

Application of Micro-Western Array in Biomedical and Translational Research

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ABSTRACT

In 2010, we reported in Nature Methods about the development of a novel high-throughput antibody-based proteomics system named Micro-Western Array (MWA). MWA is a modified reverse phase array composed of a GeSim Nanoplotter arrayer, a GE multiphor, and a Licor Odyssey infra-red scanner. MWA allows detecting protein expression level or phosphorylation status change of 96-384 different antibodies in 6-15 samples simultaneously. Unlike other reverse phase protein arrays, the loading of protein marker into MWA gel assures the correct molecular weight bands are detected. The result of Micro-Western Array is identical to conventional Western blotting assay. However, the quantity of samples and antibodies required for MWA is approximately 500-1000 fold less than conventional Western blotting. This novel proteomics technology is a useful systems biology tool to study signaling transduction network and protein profile, such as the research of disease molecular mechanism and prognostic biomarkers. I will introduce a few works done with MWA in biomedical research and clinical application.