COMPANY BACKGROUND

Zenalux is a biomedical diagnostics start-up in Research Triangle Park, NC. The company has established its leadership in biophotonics through its deep ties to Duke University, and features a highly qualified management team with proven executive experience and multiple exits (M&A, IPO). Zenalux's goal is to make optical spectroscopy easy for medical practitioners who are interested in real-time, non-destructive biological tissue diagnostics. Our products provide effortless translation of uv-vis tissue spectra into quantified biological endpoints to enable the medical professional to focus on medical applications of the technology.

Zenascope™, the company's flagship product, is a patent-protected, photonic system that quickly and non-destructively measures important biological endpoints including hemoglobin concentration, hemoglobin saturation and scattering (a measure of cell density and necrosis); however the system can easily be tuned to include additional absorbers of interest. This unique capability enables improved diagnosis, better treatment and ultimately cost reduction in the health care system. Application areas include accelerating feedback in drug discovery; breast tumor margin assessment; response to therapy; breast biopsy; cervical cancer detection; and head and neck cancer detection.

TECHNOLOGY

Zenascope is an ultraviolet-visible spectrometer that achieves quantitative optical spectroscopy in turbid media. The system is a specialized, real-time, diagnostic device that shines white light on opaque target media and then measures and analyzes the reflected signal. Proprietary algorithms and standardized measurement hardware achieve rapid, quantitative analysis of targeted endpoints. This novel approach enables a host of new applications for visible spectroscopy in non-ideal, scattering conditions.

Zenalux Delivers Low-Cost, Real-Time Biological Tissue Analysis

Focus

- Photonics-based biomedical diagnostics

Detects

- Oxygen saturation
- Hemoglobin concentration
- Cell density
- Other absorbers

Platform Technology

- Zenascope™ spectroscopic measurement hardware
- Proprietary software
- Patented algorithms

Applications

- Breast cancer margin assessment
- Response to therapy
- Cervical cancer detection
- Head and neck cancer detection

Company Facts

- Duke University spin-out
- Leader in biophotonics

In a first target application, Zenascope is being used as a biological tissue spectrometer to reliably, quickly and non-destructively measure important biological tissue characteristics (biomarkers) that reflect underlying function and composition. Using these biomarkers, the device can detect and monitor the presence of cancer as well as other disease states. A number of pre-clinical and clinical studies have demonstrated the efficacy of this quantitative diagnostic technique.

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In the breast, the Zenalux technology has been proven to be sensitive to sources of intrinsic optical contrast; in particular, hemoglobin, beta carotene and scattering, which effectively discriminate diseased from healthy tissues. Published studies have also examined tumor oxygen saturation within the tumor microenvironment in vivo in the breast (Brown et al.), while a variety of implementation modes have also been demonstrated, from ex vivo analysis of biopsy specimens after removal from the breast, to in vivo tissue analysis conducted through the lumens of biopsy needles and cannulas. The Zenalux technology has also been demonstrated as a useful tool for measuring physiological endpoints pertinent to tumor response to therapy.

BIOLOGICAL ENDPOINTS

The Zenalux system uses standardized spectroscopic measurement hardware, proprietary software and patented algorithms to achieve rapid, quantitative, and non-destructive analysis of these important biological endpoints.

Quantitative Diffuse Reflectance

- Oxy-hemoglobin concentration ([HBO2])
- Deoxy-hemoglobin concentration ([HHb])
- Total hemoglobin concentration (THC)
- Blood saturation (SO2)
- Beta-carotene concentration
- Scatterer size and density

For more information, contact Zenalux at +1-919-794-5757; info@zenalux.com; www.zenalux.com.