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Counting PCR: An alternative to digital PCR for absolute quantification

John Santa Lucia Jr.
DNA Software Inc., USA

A new method called “Counting PCR” has been invented that analyzes the shape of a PCR curve to reveal the absolute copy number of DNA at cycle zero. The method works with any qPCR instrument and has applications for absolute quantification of viral load, gene expression, and copy number variation. Previously, qPCR has required each plate to be calibrated using a dilution series of standards of known concentration. Alternatively, researchers have resorted to using qPCR for relative quantification using cycle thresholds, C_T , which are difficult to interpret especially when comparing results from different laboratories. These shortcomings of traditional qPCR have prompted the development of digital PCR technologies, which do not require standards for absolute quantification, but which tend to be expensive and low-throughput relative to qPCR. The method of Counting PCR has been incorporated into a new program called “*qPCRCopyCount*”, which automatically computes the absolute copy number for every qPCR reaction on the plate without requiring a standard curve. This talk will provide insights into the mechanism of PCR and reveal the quantized nature of PCR.

Biography

John Santa Lucia Jr. is Professor of Chemistry at Wayne State University and he is the co-founder, President and CEO of DNA Software, Inc. He is a world expert in the thermodynamics and kinetics of DNA hybridization and folding. He has also done work in the fields of RNA 3D structure prediction and in the structural biology of bacterial ribosomes using NMR spectroscopy. He has published more than 50 papers and his work has been cited more than 5000 times. His thermodynamic parameters are used in numerous software packages for PCR design.

john@dnasoftware.com