CYTOKINE PANEL - IL1b, IL6, IL8, TNF alpha

This panel is used to identify elevated levels of specific cytokines. Cytokines are critical early mediator of the inflammatory and overall immune response and as such, are believed to play an important role in the development of pathological conditions which result in chronic inflammation, septic shock, and hematopoietic defects. While inflammation is an important homeostatic mechanism that limits the effects of infectious agents, inflammation itself has the potential for inducing damage. The following tests are included in this panel: IL1b, IL6, IL8, and TNF-a.

- **Interleukin-1 beta (IL-1b)**
  This test is used to identify elevated levels of Interleukin-1 beta. IL-1b is a cytokine produced principally by mononuclear phagocytes but also by various other cells types including keratinocytes, epithelium and cells of the CNS. Elevated levels of Interleukin-1 beta have been implicated in sepsis, cachexia, rheumatoid arthritis, chronic myelogenous leukemia, asthma, psoriasis, inflammatory bowel disease, anorexia, AIDS, and graft-versus-host disease associated with bone marrow transplants. IL-1B is one of the key mediators of immunobiological responses to physical stress, a pilot study showed that higher levels were associated with anxiety/panic disorder. Higher than normal levels have also been associated with a significant increased risk of myocardial infarction independent of Cardio-CRP levels.
- **Interleukin-6 (IL-6)**
  This test is used to identify elevated levels of Interleukin-6. IL-6 is a cytokine produced by many different cells including monocytes/macrophages, fibroblasts, endothelial cells, keratinocytes, mast cells, T cells and many tumor cell lines. Elevated IL-6 serum or plasma levels may occur in different conditions including sepsis, autoimmune diseases, lymphomas, AIDS, alcoholic liver disease, tumor development, Alzheimer's disease, and in c with infections or transplant rejection. Elevated levels of IL-6 may be associated with an increased risk of heart attack, and stroke.
- **Interleukin-8 (IL-8)**
  This test is used to identify elevated levels of Interleukin-8. IL-8 is produced by stimulated monocytes, macrophages, fibroblasts, endothelial cells, keratinocytes, melanocytes, hepatocytes, chondrocytes, and a number of tumor cell lines. In many types of cells the synthesis of IL8 is strongly stimulated by IL1 and TNF-alpha. Elevated concentrations are observed in psoriasis rheumatoid arthritis, chronic polyarthritis, tumor development and Hepatitis C.
- **Tumor necrosis factor alpha (TNF-a)**
  This test is used to identify elevated levels of Tumor necrosis factor alpha. A variety of cells are shown to produce TNF- .TNF- is a growth factor for fibroblasts and stimulates the synthesis of collagenase and prostaglandin E2. Bone resorption can be induced by TNF- because it activates osteoclasts. TNF- enhances the proliferation of T cells after stimulation with IL-2. In the absence of IL-2, TNF- induces the proliferation and differentiation of beta cells. TNF- levels may be elevated in sepsis, cachexia, AIDS, Hepatitis C, transplant rejection, various infectious and autoimmune diseases.