

## Protein Chips to Elucidate Carbohydrate-Protein Interactions

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In order to expand areas in which protein microarrays can be used to solve important biological problems, we have investigated ways in which the technique can be employed for functional glycomics. Initially, our protein microarrays were used for the rapid identification of carbohydrate-binding proteins using trifunctional carbohydrate probes and fluorescent dye-labeled polysaccharides. Glycan probes were selectively bound to the corresponding lectins immobilized on the solid surface. In addition, these microarrays were also employed for profiling of carbohydrates on Jurkat T-cell surfaces. These cells adhered to ConA, RCA<sub>120</sub>, SNA and WGA, indicating expression of  $\alpha$ -Man, Gal, NeuNAc $\alpha$ 2,6Gal and GlcNAc residues on their surfaces. Furthermore, we determined binding affinities between WGA and carbohydrates by measuring IC<sub>50</sub> values of GlcNAc that inhibited 50% of trivalent GlcNAc binding to WGA immobilized on the solid surface. All the experiments show that protein microarrays can be used to study carbohydrate-recognition events in the field of glycomics.