



“There is an old saying that says, ‘luck favours the prepared mind.’ So my advice on that is to keep your peripheral vision active at all times. You never know when events will unfold which can dramatically change the course of your life.”

British Columbia



INVENTIVE WOMEN BIOGRAPHIES

inventor Dr. Julia Levy

invention 1) Photodynamic Therapy
2) Visudyne™ Eye Therapy

About the Invention

Almost twenty years ago, in her microbiology lab at the University of British Columbia, Dr. Julia Levy participated in the development of Photodynamic Therapy (PDT) — a pioneering field of medicine that uses light-activated drugs in the treatment of disease.

Photodynamic Therapy is an innovative, two-step process that starts with the administration of a specifically tailored drug by intravenous injection. Once the drug enters the bloodstream, it spreads throughout the body, concentrating where abnormal blood vessels are being formed. The second step is to activate the drug with a dose of non-thermal laser light of a particular wavelength. Neither the drug nor the light exert any effect until combined.

In 1981, Julia formed Quadra Logic Technologies, now QLT Inc., one of North America's leading biotechnology companies. She is President and CEO of the company.



Two of the therapies developed by the company – PHOTOFRIN™ and Visudyne™ – are proving very effective in treating various cancers and ocular (eye) conditions, including a form of the devastating disease AMD (age-related macular degeneration). Visudyne™ is a breakthrough treatment for AMD, which is an incurable deterioration of the eye's retina caused by leaks from abnormal blood vessels. A particular form of AMD (called wet AMD) is the leading cause of blindness in the elderly and causes a loss of central vision, resulting in a severe reduction in quality of life for patients as they lose their ability to read, watch television, drive, and even see the faces of their loved ones. The number of people with AMD is set to triple in the next 25 years as the population ages, creating a serious public health concern.

The development of Visudyne™ was a personal triumph for Julia Levy, as well as a milestone for her company. Julia's mother lost her vision as a result of AMD during the 1980s. "It was very painful to see someone that you care about fighting valiantly to maintain a quality of life despite this catastrophic change," Julia says.

At that time, Julia's company was developing new photodynamic therapy strategies, and though the company's focus was on the treatment of cancer, Julia was aware that there existed a potential for treating AMD with this technology. When the opportunity arose in 1992 to do the required research to make this a reality, Julia's company was ready to take advantage of it. Julia worked with David Dolphin of the University of British Columbia (also QLT's Vice President, Technology Development) to develop Visudyne™. QLT sold the rights to PHOTOFRIN™ to Axcan Pharma Inc.

About the Inventor

The challenges of pioneering a new therapy are never trivial. As Dr. Julia Levy says, "You have to surmount the skepticism of the medical community. We were not just pioneering a new therapeutic modality (PDT) but we were

expanding the application of the therapy from cancer, where there is already a modest recognition of PDT as a real treatment, to ophthalmology where only a handful of doctors knew what PDT was."

Clinical trials are also full of challenges since there is enormous room for error. Fortunately, the clinical investigators who ran trials for QLT had the vision to realize the potential for PDT to be a breakthrough therapy, so the trials went smoothly. As positive results of the clinical trials started to emerge, a sense of euphoria could be felt throughout the company. "As we drew near the end of the patient follow-up and were analyzing our data, our staff worked around the clock. The excitement was palpable. We knew we had the opportunity to do something that would impact the lives of millions of people."

Julia's own credentials are as impressive as her company's. Apart from earning her Ph.D. in microbiology, four universities have awarded Julia honorary degrees. She has received numerous awards. Most recently she was awarded the Pacific Canada Entrepreneur of the Year Award. At 66, she plans to continue investigations into new uses for PDT for conditions such as psoriasis and non-melanoma skin cancer.

"Being part of a team that has accomplished something that will change the world for thousands of people, by enabling them to maintain their vision as they get older, has made me feel very lucky. Few people in this world ever get a chance to accomplish something like this. When I really think about it, the full realization of what we have done hits me and I am quite overwhelmed. It has not altered my life in any significant way other than to make me reflect on my good fortune to have been in the right place at the right time. It was serendipity that led the way to developing Visudyne™."

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