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New technology could 'light up' cancer cells and improve surgical outcomes

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On Target Laboratories LLC and Purdue University are clinically investigating optical imaging technology that could "light up" cancer cells and help surgeons remove more cancerous tissue than previously possible during surgical procedures.

The technology was developed by Philip Low, the Ralph C. Corley Distinguished Professor of Chemistry at Purdue University, director of the Purdue University Center for Drug Discovery and co-founder of On Target Laboratories.

"The optical imaging technology is another important milestone in cancer treatment advancements being piloted by Phil Low and other promising researchers at Purdue," said Mitch Daniels, Purdue University president. "It also is a prime example of how innovations being developed in Indiana can be advanced through partnerships with other world-class institutions like the Leiden University Medical Center in the Netherlands."

On Target Laboratories' lead molecule OTL38 achieved first-in-humans status at the Center for Human Drug Research, affiliated with Leiden University. It was the first time the compound was given to humans as part of testing. This clinical trial in healthy volunteers is complete and it demonstrated the safety of the molecule at various doses. The next step in development of this molecule will be the evaluation of efficacy and safety in patients with cancer.

"On Target Laboratories has developed small-molecule ligands, such as OTL38, that specifically target receptors over-expressed on solid tumors. We have attached them to proprietary fluorescent imaging agents that allow the cancers to light up during surgery," Low said. "We anticipate these tumor-targeted probes could help surgeons remove more of the tumor than would have been otherwise possible."

Data from the initial use of this technology in humans was published in *Nature Medicine* in October 2011. Low said the collaboration with Leiden University Medical Center will enable oncology surgeons to test the probes in surgeries for different cancers including breast cancer, lung cancer and ovarian cancer.

"These initial studies, if successful, could pave the way for further clinical development, and thereby eventually benefit many patients with cancer," he said.

"My colleagues and I are very excited about this collaboration because it will help real world translation of our technology for the management of this devastating disease. Surgery is pivotal for the treatment of most solid tumors, and our developing technology could, in the future, be the guiding light for surgeons by enabling intra-operative visualization of most such tumors."

"The image guided surgery program is a prime example of how novel molecules like OTL38 ideally should be developed. The seamless integration of industry, clinical pharmacologists and clinicians is exemplary," said professor Adam Cohen, the chief executive officer of the Center for Human Drug Research.

On Target Laboratories received $15 million in March from the Pension Fund of the Christian Church and Tom Hurvis, founder of Old World Industries, to enable further development of its optical imaging

technology, including expanded clinical trials.

Provided by Purdue University