Blocking cell survival signaling as an anti-metastatic treatment for ovarian cancer

Early Validation

PRINCIPAL INVESTIGATOR

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PROJECT SUMMARY

Ovarian cancer is the eighth most common female cancer in Canada and the fifth most common cause of cancer related deaths. It is disproportionally lethal because it has few symptoms at early stages and is generally diagnosed at an advanced stage in which the cancer has spread to other organs beyond the ovaries. Ovarian cancer is typically treated with surgery and cytotoxic drugs and there is often a favorable first response. However, ovarian cancer cells can enter a state known as 'dormancy' that spares them from the harsh effects of chemotherapy and allows them to survive and resume spreading once treatment has ended. This relapse usually occurs within a few years of initial treatment and is rapidly fatal due to limited treatment options.

This grant application is based on our prior work that has been focused on understanding how dormant ovarian cancer cells survive. We previously sought to discover new cancer therapeutic targets in dormant cells that can be exploited to prevent relapse and disease spread to at least lengthen remission.

We have discovered a signaling mechanism in which dormant ovarian cancer cells receive survival signals from their immediate surroundings that help keep them alive in nutrient poor and stressful conditions. We propose to inhibit this survival signaling pathway by developing novel therapeutic agents. This new therapeutic strategy will specifically target dormant ovarian cancer cells and we will experiment with using it as a complement to chemotherapy. This creates an exciting new opportunity to disrupt this survival mechanism and kill dormant ovarian cancer cells leading to longer remission and less disease spread.