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Predicting Cancer Susceptibility via Immune Status.

Chronic inflammation (CI), which typically occurs when an acute inflammatory response is not resolved, is a primary cause of many cancers (CAs) as well as a host of other conditions, ranging from heart disease to Alzheimer's disease. The identification of individuals predisposed to CI would be of great value for indentifying high-risk people.

We have devised a series of simple assays in which small amounts of human blood are incubated under conditions that mimic what happens in our body and infecting these samples with either bacteria (E. coli) or virus (herpes simplex virus-1 (HSV-1)). Using special Luminex beads then allows us to rapidly determine the intensity and nature of our response to these microbes.

Objectives:

1. **To examine normal person-to person variation in inflammatory status.**
2. **To evaluate the inflammatory status of high risk populations (i.e., those with BMIs>40 and heavy smokers).**

Significance: Simple, blood-based assays that measure the levels of inflammatory proteins present both before and after stimulation with intact bacteria or viruses may yield insights into the susceptibility of individuals to CI as well as resistance to bacterial and viral infections and to CA. These tests could provide a "personalized medicine" approach to treat CI by determining which anti-inflammatory agents are most effective at reducing CI in vitro for a specific person.