NanoBiotec
Min samples, Max info

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QuantiGene Plex Assay

Accurate and precise quantitation of 80 genes in a single sample (80-plex mRNA analysis)

ABOUT QUANTIGENE PLEX ASSAYS

QuantiGene Plex Assays are based on the clinically proven branched DNA (bDNA) signal amplification technology. The assay enables detection and quantitation of multiple RNA targets simultaneously (up to 80 mRNA targets in a single well) using a combination of bDNA signal amplification and Luminex beads (xMAP®) technologies. QuantiGene assay accurately and precisely quantitates RNA, directly from the sample.

HOW DOES THE ASSAY WORK?

QuantiGene assays utilize branched DNA (bDNA) technology that has been used in diagnostic assays for HIV-1, etc.

- cells or tissue samples are homogenized to release the target RNA.
- oligonucleotide probe sets are incubated with the target RNA on a capture plate. During this incubation, the probes cooperatively hybridize to the targets and capture probes bound to the plate, capturing the target RNA.
- signal amplification is performed via sequential hybridization of the bDNA pre-amplifier, amplifier, and label-probe molecules to the target.
- The resulting fluorescence signal associated with individual Capture Beads is read on a Luminex flow cytometer.

ASSAY BENEFITS

- **Fast sample prep**: perform the assay directly on cell lysates or tissue homogenates, no need for RNA purification
- **Precisely detect subtle changes**: detect gene expression changes smaller than 10%
- **Superior specificity**: delivers greater specificity than other common technologies, and distinguishes between closely related genes due to probe design with several capture points along the target mRNA of interest
- **Flexibility**: amenable to automation for use in routine compound screening
- **True multiplexing**: measure up to 80 genes and housekeeping genes in the same well with no cross-reactivity
- **Standardized platform**: 96-well plate format using Luminex assay systems
- **Simple workflow**: ELISA-like workflow for direct hybridization of transcripts to beads and transcript labeling
- **Housekeeping genes (HKG):** multiple HKGs of different abundancy can used as normalization control.

SAMPLE REQUIREMENTS

- **Minuscule samples:** few cells or small piece of tissues.
- **Compatibility**: works with a variety of sample types such as cultured cells, whole blood, dried blood spots, fresh or frozen animal or plant tissues, purified RNA and

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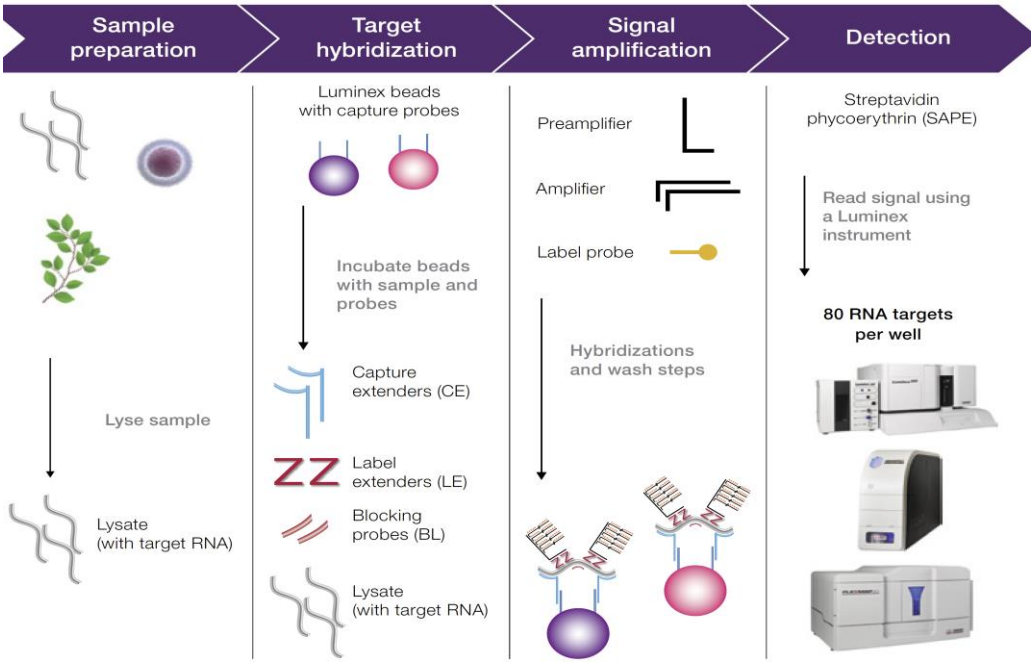
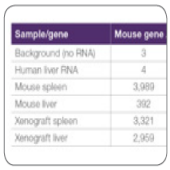
heavily degraded and cross-linked RNA in formalin-fixed, paraffin-embedded (FFPE) tissues, etc

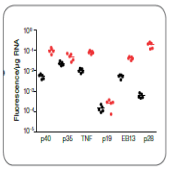
Four Main Steps of QuantiGene Assays



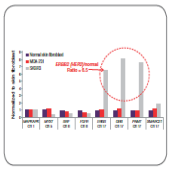
Examples for QuantiGene Assay Applications



