

Master's student takes top thesis competition while tackling prostate cancer research

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The future of cancer treatment and a University of Alberta graduate student's personal career prospects are looking bright. Weiyang Liu beat competitors from 80 of the best university graduate schools in western North America with his master's thesis on the use of a light-sensitive drug to treat prostate cancer.

Liu, a U of A electrical engineering student, had his research reviewed internally at the U of A and was put forward as the university's sole entry into the annual master's thesis competition sponsored by the Western Association of Graduate Schools, which represents some 80 university graduate schools located in western Canada and the United States. He is part of the university's interdisciplinary team developing a two-technology treatment that specifically targets a cancerous [prostate gland](#).

Liu says the combination of drug treatment and the fibre-optics system could one day replace the long-standing [prostate cancer](#) treatments alternatives, chemotherapy or surgery. "Our prostate cancer drug is injected into a patient, but only begins killing cells when it's activated or turned on by [laser light](#), which is guided by tiny fibre-optic cables that have been inserted into the patient's prostate gland," said Liu. "This delivers the cancer treatment right to the prostate, unlike chemotherapy, which attacks the whole body."

And, unlike chemotherapy, Liu says the light-activated drug produces a natural cell death, which breaks down the [cancerous tissue](#) in the prostate gland for normal absorption of dead cells by the patient's body. Statistics

show that one in six Canadian men will require prostate cancer treatment. In his award-winning thesis, Liu also discussed the patient's fallout from surgical removal of the prostate. The surgical procedure can leave patients incontinent and impotent. "The high cost of surgery and the hospital stay can be avoided with photo-dynamic therapy," he says.

The drug component of the new treatment is already in clinical trials and the U of A team is hopeful that the fibre-optic light therapy will be added to human testing sometime next year. Liu and his supervising U of A professors, John Tulip and Ronald Moore, will travel to San Diego in March to receive the award. "I'm very proud that we won, when you consider the competition in western North America. We were up against large California schools like UCLA, CalTech and UC Berkeley," said Liu.

Provided by University of Alberta

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