Inter- and intr-platform reproducibility of gene expresion measurements - the MicroArray Quality Control (MAQC) project

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Microarray has been recent a core technology in pharmacogenomics. Whether consistent expression can be obtained across different microarray platform when the same RNA samples are applied has been questioned in several independent studies. To address the reliability of intra- and inter-platforms, the National Center for Toxicological Research (NCTR) of the U.S. Food and Drug Administration (FDA) initiated the MacroArray Quality Control (MAQC) project. Ten different microarray-based and alternative platforms are included in the main study. Two distinct RNA samples in four titration pools with five replicates were applied in multiple test sites for all microarray platforms. The quality of MAQC data was accessed across test sites and across data platforms. Based on the high quality data, a high level of consistence was achieved to insure the reliability of microarray data. This study represents an important first step toward establishing a practical foundation for the use of microarrays in pharmacogenomics and regulatory settings. Series of articles of additional analyses for the phase I MAQC data were published in the September 2006 issue of Nature Biotechnology.

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