

## APPLICATION NOTE

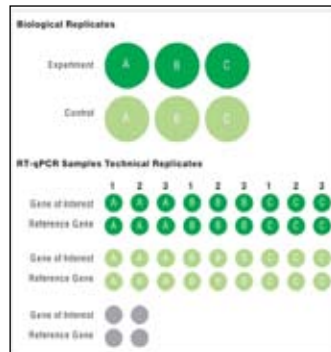
## Publishing Data That Conform to the MIQE Guidelines

*Minimum information for publication of Quantitative Real-Time PCR Experiments (MIQE) guidelines help researchers design qPCR experiments.*

Real-time quantitative polymerase chain reaction (qPCR) is a definitive technique for quantifying differences in gene expression levels between samples. However, a lack of consistency in experimental design and reporting combined with inadequate guidelines to review submitted articles with qPCR data greatly increases the potential of reporting statistically insignificant and conflicting results.<sup>1</sup> The publication<sup>2</sup> and retraction<sup>3</sup> of a Science “Breakthrough of the Year 2005” article underlines the issue.

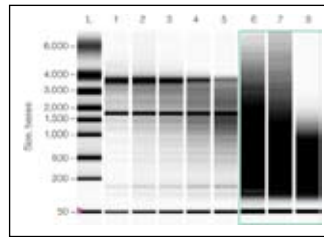
**MIQE Guidelines Proposed**

To assist the scientific community in producing consistent, high quality qPCR data, the Minimum Information for Publication of Quantitative Real-Time PCR Experiments (MIQE) guidelines were published in 2009. These guidelines aim to increase



transparency and therefore, help assure the publication of valid conclusions.<sup>4</sup> They also provide a yardstick for the quality assessment of a publication by defining the minimum information required to evaluate PCR data.

The MIQE paper covers a range of qPCR-related topics, including nomenclature, conceptual tips, sample collection and handling, nucleic acid quality control and data analysis. The guidelines also include a checklist that can be used by journal editors to evaluate



submitted manuscripts. A simplified version of the guidelines was recently released to help researchers navigate through the design of qPCR experiments in eight simple steps.<sup>5</sup>

MIQE is modeled after similar guidelines such as MIAME (Minimal Information about a Microarray Experiment) developed several years ago<sup>6</sup> and MIAPE (Minimal Information about a Proteomics Experiment).<sup>7</sup> All of these initiatives were developed under the umbrella of the MIBBI standardization body, which has the goal of unifying the guidelines.

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- Bio-Rad appoints independent director to board
- BiCollaboration between Bio-Rad and Layerlab enables high throughput kinetic analysis of transmembrane protein
- CEA selects Bio-Rad to produce diagnostic test for BSE, or mad cow disease

## PRODUCT NEWS



- PCR Reagents Speed qPCR through instant polymerase activation
- qPCR data analysis software provide researchers with accurate gene expression analysis of real-time PCR data
- Precast gels for protein electrophoresis providing researchers with the fast running, long shelf life

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