

New research from Lawson uncovers important molecule in ovarian cancer

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Scientists at Lawson Health Research Institute have uncovered an important new target for ovarian cancer therapy. Contrary to current research this new study found that LKB1, a molecule that regulates the metabolism of many adult cells, is an important molecule in the cancer's promotion and survival.

Thousands of women are living with ovarian cancer in Canada. It is estimated that this year, 2,800 Canadian women will be newly diagnosed with this disease. Even though ovarian cancer continues to be one of the most serious women's cancers, there is a real lack in reliable early detection tests and few treatment options. Lawson's Dr. Trevor Shepherd is one of a few scientists across Canada solely dedicated to finding a cure for ovarian cancer.

By the time of diagnosis the majority of women with ovarian cancer already have extensive spread of the disease which makes it difficult to treat by surgery or chemotherapy. According to Dr. Shepherd, what is even more concerning is the propensity of the disease to keep coming back until it is eventually resistant to therapy.

In order to find out how and why ovarian [cancer cells](#) grow and take on such lethal characteristics, Dr. Shepherd and his team grow the cancer cells in 3D structures, called "spheroids" - the same way the cancer cells grow in patients. Spheroids are sticky and can attach themselves to different organs, such as the uterus, liver, stomach or small intestine. Here they can sit dormant and unnoticed for months or years before

growing and becoming resistant to chemotherapy.

Recently, Dr. Shepherd's lab discovered that the spheroids activate a 'stress signal', and the major molecule controlling this signal is called LKB1. "Previous studies stated that LKB1 was a tumour suppressor in ovarian cancer, meaning that tumour cells need to get rid of LKB1 to cause cancer," says Dr. Shepherd "but our work is in direct conflict with these studies, because we definitively show that [ovarian cancer cells](#) still have LKB1 and that this molecule allows ovarian cancer spheroids to change their metabolism, promote tumour cell survival and make them more resistant to chemotherapy."

By refuting these previous studies, Dr. Shepherd has uncovered a new target for future therapy. "There are currently no therapies or drugs that target LKB1," states Dr. Shepherd. "Based on these findings our lab is exploring several different strategies to understand and target LKB1 and its related molecules in ovarian cancer spheroids, and developing the essential pre-clinical models to see if this can be translated to [ovarian cancer](#) patients."

Provided by Lawson Health Research Institute

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