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The 'PREXCEL-Q Method' for qPCR

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PCR; qPCR; RT; gene expression; inhibition; RNA integrity; micro-array; real-time PCR; software

The purpose of this manuscript is to describe a reliable approach to quantitative real-time polymerase chain reaction (qPCR) assay development and project management, which is currently embodied in the Excel 2003-based software program named "PREXCEL-Q" (P-Q) (formerly known as "FocusField2-6Gallup-qPCRSet-upTool-001," FF2-6-001 qPCR set-up tool" or "Iowa State University Research Foundation [ISURF] project #03407"). Since its inception from 1997-2007, the program has been well-received and requested around the world and was recently unveiled by its inventor at the 2008 Cambridge Healthtech Institute's Fourth Annual qPCR Conference in San Diego, CA. P-Q was subsequently mentioned in a review article by Stephen A. Bustin, an acknowledged leader in the qPCR field. Due to its success and growing popularity, and the fact that P-Q introduces a unique/defined approach to qPCR, a concise description of what the program is and what it does has become important. Sample-related inhibitory problems of the qPCR assay, sample concentration limitations, nuclease-treatment, reverse transcription (RT) and master mix formulations are all addressed by the program, enabling investigators to quickly, consistently and confidently design uninhibited, dynamically-sound, LOG-linear-amplification-capable, high-efficiency-of-amplification reactions for any type of qPCR. The current version of the program can handle an infinite number of samples.

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