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## **Q Biomed's Set to Transform Multi-Billion Dollar Glaucoma Market**

Following yesterday's ground-breaking news, it appears that **Q Biomed Inc. (OTC – QBIO – \$1.86 - Not Rated)** is primed to transform the multi-billion dollar glaucoma identification and treatment market.

### *Company Background*

Q BioMed's primary objective is monetization acceleration of innovative biomedical technologies addressing large markets, through rapid innovation and collaborative partnerships with industry leading researchers. The Company's FDA approved, non-opioid drug *Metastron*, which relieves cancer bone pain, is expected to begin generating revenues in 2019. *Metastron* is also approved for sale in 21 other countries. In addition to treating pain, *Metastron* has shown evidence of treating the cancer itself and extending survival. In addition to the oncology sector, the Company addresses ocular diseases such as glaucoma, as evidenced below.

### *Biomarker Could Revolutionize Glaucoma Detection and Progression Measurement*

Yesterday, Q Bio announced that it exercised its option to exclusively license "*GDF15*", a diagnostic marker for determining the severity of glaucoma using the expression levels of Growth Differentiation Factor 15 (*GDF15*) from the Washington University in St. Louis. In our view, this is a landmark event not just for Q Bio but for current and future sufferers of glaucoma, whose numbers could reach 80-100 million by 2020, according to market research sources. Glaucoma is the second leading cause of blindness and it is a lifelong disease, once diagnosed. There is no cure for the progressive disease and current therapies tend to reduce intraocular pressure elevations, which is one of the key factors that can lead to glaucoma progression.

One of the scary characteristics of the disease is its propensity to progress or change without warning---making the use of *GDF15* so potentially critical in diagnostic tools. Currently, there is no single examination or diagnostic test to accurately predict progression of the disease. Thus, we believe that this biomarker could be used to develop an industry standard by which physicians can detect and determine the rate of progression for all sufferers. Moreover, if accuracy is proven in future trials and studies, it could ultimately be used as a surrogate biomarker to ocular therapy clinical trial endpoints. Against this backdrop, we believe *GDF15* could become a standard-bearer and a patient quality-of-life enhancer in all stages of the glaucoma market, estimated to reach \$3.3B in 2026 by 2026, according to Transparency Market Research.

### *Glaucoma: The 411*

According to the American Optometric Institute (AOI):

"Glaucoma is a group of eye disorders that lead to progressive damage to the optic nerve. People with glaucoma can lose nerve tissue, resulting in vision loss. The optic nerve is a bundle of about 1 million individual nerve fibers that transmits the visual signals from the eye to the brain. In the most common form of glaucoma, primary open-

angle glaucoma, the fluid pressure inside the eye increases. This increase in pressure may cause progressive damage to the optic nerve and loss of nerve fibers. Vision loss may result. Advanced glaucoma may even cause blindness. Not everyone with high eye pressure will develop glaucoma, and some people with normal eye pressure will develop glaucoma. When the pressure inside a person's eye is too high for a particular optic nerve, whatever that pressure measurement may be, glaucoma will develop.”

The AOI notes that while current therapies (medications, surgeries including fluid drainage) can potentially reduce vision loss, the loss of vision cannot be restored.

Importantly, glaucoma is diagnosed via a comprehensive eye exam, including visual field testing and tonometry, which measures pressure inside the eye as a means to determine if increased risk factors for glaucoma exist. While the gold standard in intraocular therapy testing, this method is not truly counted on for diagnostic purposes as it relates to determining progression. With the advent of *GDF15*, perhaps the market does not need wait much longer for a proper solution.

#### *GDF15: Precision Medicine for Ocular Sciences*

*GDF15* was discovered by Dr. Rajendra Apte, the Paul A. Cibis Distinguished Professor of Ophthalmology and Visual Sciences at Washington University School of Medicine. Growth Differentiation Factor 15 is a member of the Transforming Growth Factor (TGF-beta) superfamily and was recently identified as a novel and promising biomarker for glaucoma, and its expression correlated with disease severity and progression. *GDF15* has been validated in both mouse and rat models of glaucoma, and confirmed in human patients with glaucoma. Beyond reduction of intraocular pressure, the desired goal of any glaucoma therapeutic is neuroprotection, or to be more specific, protection and survival of retinal ganglion cells (RGCs). As a result, this biomarker of damage to cells in the eye (found in the fluid) could be used to monitor severity and progression of glaucoma and facilitate treatment decisions and their effectiveness. The biomarker's inherent advantages including early detection over conventional clinical tests positions Q Bio and its technology partner Mannin Research.

For example, Q BioMed and Mannin Research Inc. are currently developing *MAN-01*, small molecule therapeutic with a novel mechanism of action, to treat Primary Open-Angle Glaucoma, with the intent of bringing innovation to the global glaucoma market.

#### *Future Value to Be Unlocked in QBIO's Shares*

Given Q Biomed's current market cap and likely revenue going forward, essentially no value is being assigned to *GDF15*, despite the fact that it could be transformative for the company for broad use in glaucoma progression measurement and determination. For example, it is possible that the Company out-licenses the technology to be used as a surrogate biomarker to ocular companies' clinical trial endpoints---thus creating a true standard-bearer.

Interestingly while a great deal of innovation has occurred in personalized or precision medicine for the oncology arena, it has lacked such innovation in the ocular sciences, save perhaps for industry leader Glaukos. In our view, the value of *GDF15* to QBIO is substantial and once the Street digests its unique and distinct properties, along with its enviable potential, we believe that these shares will be driven broadly higher. As a corollary, it is

instructive to note that many ocular companies (Glaukos, Ocular Therapeutics, Eyepoint, etc.) trade at a price/sales ratio of 10x or more. Depending upon the QBIO path, we believe given its clear advantages at this stage, that the stock could warrant similar valuations, down the road.



## SENIOR ANALYST: ROBERT GOLDMAN

Rob Goldman founded Goldman Small Cap Research in 2009 and has over 20 years of investment and company research experience as a senior research analyst and as a portfolio and mutual fund manager. During his tenure as a sell side analyst, Rob was a senior member of Piper Jaffray's Technology and Communications teams. Prior to joining Piper, Rob led Josephthal & Co.'s Washington-based Emerging Growth Research Group. In addition to his sell-side experience Rob served as Chief Investment Officer of a boutique investment management firm and Blue and White Investment Management, where he managed Small Cap Growth portfolios and *The Blue and White Fund*.

## ANALYST CERTIFICATION

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