New Serum Biomarkers for Diagnosis and Evaluation of Idiopathic Pulmonary Fibrosis (IPF)

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Background
Five million people worldwide are affected by IPF, with over 200,000 patients in the United States. As a consequence of misdiagnosis, the actual numbers may be significantly higher. Of these more than 40,000 expire annually, which is the same amount that die from Breast Cancer.

Currently, there is no single test to diagnosis IPF and absolutely no test for prognosis. Chest x-rays, pulmonary function tests, and computed tomography (CT) are the most widely accepted tests for IPF. CT may be diagnostic. If not, doctors remove a small sample of lung tissue for examination under a microscope (lung biopsy). Usually, biopsy is done surgically with use of a thoracoscope. However, only the lung biopsy can discriminate IPF from the other five types of idiopathic interstitial pneumonias.

Technology Description
This invention relates to a novel panel of serum biomarkers for diagnosing and/or assessing the aggressiveness of IPF. Additionally, specific combinations of the biomarkers can be used to evaluate the progression of disease. Lastly, there are methods of identifying agents useful in the treatment of IPF which target the biomarkers. The panel includes but is not limited to MMP1 and MMP7.

Applications
1. Diagnostic or prognostic specifically for IPF
2. Identification of druggable targets and therapeutics

Advantages
1. Peripheral blood biomarkers
2. Noninvasive and not cost prohibitive
3. Distinguish IPF from the other interstitial pneumonias
4. Stage disease progression

Stage of Development
Retrospective clinical studies have been completed.

Provisional Patent Application Filed

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**Research Interests**

Idiopathic Pulmonary Fibrosis (IPF) is a chronic progressive interstitial lung disease that is currently incurable. The main research interests of my team are the basic mechanisms underlying pulmonary fibrosis and the way that molecular networks determine tissue and cellular phenotype. To study these mechanisms we apply a systems biology approach that incorporates a combination of traditional molecular biology methods, high-throughput genomic technologies such as expression and location microarrays, advanced bioinformatic approaches and targeted proteomic approaches. As a result of these studies we have identified key regulatory molecules as well as potential biomarkers that we are currently studying.

**Selected Publications**


