WashU

Office of Technology Management

GDF-15: A DIAGNOSTIC BIOMARKER FOR GLAUCOMA

Apte, Rajendra, Yoshino, Jun

Poranki, Deepika

T-016002

Published Date: 4/29/2025

Value Proposition: *Novel biomarker that can be used as a diagnostic to identify glaucoma severity or progression in patients.*

Technology Description

Researchers at Washington University in St. Louis have identified a novel biomarker, GDF15, for glaucoma that can detect early-stage disease as well as the severity of disease. GDF-15 is a biomarker that reflects the stress or death of retinal ganglion cells, which is characteristic of Glaucoma. Glaucoma leads to irreversible vision loss and early therapeutic interventions are highly suggested. Currently, there are no markers to identify the early progression or severity of the disease.

GDF-15 is elevated in aqueous humor of patients with primary open angle glaucoma. In addition, elevated levels of GDF-15 is significantly associated with worse functional outcomes in glaucoma patients.

Stage of Research

GDF-15 as biomarker is validated in human patient samples with mild or moderate glaucoma.

Publications

- Ban N, Siegfried CJ, Lin JB, Shui YB, Sein J, Pita-Thomas W, Sene A, Santeford A, Gordon M, Lamb R, Dong Z, Kelly SC, Cavalli V, Yoshino J, Apte RS. GDF15 is elevated in mice following retinal ganglion cell death and in glaucoma patients. JCI Insight. 2017 May 4;2(9):e91455. doi: 10.1172/jci.insight.91455. PMID: 28469085; PMCID: PMC5414567.

Applications

- Glaucoma diagnosis

Key Advantages

- Novel biomarker for glaucoma
- Provides opportunity for early treatment

Patents

Issued patents

Related Web Links – Rajendra Apte Profile**;** Apte Lab