



## Non-Invasive Diagnosis and Evaluation of Disease

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a non-invasive method for rapidly measuring early onset or progression of disease.**

### Overview

A complex network of biochemical processes underlies living systems. As these biochemical processes change, there is a corresponding change in the biological substances that are consumed or produced. For instance, when a system is challenged by a pathogen, the levels of different biological substances change depending on the specific type of challenge (e.g., a bacteria or a virus). These biological substances that change are known as biomarkers. For example, the amino acids leucine, valine and threonine are biomarkers that increase following bacterial infection.

Biomarkers are potent tools for assessing disease and making treatment decisions. They are highly specific and sensitive and can be used in fast and reliable assays of disease states. Biomarkers are particularly useful for early diagnosis of complex diseases.

### The Invention

UW-Madison researchers have developed a non-invasive method for rapidly measuring early onset or progression of disease by identifying specific biomarkers in a biological sample. This method allows for "fingerprinting" the dynamic changes of disease progression and aids in evaluating the disease process.

A biological sample, such as blood or plasma, is taken from a subject undergoing testing for a disease, and one or more biomarkers are measured. The measurements then are compared to a standard biomarker profile that describes how the biomarkers change as a result of the specific disease. Because the profile changes as the disease progresses, measuring a biological sample at a single point in time provides information on whether or not an individual has the disease, the type (e.g., bacterial or viral) and the stage of the disease (e.g., early or late).

### Applications

- Diagnosing disease
- Preventing, treating or eliminating infection

### Key Benefits

- Provides a new, quantitative method for diagnosing diseases, including cachexia, sepsis and polycystic ovarian syndrome (PCOS), in humans and non-human animals
- Enables identification of "biopattern dynamics," which are time-dependent changes in the pattern of essential biomarkers during early onset and progression of disease



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- Provides fast and reliable identification of a disease or other catabolic process
- Capable of early diagnosis of complex diseases
- Can distinguish between bacterial and viral infections
- Capable of identifying the stage of the disease process
- Provides clinicians with additional tools for making therapeutic decisions

#### Tech Fields

- [Medical Devices : Diagnostics & monitoring tools](#)

For current licensing status, please contact Jeanine Burmania at [jeanine@warf.org](mailto:jeanine@warf.org) or 608-960-9846

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