ACCELERATING DISCOVERIES

2005 to 2019 Impact Report

Thank you for your generous support of Ovarian Cancer Research under the direction of Tanja Pejovic, M.D., at the OHSU Knight Cancer Institute. Philanthropic support is critical to finding the keys to unlock new and better treatments for ovarian cancer

Dr. Pejovic and her research team are deeply grateful to the SHOC Foundation for its ongoing investment in their work to find the discoveries that are leading to the critically important scientific advancements needed to make a positive change in the lives of women with ovarian cancer.

New tools, technologies and knowledge provide unprecedented opportunities to make more discoveries that will heal patients and save lives. On behalf of the women, men, and children who will benefit from your generosity, thank you for standing with us in our mission to end cancer as we know it.

Thank you.

OHSU

DISCOVERIES POWERED BY PHILANTHROPY

Acclaimed, physician researcher Tanja Pejovic, M.D., and her team are dedicated to finding better ways to prevent, detect and treat ovarian cancer. Substantial funding from the SHOC Foundation has been essential in establishing and sustaining Dr. Pejovic's research laboratory at the OHSU Knight Cancer Institute leading to significant scientific advancements.

Oregon Ovarian Cancer Registry, Data, and Collaboration Drive Discoveries

It is estimated that over 300 new cases of ovarian cancer will be diagnosed in Oregon in 2019 and 230 people will die from the disease. Dr. Pejovic and her team are dedicated to reducing these numbers to save lives and bring hope to patients and their families.

One of the first and lasting endeavors made possible by the SHOC Foundation's generosity is the establishment of the Oregon Ovarian Cancer Registry (OOCR) and the discoveries made possible by this very unique repository. The OOCR is a research bank of ovarian tissue specimens (normal, high risk, and cancer) accompanied by extensive clinical and outcome data to help decode the mechanisms by which ovarian cancers progress. The ultimate goal is to identify all genes that predispose one to ovarian cancer.

The OOCR collects health histories from families across the Northwest to look for patterns of cancer and inherited syndromes such as BRCA gene mutations. Registry participants receive updates on treatment advancements and individuals identified as being at high risk for ovarian cancer can receive referrals for genetic counseling, screening and other services at Oregon Health & Science University (OHSU).

The Oregon Ovarian Cancer Registry is recognized as a major contributor to the international organization Ovarian Cancer Association Consortium (OCAC) and has made significant scientific contributions through many ongoing collaborative studies.

For example, the OOCR has made it possible for the team to construct ovarian cancer tissue microarrays with corresponding clinical and outcome data. A microarray contains many small representative tissue samples from hundreds of different patients assembled on a single 2 x 1 centimeter glass slide allowing high throughput analysis of multiple specimens at the same time.

Through collaborative research with the Ovarian Cancer Association Consortium major discoveries have been made, including:

- Mutations in BRIP1, BARD1, PALB2, and NBN genes in women with ovarian cancer (2015), mutations in the PALB2, CHEK2, and ATM genes to ovarian cancer in the population (2016)

- Genetic points of risk for cancer are shared among hormone depending cancers ovarian, breast and prostate (2016)

- Additional 12 new susceptibility loci for different histologic subtypes of ovarian cancer (2017)

Also, we are very excited to announce the OOCR has been invited to participate in the Cascadia Data Discovery Initiative – a Microsoft funded project with the goal to align resources (tissue, data, results) with institutions on the West coast to give researchers better and more immediate access to material for their projects.

Another important collaboration for OOCR is with Adaptive Biotechnologies. This biotech company is interested in including OOCR data into their analysis of mutations in the major immune molecule (T-cell receptor) to determine if there is a specific immune profile that predisposes women to ovarian cancer. This national effort is very novel and exciting. There will be no cost to OHSU for the sophisticated analysis the study will provide the team for use in their ongoing research projects. We would not be able to participate in this project (or Cascadia) had it not been for SHOC funding of OOCR!

Ongoing Projects - The Big Three

The first project is a continuation of long-standing interest in DNA repair proteins such as FANCD2. Many years ago, the team was the first to describe abnormally reduced levels of this protein in ovarian cells removed from women at risk of ovarian cancer who tested negative for BRCA mutations. This observation led to a previously unrecognized understanding about the role of FANCD2 in the risk for and disease progression in ovarian cancer. The novelty of this research is underscored by the award of a patent for FANCD2 in detection of ovarian cancer (OHSU Ref. No. 1026; KS 899-73155-02).

This research has been expanded to study the role of subcellular localization of FANCD2 and sensitivity to chemotherapy. Providing another unexpected discovery: the presence of cytoplasmic FANCD2 is associated with better survival rates for women with ovarian cancer. This new research will explain how cell trafficking of FANCD2 can be influenced to increase sensitivity of cancer cells to chemotherapy. This work has just been accepted for publication in the journal OncoTarget.

The second project is titled "Potential for Vitamin D in Prevention of Ovarian Cancer in Women with BRCA1 Mutation". Somewhat by chance, the team found healthy BRCA1 mutation carriers have very low Vitamin D levels in their blood when compared to healthy women of the same age without the BRCA1 mutation. Also, women with the BRAC1 mutation have very low levels of Vitamin D receptors. So the team created an experiment to see what happens when you increase the level of Vitamin D in these cells. They discovered that Vitamin D receptors normalize and the cells slow down their proliferation reducing the likelihood of turning into cancer. This work is now being prepared for publication and has laid the ground for a grant submission.

The third project is inspired by a SHOC supporter: a young girl, whose mother and aunt died from a very unusual and aggressive form of ovarian cancer –small cell carcinoma. Through genetic testing the team learned she carries the mutation that would have certainly lead to the same cancer. She had her ovaries removed providing us with the unique opportunity to study paired ovarian tissue and blood samples. Including researching the development of this rare cancer at its earliest stages. This very special project continues with additional help from Dr. Gordon Mills' renowned lab at OHSU and a very prominent lab at McGill University in Montreal. We have published our initial findings and submitted two grant proposal to fund additional analyses in this and similar cases.

THANK YOU

Your support makes all the difference in the world to us!

FOR MORE INFORMATION, CONTACT:

Tanja Pejovic, M.D.
Associate Professor, OHSU SOM
OHSU Knight Cancer Institute
pejovict@ohsu.edu

Lisa Nolen
Associate Director of Community Involvement
OHSU Foundation
nolenl@ohsu.edu