

See what you've been missing

Low-level detection of cytokines with the Human Ultrasensitive Cytokine 10-plex Assay using the Luminex® xMAP® Platform and ELISA assays

Cytokines comprise a diverse group of small proteins that mediate signals between cells. These proteins play important roles in normal developmental processes, such as B and T cell maturation, vasculogenesis, and organogenesis. Cytokines also participate in a host of disease processes, including chronic inflammatory disease, autoimmunity, cancer, and diabetes.

Cytokines also act systemically, providing signals from sites of injury or inflammation to potentially distant responding tissues. Under certain circumstances, such as responses to bacterial infection, cytokines can be detected in biological fluids in relatively high concentrations. In chronic disease states, disease-associated cytokines may be present in relatively low concentrations in biological fluids. Accurate quantification of relatively low levels of cytokines can be achieved by ultrasensitive immunoassays. Detecting subtle changes in cytokine concentrations can provide valuable information about clinical and subclinical disease states.

Invitrogen developed the Human Ultrasensitive Cytokine 10-Plex Assay for the Luminex® xMAP® Platform to facilitate cytokine profiling in biological fluids. This 10-plex assay provides reagents for the simultaneous detection and quantification of five Th1/Th2 cytokines (IFN- γ , IL-2, IL-4, IL-5, and IL-10) and five pro-inflammatory cytokines (GM-CSF, IL-1 β , IL-6, IL-8, and TNF- α). Each assay requires only 50 μ l of sample, can be completed in 3.5 hours, and is sensitive enough to get detection at femtogram levels. (Figure 1A). This assay system is validated for high-content, high-sensitivity analyses of serum, plasma, and tissue culture media samples (Figure 2).

Invitrogen also offers ultrasensitive ELISA assays to meet your specific experimental needs. Ultrasensitive ELISAs are similar in format to our conventional ELISAs, but provide at least a 10-fold increase in sensitivity (Figure 1B). Ultrasensitive ELISAs are available to quantitate human IL-1 β , IL-4, IL-6, IL-8, IL-10, IL-12, IL-13, and either human or rat TNF- α in validated sample types, serum, plasma, and tissue culture media.

See what you've been missing

Conserve precious samples and uncover subtle changes. Learn more about multiplex assays for the Luminex® platform at www.invitrogen.com/luminex, or about ultrasensitive ELISA assays at www.invitrogen.com/ultra.

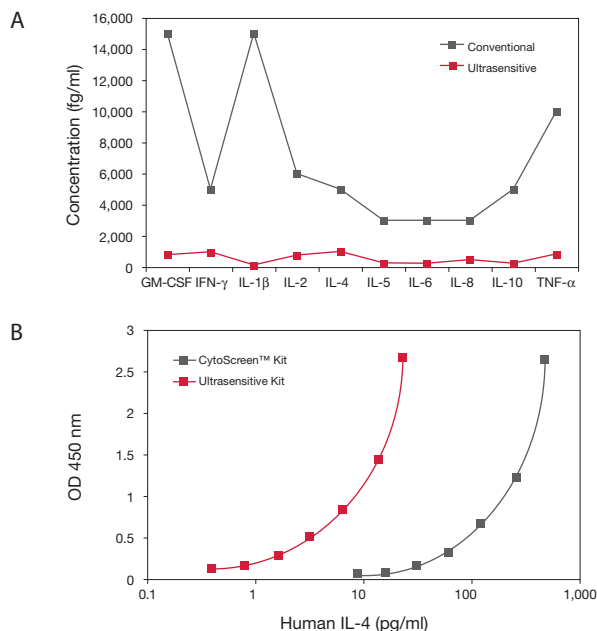


Figure 1—Detection of ultra-low levels of cytokines. A. Comparison of detection levels between Invitrogen's conventional Human Cytokine 10-plex Assay (Cat. no. LHC0001) and Invitrogen's Human Cytokine Ultrasensitive 10-plex Luminex® panel (Cat. no. LHC6004). B. Standard curves for conventional human IL-4 ELISA (KHC0042) and Ultrasensitive human IL-4 ELISA (KHC0043).

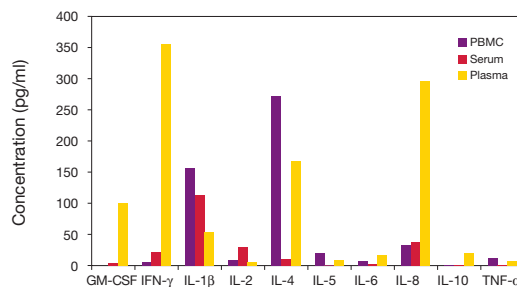


Figure 2—Cytokine detection in human samples. Cytokine levels in human samples were measured with the Human Ultrasensitive Cytokine 10-Plex Assay. Samples included tissue culture media from peripheral blood mononuclear cells (designated PBMC) stimulated for 48 hr with LPS, human male sera, and human female EDTA plasma.



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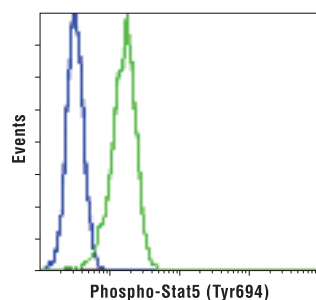


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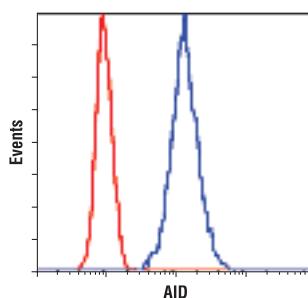


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Rabbit mAb #9359**



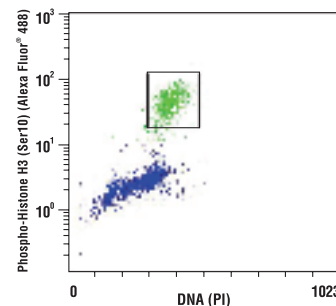
Flow cytometric analysis of K562 cells, untreated (green) or STI571-treated (blue), using #9359.

AID (EK2 5G9) Rat mAb #4959



Flow cytometric analysis of Raji cells using #4959 (blue) compared to a nonspecific negative control antibody (red).

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Flow cytometric analysis of THP-1 cells treated with paclitaxel using #9708 versus propidium iodide (DNA content). The box indicates phospho-histone H3 positive cells.

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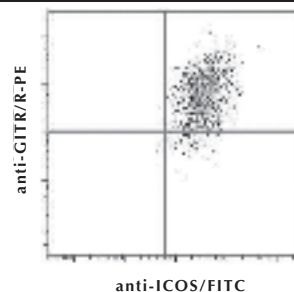
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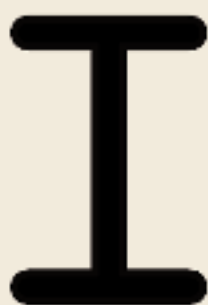
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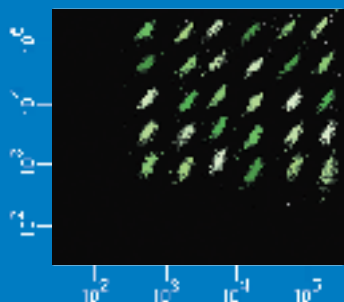
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