



Angiogenesis Compounds and Discovery

Application

- ◆ *Therapeutic compound*
- ◆ *Drug screening*

Advantages

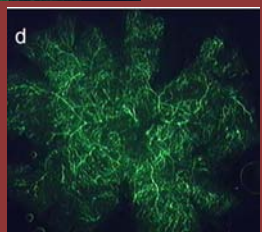
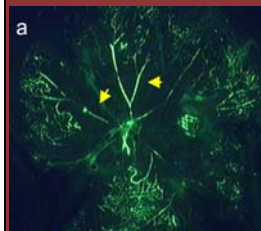
- ◆ *Provides a broad range of uses from diabetic retinopathy to treatment for cancer*
- ◆ *Knocking down the expression of signaling molecule prevents angiogenesis*
- ◆ *Blocking angiogenesis can significantly extend the lives of patients afflicted with these diseases*
- ◆ *Demonstrated anti-angiogenic therapy has an enormous future in the development of cancer fighting drugs*

Introduction

The invention is the result of a series of *in vivo* studies of angiogenesis using the zebrafish model organism to reveal a signaling molecule as a novel target for diabetic retinopathy, age-related macular degeneration, cardiovascular disease (promotion of angiogenesis), and cancer therapy (ant-angiogenesis).

In mouse studies funded by Signalplex LLC and the Life Sciences Greenhouse of Central Pennsylvania, Geisinger's molecule has been found to have utility against angiogenesis related disorders, including pathological. 7.6 million patients have diabetic retinopathy in the U.S, representing 40% of all diabetic patients. We have also demonstrated that our signaling molecule and its associated compounds are more likely to reduce pathologic angiogenesis when compared head-to-head against Avastin, Lucentis, and other VEGF-pathway associated therapies.

Geisinger and Signalplex now seek partners to commercialize this invention.



CONTACT



Anti-Angiogenesis Compounds and Discovery

About the Inventor

As a founding member of the Weis Center for Research since its inception in 1987, Dr. Robishaw's research has been continuously supported by extramural funding from the National Institutes of Health and the Geisinger Clinic. G-proteins were discovered by two research groups headed by Drs. Alfred G. Gilman and Martin Rodbell, who were working independently to figure out how adrenaline stimulated cells. These researchers found that when a hormone like adrenaline binds to a receptor, the receptor does not stimulate enzymes directly. Instead, the receptor stimulates a G protein, which then stimulates the enzyme to produce a second messenger, cyclic AMP. ***For this discovery, these researchers won the 1994 Nobel Prize in Physiology or Medicine. Dr. Robishaw was a member of Dr. Gilman's research group at the time of this groundbreaking discovery.***

Dr. Janet Robishaw came from a pioneer laboratory working in heterotrimeric G-proteins. She discovered the structural diversity of different G-proteins and GPCRs. She is using a morpholino antisense strategy to elucidate the functional significance of this rich diversity of G-proteins, using zebrafish as a model system. This work has provided the first conclusive evidence to support the notion that G-protein gamma subunits are major determinants for signaling specificity. Her expertise in G-protein signaling and work in zebrafish strongly complements target validation of G-protein coupled receptors.

As a founding member of the Weis Center for Research at its inception in 1987, research in the Robishaw Labs began over 20 years ago. About ten years ago, Dr. Robishaw obtained an ongoing NIH study for G-protein and GPCR research at Geisinger Health System. G-proteins are important signal transducing molecules in cells. In fact, diseases such as diabetes and certain forms of cancer, among other pathologies, are thought to arise due to derangement of G-protein signaling.

Dr. Robishaw is a graduate of Central Michigan University of Biochemistry and Chemistry (BS, 1979), and The Milton S. Hershey Medical Center, Penn State University, Hershey, PA of Physiology (PhD, 1983).

CONTACT