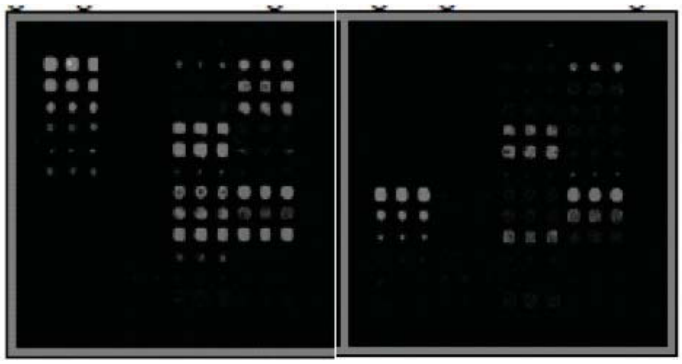
Proteomic TipChip for High Speed Serology

The identification of a pathogen in a biological sample often involves testing for the proteins or nucleic acids of multiple pathogens in a series of immunoassays or PCR amplifications. Detection of antibodies to pathogens in patients' serum is an alternative that requires less time and labor. A proteomic TipChip was developed for the Ziplex® System featuring a microarray of antigens of various infectious disease agents. When incubated with serum, antibodies bind to specific pathogen antigens and are detected with labeled secondary antibodies specific for IgG or IgM. The relative amounts of IgG and IgM antibodies that bind to an antigen indicate whether the whether the infection is recent or chronic.

Infectious Disease Antigens

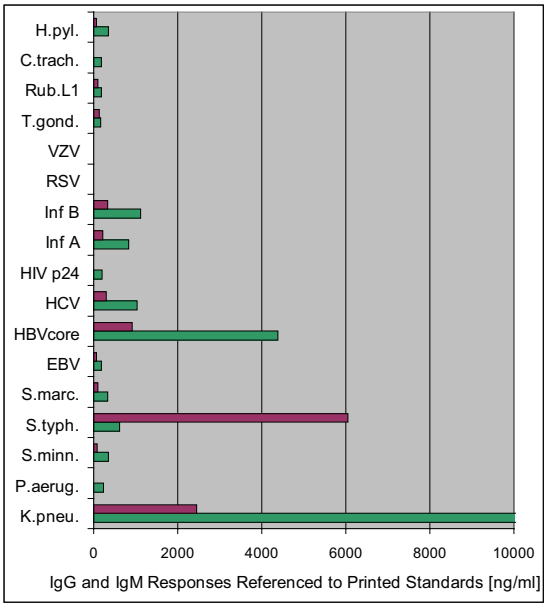
B. bergdorferi	*K. pneumoniae*
CMV	*P. aeruginosa* Endotoxin
HBV adr	*P. aeruginosa* lectin PA-1
HBV core	*P. aeruginosa* LPS
HCV	*S. marcescens* LPS
HIV p24	*S. minnisota* LPS
Influenza A	*S. typhimurium* LPS
Influenza B	*T. gondii*
HSV 1	Rubella Level 1
HSV 2	Rubeola
RSV	*C. trachomatis*
VZV	*C. jejuni*
	H. pylori



IgG Image IgM Image

Arrays of antigens along with standard calibrators were printed in triplicate on TipChips.

After incubation with pooled samples, the TipChips were incubated with HRP conjugated IgG and IgM secondary antibodies followed by a chemiluminescent substrate to quantify the bound antibodies.



In most examples with detectable pathogens, responses of IgG antibodies (green) were markedly greater than those of IgM antibodies (purple), indicating a past or chronic infection.

For *Salmonella typhimurium* the greater response of IgM suggests a recent infection of this pathogen.

Highlights:

- Up to 8 infectious disease serology arrays were processed in only 45 minutes
- Antibodies to hundreds of antigens can be detected on Ziplex TipChip arrays in one serum sample
- Fully automated sample and reagent handling throughout each step of the assay

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