



IL-8 (INTERLEUKIN 8)

The Singulex IL-8 assay accurately measures disease-mediated increases from baseline normal levels of IL-8. Further, it provides sufficient sensitivity to document the impact of therapeutics that target IL-8 and/or other proteins in IL-8 associated pathways, inflammatory diseases and angiogenesis.

BIOLOGY AND DISEASES

Interleukin-8 (IL-8) is a CXC chemokine synthesized by many cell types, including macrophages, epithelial cells and endothelial cells in response to a pathogen or inflammatory stimulus. IL-8 functions as a chemotactic factor that attracts neutrophils, basophils, and T-cells. IL-8 is one of the major mediators of the inflammatory response and of innate immunity. Its function is to recruit neutrophils to phagocytose the foreign antigen. IL-8 is also a potent angiogenic factor that induces neutrophils to leave the bloodstream and enter into the surrounding tissue. IL-8 has been shown to have roles in the pathological angiogenesis that is associated with solid tumors, diabetic retinopathy, and rheumatoid arthritis.

THERAPIES

IL-8 is often associated with inflammation, and can be downstream targeted through the use of anti-inflammatories like TNF α inhibitors. Due to a role in angiogenesis, IL-8 can also be a potential target for the pathological angiogenesis that is associated with solid tumors, diabetic retinopathy, and rheumatoid arthritis.

UNMET NEED

The role of IL-8 in angiogenesis also provides an area of need since multiple pathways of angiogenesis exist, and the results of drugs designed to inhibit angiogenesis need to be evaluated for efficacy with multiple markers for these distinct endpoints. In addition, IL-8 has the potential to be an anti-angiogenesis therapeutic target. In order for IL-8 measurements to be useful, there is a need for assays with enough sensitivity to detect small changes in analyte concentration during disease progression or therapeutic intervention. Further, to understand disease it will be essential to establish baseline IL-8 levels in healthy subjects.

SINGULEX ANSWER

Singulex's IL-8 assay allows for the detection of very low levels of IL-8 and measurement of small changes in concentration that can provide insights into therapeutic efficacy. The IL-8 assay has an LLoQ of 0.5 pg/mL and a reading range of 0.36–2000 pg/mL, enabling accurate quantification of IL-8 in human plasma.

This assay will allow investigators to:

1. Measure the efficacy and dosing of therapeutics designed to interfere with the inflammatory response.
2. Measure the efficacy and dosing of therapeutics designed to interfere with angiogenesis, as well as define the pathway of effect.
3. Design more robust clinical and preclinical studies in which velocity of IL-8 concentration is used as a therapeutic endpoint.
4. Understand how IL-8 levels change in patients as they transition from healthy to diseased states.

ERENNA TECHNOLOGY ACCESS PROGRAM.

Through the Erenna Technology Access Program (ETAP), Singulex offers an interactive, results-driven solution to biomarker challenges faced by the pharmaceutical industry during product development. Singulex assists the development programs of our ETAP collaborators by developing customer-driven assays and access to a menu of fully-validated assays. Participants in ETAP gain access to the Singulex Erenna Immunoassay System, our proven expertise developing high-value immunoassays and our world-class customer support. Together with Singulex, our ETAP collaborators are expanding the utility of protein biomarkers and using them as tools to measure disease progression, drug efficacy and toxicity.

TABLE 1: Analytical sensitivity of the Singulex IL-8 assay.

Lower Limit of Detection (LoD)	0.36 pg/mL
Lower Limit of Quantification (LLoQ)	0.5 pg/mL
Reading Range	0.36–2000 pg/mL

Erenna® System



TABLE 2: IL-8 assay low-end standard curve data.

[IL-8] pg/mL	Detected Events	Std Dev	CV
12.50	2229	51	2%
6.25	1301	31	2%
3.13	731	54	7%
1.56	534	40	7%
0.78	317	26	8%
0.39	249	10	4%
0.20	208	12	6%
0.10	198	26	13%
0.00	146	29	20%

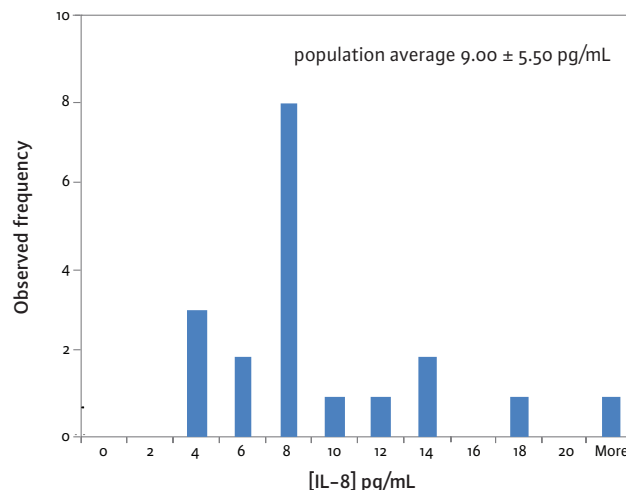


FIGURE 1: Plasma IL-8 concentration in healthy human subjects.

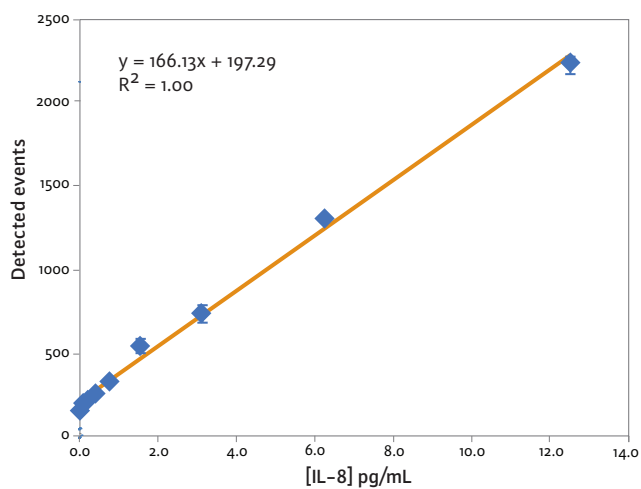


FIGURE 2: IL-8 low-end standard curve signal.

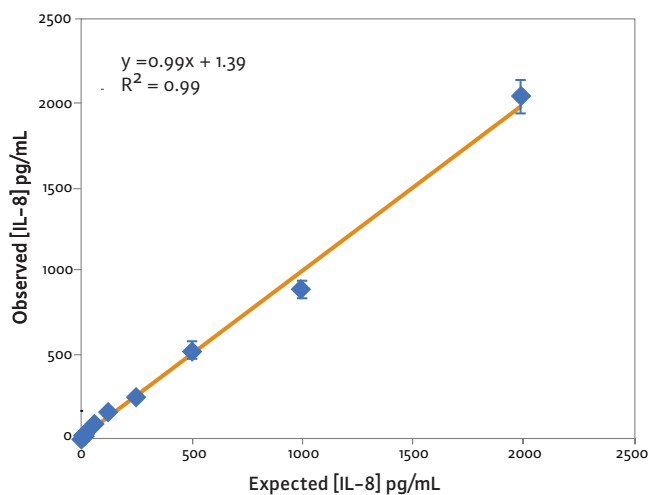


FIGURE 3: IL-8 assay curve fit.

These standard curves are for representational purposes only. A standard curve must be run with each assay.

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