Serum and Plasma IL-17A Concentrations in Lung Cancer Patients and Controls

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Abstract

Results: Serum IL-17A was measured in 59 lung cancer patients and 44 healthy controls. The results from this study do not support the use of IL-17A as an effective serum biomarker for the presence of lung cancer. Serum IL-17A concentrations were significantly lower than the previously reported value of greater than 5 pg/mL.

Methods

The stimulation mechanism (electricity) is decoupled from the response (light signal), enabling non-washed assays. Surface coatings can be customized.

Electrochemiluminescence Technology

• Minimal wash steps resulting in rapid performance
• Efficient signal generation by surface reaction
• Low background with consistent ECL signal
• Laboratory modules made of high-grade stainless steel are corrosion resistant
• Labware made of high-grade glass is resistant to chemical violations
• Surface coatings can be customized

Assay Information

Human IL-17A, 17B, 17C, and 17D share 100% sequence identity biologically active regions with a doublet time-limited tandem that elutes at 10-15% acetonitrile (5% acetonitrile, 5% water, 0.1% trifluoroacetic acid). Specific antibodies are available to detect IL-17A, IL-17B, IL-17C, and IL-17D individually. Internal control proteins are available to detect the common cystine-knot fold. IL-17A is a pro-inflammatory cytokine secreted in response to the invasion of the immune system by extracellular pathogens.

R2 = 0.93

Electronquenching

IL-17A is most similar to IL-17F with which it shares 50% sequence homology. Both IL-17A and IL-17F can exist as either monomers or heterodimers, IL-17A/F. IL-17A has been linked to lung cancer, anti-tumor immunity, and allograft rejection, as well as multiple autoimmune diseases including rheumatoid arthritis, asthma, lupus, psoriasis, and multiple sclerosis.

Conclusion

We have developed a highly sensitive and specific IL-17 assay using S-PLEX technology to determine IL-17A concentrations. This robust assay enables accurate determination of IL-17A concentrations in serum and plasma samples from lung cancer patients, compared to 128 fg/mL with an IQR of 75-198 fg/mL (n=44) for controls.

These results confirm that the S-PLEX IL-17A assay measures actual analyte levels and not just serum or plasma components that bind to the assay. The results from the study do not support use of IL-17A as an effective serum biomarker for the presence of lung cancer.

Data are presented relative to the undepleted control samples. All the antibodies used resulted in IL-17A depletion by 95% or more in the undepleted control samples.

Overall Average %Recovery:

%Recovery = (Measured - Unspiked Measured) / Spike

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