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TOCE™ - Chemistry for a new generation of molecular diagnostics

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Abstract

In molecular diagnostics, diagnostic value depends on accurately determining the presence of low-level targets or minority mutations in a high background of wild-type target. Consequently, detecting even a single target often is extremely difficult. When applied to multiplexed reactions, that challenge grows substantially -- particularly in relation to the design, development and validation of clinical diagnostics. Oligonucleotide chemistry and design still present issues for both reaction kinetics and target specificity, particularly high false positive rates due to cross-reacting targets. In recent years, the industry has made strides to address the growing challenge of PCR multiplexing with proprietary developments in the area of PCR chemistry. Proprietary technologies such as Dual Priming Oligonucleotides (DPO™) and Tagging Oligonucleotide Cleavage and Extension (TOCE™) enable multiplex assays on multiple platforms found in many clinical laboratories. TOCE enables the detection of multiple targets in a single detection channel of a real-time instrument, through melting temperature analysis of an artificial template, the Catcher. This new and emerging technology is redefining multiplexing by fully exploiting the number of analytes that can be detected in a single reaction, using current, real-time instrumentation. These versatile, user-friendly technologies have the capability to advance multiplex PCR from the “exception to the exceptional” in routine clinical laboratory work and are especially important now in the era of personalized medicine.

Biography

Dr. Dolinger has over 20 years’ experience in the industry, with the last 16+ years dedicated to molecular diagnostics. Dr. Dolinger is currently an Executive Vice President with Seegene, a Korean based technology driven molecular diagnostics company. Dr.Dolinger’s love of diagnostics began in 1978 as a Peace Corps volunteer in rural south Korea working in tuberculosis and Hansen’s disease control where he work on developing simple diagnostics for the determination of treatment compliance. He received his Ph.D. in Microbiology and Immunology from Temple University Medical School in the laboratory of Dr. Gerald Shockman

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