- Congenital, hereditary, and neonatal diseases and abnormalities
- Cystic fibrosis
- Digestive system diseases
- Endocrine system diseases
- Eye diseases
- Female urogenital diseases and pregnancy complications
- Hemic and lymphatic diseases
- Immune system diseases
- Male urogenital diseases
- Mental disorders
- Musculoskeletal diseases
- Nervous system diseases
- Nutritional and metabolic diseases
- Otorhinolaryngologic diseases
- Parasitic diseases
- Pathological conditions, signs, and symptoms
- Respiratory tract diseases
- Skin and connective tissue diseases
- Stomatognathic diseases
- Viral diseases
- Wounds and injuries

Processes

- Apoptosis and survival
- Blood coagulation
- Cell adhesion
- Cell cycle
- Chemotaxis
- Cytoskeleton remodeling
- Development
- DNA damage
- Hypoxia response
- Immune response
- Muscle contraction
- Neurophysiological process
- Oxidative stress
- Proteolysis
- Reproduction
- Transcription
- Translation
- Transport

Metabolism

- Amino acid metabolism
- Carbohydrate metabolism
- Lipid metabolism
- Nucleotide metabolism
- Regulation of lipid metabolism
- Regulation of metabolism
- Steroid metabolism
- Vitamin and cofactor metabolism
- Xenobiotic metabolism

Protein Function

- Cytokines and chemokines
- G proteins
- Growth factors
- Hormones
- Kinases
- Phosphatases
- Second messengers
- Transcription factors



To find assays and panels for your genes of interest, use the PrimePCR Lookup Tool at bio-rad.com/PrimePCRLookup or visit bio-rad.com/web/PrimePCRinfo for ordering information.

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

Bio-Rad's 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.

The use of SsoAdvanced Supermixes and PrimePCR PreAmp Assays is covered by one or more of the following U.S. patents and corresponding patent claims outside the U.S.: 5,804,375; 5,538,848; 5,723,591; 5,876,930; 5,994,056; 6,030,787; 6,171,785; and 6,258,569. The purchase of these products includes a limited, non-transferable immunity from suit under the foregoing patent claims for using only this amount of product for the purchaser's own internal research. No right under any other patent claim and no right to perform commercial services of any kind, including without limitation reporting the results of purchaser's activities for a fee or other commercial consideration, are conveyed expressly, by implication, or by estoppel. These products are for research use only. Diagnostic uses under Roche patents require a separate license from Roche. Further information on purchasing licenses may be obtained from the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.



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