

# Quantitative Peptide Microarray Technology

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## BACKGROUND

Proteomics is considered the next step in the study of biological systems. It is complicated because the entire complement of proteins in a cell (proteome) differs from cell to cell and from time to time. While peptide arrays have been around for years, they have not been widely applicable to the proteomic studies due to their current limitations. Namely, present array dimensions limit scaling up for proteomic measurements and array output is often qualitative rather than quantitative. Furthermore, the high cost of peptide synthesis combined with limited access to instruments has inhibited the widespread adoption of array technology for proteomics.

## TECHNOLOGY DESCRIPTION

Scientists at UC San Diego have developed a microarray technology providing a quantitative, high-throughput, and cost-effective way to conduct proteomics measurements. The present invention employs a microarray technology that prints peptides on a glass surface thereby significantly reducing the size of the array. It requires using fewer peptides than traditional methods, whereby thousands of peptides can be easily printed on one DNA microarray-sized slide, compared to the existing technology's limit of only tens of peptides on the same surface area. This approach requires a small quantity of protein for analysis, which is particularly useful in disease diagnosis, where sample size is limited. Additionally, quantitative protein-peptide interactions (binding affinities) may be measured from fluorescence probe intensities.

## APPLICATIONS

By printing different sets of peptides on a microarray, this technology can be used for defining protein binding specificity, illustrating protein-protein interactions, determining epitopes recognized by antibodies, and identifying substrates of various enzymes.

## RELATED MATERIALS

Xu Z, Hou T, Li N, Xu Y, Wang W. 2011. Proteome-Wide Detection of Abl1 SH3 Binding Peptides by Integrating Computational Prediction and Peptide Microarray. Mol Cell Proteomics. 2011 Oct 24. [Epub ahead of print]

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,728,980	05/20/2014	2010-063

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- [A Systems Biology Approach for Identifying Drug Targets](#)

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## INVENTORS

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## OTHER INFORMATION

### CATEGORIZED AS

- [Medical](#)
  - [Diagnostics](#)
  - [Research Tools](#)

### RELATED CASES

2010-063-0