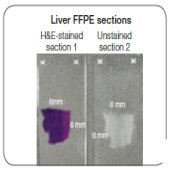
Patient-derived xenograft (PDX) models



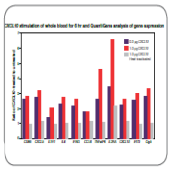
Verification of genes involved with inflammation



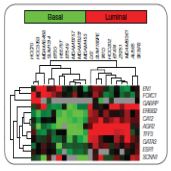
DNA copy number for breakpoint analysis



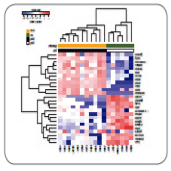
Verification of genes in FFPE samples



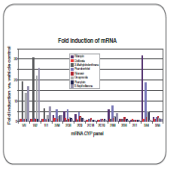
Expression analysis from whole human blood



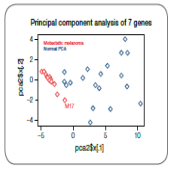
Tumor cell line characterization for drug compound screening



FFPE analysis of genes involved with cancer



CYP genes used with human hepatocytes



PCA analysis of genes involved with melanoma

SERVICE FEATURES

QuantiGene Assay

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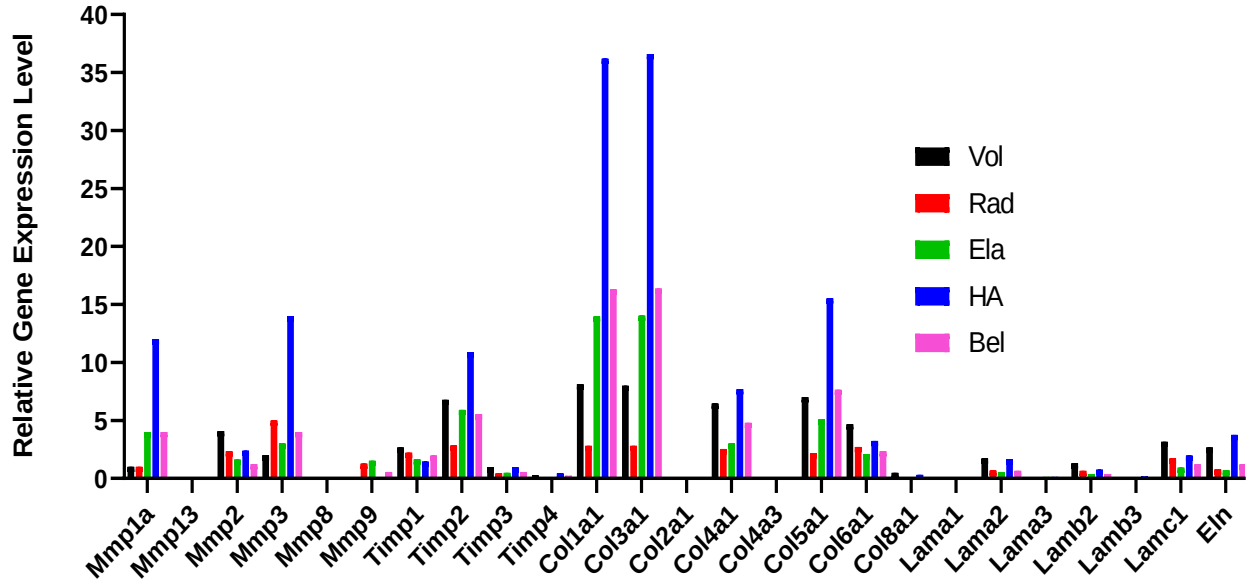
- **High throughput**: 96-well format
- **Simultaneous quantitation:** assay both mRNA and protein levels in cells or cell culture supernatants
- **Highly reproducible**
- **Flexible**: we can quantify any gene/ protein of interest. Targets of interest and their layout are custom designed so we can deliver data from as few or as many replicates as needed
- **State-of-art platforms**: Luminex-200 flow cytometer; VorTemp™ 56 Shaking Incubator
- **Large inventory of verified genes**: over 20,000 genes can be mixed to create pathway- and disease-themed panels, custom probes designed to any sequence within a few days
- **Extensive data analysis**
- **Timely data delivery**: 1-4 weeks or sooner, upon receiving test samples
- **20+ years of experience**: Expert data analysis and interpretation, high quality scientific and technical support
- **Optional tests**
  - ✓ We offer qPCR for validation of any gene of interest.
  - ✓ RNA samples can be checked for integrity and quality (IQ assay) before gene array analysis.
  - ✓ We have a library of **>4000 validated antibodies** to examine samples at protein levels using automatic western blot.
  - ✓ We offer ~100 human cancer cell lines and primary cells for testing drugs and biologicals for specific projects



Example 1. Extracellular matrix (ECM) gene expression levels in rat skin samples following various treatment (n=12). Results are average fold change of gene expression levels; treated samples were analyzed relative to untreated samples.