OVCCientist Spotlight: Jim Petrik

Developing novel therapies to treat advanced stage ovarian cancer

Research into ovarian cancer at the Ontario Veterinary College has yielded some promising advances in fighting the advanced stages of this lethal disease.

If diagnosed early, ovarian cancer is very treatable, says OVC Biomedical Sciences researcher Dr. Jim Petrik. But early detection is difficult. Symptoms of the disease, such as nausea, bloating and abdominal pain, are often subtle and can be easily attributed to other sources.

Current treatments for late-stage ovarian cancer have limited effectiveness, says Petrik. His lab is searching for ways to change this with novel therapies to treat advanced stage ovarian cancer.

He has researched ovarian cancer at the University of Guelph for almost 15 years, focusing on anti-angiogenic therapies to inhibit growth of new blood vessels to tumours.

A cancerous tumor grows rapidly and develops a rapidly expanding blood vessel system, “but it is a poorly functioning blood system,” says Petrik.

His lab has developed an animal model for advanced stage ovarian cancer which mimics the advanced stage of the disease in humans and has dramatically increased survival in affected animals.

“In our animal model, we induce regression of the tumour and also normalize the tumour blood vessels,” he adds. This provides a fantastic opportunity – “now we’ve provided a good blood supply to tumours and can use it to deliver treatment such as chemotherapy.”

He is also working Drs. Byram Bridle and Sarah Wootton, Pathobiology, in research using oncolytic viruses, which fight cancer cells, to fight tumours. Research has shown that virus uptake is also increased with improved blood vessels.

Improved delivery means tumours have less time to develop drug resistance. “We can shrink the tumours and increase the efficacy of drug delivery to the tumours so that they can’t develop chemotherapy resistance,” says Petrik. This also allows for lower doses of chemotherapy, reducing side affects.

Now, Petrik is looking to the next stage of this research and advancement into a Phase 1 Clinical Trial. Petrik points out he’s ideally located at OVC for this. “I collaborate with Toronto, Hamilton and London with access to hospitals and patients in Southwestern Ontario.”

In addition, “we have a fully functional cancer centre at the Ontario Veterinary College,” he adds. “It’s the ideal place to investigate these therapies in dogs and cats with spontaneous disease and also offer these treatments to animals and their owners.”

Petrik’s research is one of 10 UofG projects highlighted in a crowdfunding initiative beginning December 1. He will use the campaign to raise awareness of his research and clinical trial plans and help cover some of the costs involved in reaching that next step.
Petrik originally came to OVC to study domestic animal reproduction – thrombospondins – which are an important regulator of anti-angiogenesis. In addition to ovarian cancer research, he continues to research reproduction and factors that affect normal ovarian function.

Petrik often talks to women’s survivor groups about ovarian cancer research underway at OVC, but it comes at a bit of a cost. There are many advances in this area but “women with the disease are looking for therapies,” adds Petrik. It takes time to get these to them.