



Overview

VirtualScopics LLC, which provides medical image analysis services for pharmaceutical and medical device clinical trials, was founded in 1999 as a spinoff of the University of Rochester. The Rochester-based company has 40 employees.

VirtualScopics has developed proprietary software that creates 3-D models of tissues and organs in the body to quantify and track the progress of various diseases, including multiple sclerosis, osteoarthritis, rheumatoid arthritis and cancer.

The company's patented software — called the Biomarker Extraction Analysis Method, or BEAM — is targeted for use in the multibillion-dollar drug research market.

The company already has partnerships with such pharmaceutical giants as Pfizer Inc. Pfizer and other pharmaceutical and medical device firms send CT and MRI scans to VirtualScopics, which then analyzes the data and reports the results back to its customers.

Ultimately, through its services, VirtualScopics can help researchers and pharmaceutical firms reduce costs and help them get their drugs to market faster. Also, eventually the technology has the potential to significantly improve patient care in the diagnosis and monitoring of complex diseases.

History

VirtualScopics was founded five years ago by its Chief Medical Officer, Saara Totterman, M.D., Ph.D., Chief Technology Officer, José Tamez-Peña, Ph.D. and Kevin Parker, Dean of the Engineering School at University of Rochester . Prior to founding the Company, Dr. Totterman served as the director of the MR Center at the University of Rochester Medical Center, overseeing the center's operation.

Totterman is internationally recognized as an authority in musculoskeletal CT and MRI, with more than 100 publications in peer-reviewed journals. She also has contributed to the writing of 11 book chapters and is a reviewer for *Radiology*, the highest-ranked radiological journal in the world, for which she has won several awards.

VirtualScopics began with an initial \$2 million investment from New York City-based venture capital firm Loeb Partners Corp. Later on, a number of investors including Pfizer, Inc., GE Medical Systems, and local venture-capital firm Trillium Group LLC participated in follow on financings.

In 2001, Totterman's son, Silicon Valley venture capitalist Mikael Totterman, decided to join his mother at VirtualScopics. Since he joined the firm as Chief Operating Officer, VirtualScopics has inked deals with Pfizer, GE and others, including the Anderson Orthopaedic Research Institute, a leading hip-and-knee replacement research center.

Situation Analysis

VirtualScopics already has agreements with leading pharmaceutical firms and is poised to sign even more deals in the very near future.

In 2002, the company announced a multi-year strategic relationship with Pfizer to accelerate the discovery, validation and application of image-based biomarkers for clinical research.

Under the agreement, Pfizer is making an undisclosed equity investment in VirtualScopics and is purchasing services over three years.

The partnership means Pfizer will use VirtualScopics' patented technology in its ongoing clinical-research efforts. The technology will help Pfizer search for new medical treatments faster, and at a lower cost.

Any biomarkers developed under the partnership remains the property of VirtualScopics; Pfizer has exclusive use for a period of time, after which VirtualScopics will pursue the biomarkers' commercialization.

Also in 2002, VirtualScopics entered into a partnership with Anderson Orthopaedic Research Institute (AORI), a leading joint-replacement research center, to help advance and improve the care and treatment of patients with hip and knee prostheses.

The partnership combines the experience of AORI researchers with VirtualScopics' technology to help detect and measure physiological changes in hip-and-knee replacement patients in a non-invasive way.

Under this agreement, VirtualScopics is customizing its software, in collaboration with AORI, to meet the needs of orthopedic surgeons. AORI has a database of more than 7,000 prosthetic-implant patients, which is serving as a valuable resource in the software-development process.

VirtualScopics' software can see beyond a patient's metal prosthesis, breaking down the data to more accurately identify the position of metal against a patient's bone and tissues. The software can then measure abnormal bone erosion, or osteolysis, and display it in a 3-D image.

The image allows doctors to better determine how well the prosthesis is joined to the body, how well the artificial joint is functioning, and how to provide the best treatment to the patient.

VirtualScopics' medical-imaging software goes beyond the current technique for evaluating hip-and-knee replacement patients. Current evaluations are based largely on examining plain film X-rays which — because they're two-dimensional and because of the position of the metal prosthesis and the bone — do not provide as much information to doctors.

Conclusion

The agreements with Pfizer and AORI, among others, show that VirtualScopics is on the verge of becoming a much larger player in the medical-imaging field for supporting pharmaceutical and medical device product development. And a recent headquarters move to Linden Oaks Office Park in Brighton provides additional space to support the company's growth.

In announcing the headquarters move in December 2003, COO Mikael Totterman noted that VirtualScopics in three years evolved from academic research at UR to an organization working with more than half of the top 10 pharmaceutical companies in the world.

In the 18 months from mid-2002 to late 2003, the company more than doubled its staff to meet customers' image analysis needs in clinical trials. The company in late 2003 achieved its first cash-flow positive month in its history, and expected to end the quarter profitably.

VirtualScopics' patented technology and image analysis is providing valuable information to its customers to help them make "go/no-go" decisions in their clinical trials. As a result, demand for the company's services continues to grow.