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Development of plasmid calibrators for absolute quantification of microRNAs by real time quantitative PCR: A new tool for personalized medicine

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Abstract

Based on our international experience for *BCR ABL* quantification which is, to our knowledge, the first RNA biomarker for personalized medicine, we wanted to apply it to MicroRNAs (miRNAs) dosage. They are small, non-coding RNAs that negatively regulate gene expression *via* degradation or translational inhibition of their target mRNAs. Because miRNAs are essential for the regulation of critical physiological processes and are also involved in a variety of pathologic events, they have emerged as a novel class of molecular diagnosis biomarkers and therapeutic agents or targets. Accordingly needs for miRNA quantification have increased. Currently real time quantitative PCR (qPCR) is considered as the most robust technology for nucleic acid quantification. Different tools for miRNA quantification by qPCR are now commercially available, but only relative quantification strategies have been reported. This situation may be partly due to the difficulty in obtaining an appropriate molecule to establish a miRNA calibration range. Here we describe a rapid and convenient strategy to develop a calibrator enabling absolute quantification of miRNAs by qPCR. This technology should have a great interest for microRNA as biomarkers of human diseases and beyond notably for any microRNA based personalized medicine.

Biography

Jean Gabert has an MD of the University of la Mediterranee in Marseilles, France and has obtained a PhD in Immunology. His post doc was done in DNAX (Palo Alto, California, USA). He also recently has got an executive master from science Po Paris. Since 1999, he is Professor of Biochemistry and Molecular Biology at Hospital Nord (University hospital) in Marseilles. His main focus was in personalized medicine, especially *BCR ABL* transcripts by RQ PCR for CML patients. After running a successful European network, he has also been pioneer for the use of freeze dried cells as international controls.

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