

Abstract 57

THREE SELECTIVE AND SENSITIVE FLUOROGENIC DYES FOR QUANTIFICATION OF DNA AND RNA

Matthew P. Beaudet, Jason A. Dallwig, Nancy Ahnert, Stephen Yue and Gerald A. Thomas

Molecular Probes, Invitrogen Detection Technologies, 29851 Willow Creek Rd., Eugene, OR 97402

Quantification of DNA or RNA is often confounded by source contamination or inefficient purification. In addition, limited or sensitive samples may often force scientists to forgo quantification in order to avoid the potential of contamination. Here we describe the development and validation of three fluorescent reagents selective for the detection of DNA and RNA that are resistant to common sample contaminants such as salt, nucleotides, and protein. Moreover, the dsDNA reagents are resistant to contamination from different nucleic acid contaminants (such as nucleotides or RNA) while retaining their sub-nanogram sensitivity. Likewise the RNA reagent is resistant to contamination from ssDNA, oligos and dsDNA while still able to detect low nanogram quantities of RNA. Compatible with either high-throughput microplate based fluorometers, or low-throughput single cell fluorometers, the assays were developed specifically for pairing with the dedicated quantification fluorometer, the Qubit™ fluorometer. The Qubit fluorometer is programmed with a unique curve fitting algorithm that reduces the standards from the eight normally used in plate readers down to two while retaining the same precision and accuracy.