Quantitative Real-Time PCR

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DSF is proud to offer three, self-service Applied Biosystems ViiA 7 instruments with QuantStudio Real-Time software v1.3 for quantitative real-time PCR analysis. These instruments allow researchers to analyze gene expression with SYBR Green, as well as do allelic discrimination and SNP analysis with TaqMan assays. All three machines can process both 96- and 384-well plates. Instrument use costs $10 /hr, which covers the cost of expensive service contracts, user training, and quality control assays.

All users MUST be trained by the DSF manager prior to first use. Please request training via the "Available Resources" panel of your FBS Dashboard or by sending an email to dsfcore@austin.utexas.edu. The training takes about 30 minutes and does not require samples.

Instrument reservations MUST be made, and made via the FBS scheduling calendar HERE. The instruments are available 24/7 in MBB 1.426T. Please send an email to dsfcore@austin.utexas.edu to request after-hours ID access to the MBB 1.426 facility.

How It Works

Quantitative PCR (qPCR) is most often used for quantification of expressed genes. Detection is possible with either a fluorescently-labeled oligonucleotide probe (TaqMan) or non-specific DNA binding chemistry (SYBR Green). Real-time qPCR is the ability to monitor the progress of the PCR as it occurs (i.e. in real time), eliminating the need for post-PCR processing. Data is therefore collected throughout the PCR process, rather than at the end of the PCR. This completely revolutionizes the way one approaches PCR-based quantification of DNA and RNA. In real-time PCR, reactions are characterized by the point in time during cycling when amplification of a target is first detected, rather than the amount of target accumulated after a fixed number of cycles. The higher the starting copy number of the nucleic acid target, the sooner a significant increase in fluorescence is observed. In contrast, an endpoint assay (also called a "plate read assay") measures the amount of accumulated PCR product at the end of the PCR cycle.

Key features:

- Two interchangeable PCR blocks available: fast 96-well and 384-well
- Runs multiplex reactions including FAM, NED, ROX, TAMRA, and VIC dyes
- Detects the non-specific dye SYBR Green which binds to any dsDNA
- Capable of dissociation curve analysis
- *Primer Express 3.0* software available for customer use in 1.426U

Applications:

- Real-time quantitation of expressed genes
- Allele detection
- Pathogen detection
- Used to replace Northern blotting techniques