RefleXion to Unveil New Approach to Cancer Treatment at ASTRO

Biology-guided Radiotherapy May Improve Physician Confidence in Treatment of Multiple Tumors

HAYWARD, Calif., Oct. 18, 2018 - RefleXion Medical, a biotargeting oncology company using each cancer's unique biology as a means to destroy it, will showcase its novel approach toward cancer radiotherapy at the upcoming American Society for Radiation Oncology (ASTRO) annual meeting in San Antonio, Oct. 21-24. The ASTRO meeting is widely considered the largest and most influential gathering of radiation oncologists in the world.

"RefleXion's presence at the ASTRO meeting is the culmination of a 10-year journey that began with a simple question: if a cancer cell emits a signal, can we shoot right back to destroy it?" said RefleXion's Founder and Chief Technology Officer, Sam Mazin, Ph.D. "Using biology to guide radiotherapy, we hope to have the means to turn cancer on itself."

RefleXion's biology-guided radiotherapy (BgRT)* is the first to utilize the cancer itself to guide radiation delivery, even in tumors that are moving. The machine uses positron emission tomography (PET), the gold standard in cancer staging and imaging, in a novel way. PET makes use of a small amount of a radioactive drug, called a tracer, to highlight the differences between healthy cells and cancer cells. The most commonly used tracer is FDG, a glucose-based compound, that BgRT uses to determine where the tumor is located. Cancer cells rapidly consume the FDG, which breaks down and instantly produces emissions, thereby signaling their location. Real-time response to these detected emissions is the fundamental principle of BgRT.

"The RefleXion technology could allow us to extend the benefits of radiation to a greater number of patients by being able to efficiently treat several sites at the same time with a high level of confidence," said Dwight E. Heron, M.D., director of Radiation Oncology Services at University of Pittsburgh Medical Center (UPMC) Hillman Cancer Center and professor of radiation oncology at the University of Pittsburgh School of Medicine. "Given that the growing body of clinical evidence suggesting that radiotherapy for polymetastatic tumors, or more than three tumors, could be curative, the introduction of BgRT, a radiotherapy approach that may significantly decrease toxicity, is very exciting."

RefleXion's BgRT technology is the highlight of several scientific presentations at ASTRO including the following:

Oral Presentation
Wednesday, Oct 24, 4:25PM-4:35PM

- PSMA-Directed Biologically-Guided Radiation Therapy of Castration-Sensitive Oligometastatic Prostate Cancer Patients (Room 303)

Poster Presentations
Tuesday, Oct 23, 1:00PM-2:30PM, Innovation Hub, Exhibit Hall 3

- Dosimetric Evaluation of Treatment Plans for a Biology-Guided Radiation Therapy System in Treatment of Nasopharyngeal Cancer (TU_13_3236)
- A Dosimetric Study to Assess the Feasibility of Prototype Treatment Planning Software for a New Biology-guided Radiation Therapy System (TU_1_3120)
- Evaluation of a Prototype Treatment Planning System (TPS) for Biology-Guided Radiation Therapy (BgRT) in the Context of Stereotactic Body Radiation Therapy (SBRT) for Oligo-Metastases (TU_10_3209)

"We are presenting our results surrounding treatment plans that demonstrates the RefleXion machine may improve radiotherapy delivery for current indications such as head-and-neck, prostate, and esophageal cancers using a conventional CT-guidance approach," said Jeffrey Wong, M.D. chair and professor, Department of Radiation Oncology at the City of Hope. "When combined with this platform's potential to expand and efficiently treat metastatic disease, we are even more encouraged with these early results."

Additionally, RefleXion will host a series of Office Hours in its booth, #1971, in Exhibit Hall C to allow peer-to-peer conversations with industry-leading RefleXion BgRT consortium sites from around the United States. Space is limited, so pre-registration is recommended.

About RefleXion BgRT
RefleXion's platform enables a leap forward in the ongoing goal of conventional radiotherapy to manage motion, reduce tumor margins and diminish radiation toxicity, making it feasible to treat multiple tumors in the same session. Current radiotherapy systems require a margin of healthy tissue around the tumor to account for positional uncertainties such as involuntary patient movements and breathing. In many cases, this extra margin results in a significant amount of additional radiation delivered to the patient's healthy tissue. If too much healthy tissue receives radiation and the patient nears threshold toxicity levels, less therapeutic radiation is available to ensure efficacy of treatment or to treat additional tumors. By using the tumor's own emissions to guide radiation delivery, treatment margins and the subsequent radiation dose to healthy tissue may be significantly reduced.

Traditionally PET is used to form a complete image that takes up to an hour, during which time the tumor can change location. However, as the FDG is consumed, the emissions it generates are instantly available and reveal the cancer's location. The RefleXion platform senses these emissions and rapidly responds by sending a beamlet of radiation down the emissions' pathways toward the originating tumor. By treating tumors that uptake the PET tracer, BgRT makes it feasible to track and treat multiple tumors throughout the body in the same session, a game-changing advance over existing platforms.

About RefleXion Medical
RefleXion Medical is a privately-held pre-commercial company developing the first biology-guided radiotherapy (BgRT) system that will drive a new paradigm in cancer care. By leveraging positron emission tomography (PET) in a novel way, RefleXion's patented technology will allow multiple tumors to continuously signal their location during treatment, even during motion. The RefleXion system also improves upon the delivery of conventional radiotherapy for single-site cancers. RefleXion is backed by premier investment firms TPG Growth/The Rise Fund, Sofinnova Partners, KCK Group, Venrock, T. Rowe Price Associates, Inc., China-focused healthcare investment firm GT Healthcare Capital Partners, and global pharmaceutical leaders Pfizer Venture Investments and Johnson & Johnson Innovation, JJDC Inc. The company has also received grant funding from the National Cancer Institute (NCI) Small Business Innovation Research (SBIR) Program and a passive, minority investment from UPMC.

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*The RefleXion System requires 510(k) clearance and is not yet commercially available in the United States.

Media Contact:
Amy Cook
amy@amcpublicrelations.com
925.200.2125