Tear Biomarkers of Parkinson's Disease

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Technology description

Market Opportunity

An estimated 7-10 million worldwide are living with Parkinson’ s disease (PD). By the time the first symptoms of PD show, as many as 60 to 70 percent of a person’ s dopamine neurons may have degraded. Moreover, early signs of PD are similar to other neurological motor disorders. Thus, establishing biomarkers to confirm a PD diagnosis would enable a treatment regimen that targets PD rather than the similar neurological disorders. Currently, there are no widely available and affordable biomarker tests that have been conclusively validated. Development of an objectively measurable diagnostic biomarker for PD that is widely available and affordable would disrupt the field for biomarkers of PD.

USC Solution

USC researchers have discovered a protein biomarker that is significantly decreased in tears of PD patients while at the same time oligomers of this protein, which are components of the aggregates that accumulate in nerve damage, are significantly increased in PD patients. They have further developed an ELISA-based assay to validate the changes in the protein composition that occur in patients with PD. This test would meet a need for non-invasive diagnostics for patients who may not manifest motor symptoms at early stages of the disease, and enhance the rigor of other diagnostic approaches.

Application area

Tears containing a fluid biomarker and complementing assay to validate indication of Parkinson’ s disease

Advantages

A non-invasive, highly accurate diagnostic for those showing motor symptoms at early stages of PD
A measurable diagnostic biomarker for PD to ensure accurate diagnosis
Currently, a PD diagnosis is subjective, based on observing symptoms, this biomarker and assay provides certainty in diagnosis of PD

Institution

University of Southern California

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com