Study of rare ovarian cancer featured in ASCO 'Cancer Advances' annual report

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A groundbreaking TGen-led discovery of the likely genetic cause of an ovarian cancer that strikes young women and girls is featured today in the annual report of the American Society of Cancer Oncology (ASCO).

Developed under the guidance of an expert editorial board, Clinical Cancer Advances (CCA) is an independent annual review of the year's major achievements and emerging trends in clinical cancer research and care.

The discovery by an international team led by TGen, the Translational Genomics Research Institute, is included in Clinical Cancer Advances 2015: ASCO's Annual Report on Progress Against Cancer. With more than 35,000 members, ASCO is the world's leading professional oncology society committed to conquering cancer through research, education, prevention, and delivery of high-quality patient care.

The study, "Small cell carcinoma of the ovary, hypercalcemic type, displays frequent inactivating germline and somatic mutations in SMARCA4," was initially published in the renowned scientific journal, *Nature Genetics*.

Nearly all the patients in this study lost the function of a key gene called SMARCA4, revealing a "genetic superhighway" that drives this disease.

This type of cancer usually is not diagnosed until it is in its advanced stages. It does not respond to standard chemotherapy, and 65 percent of

patients die within 2 years. It has affected girls as young as 14 months, and women as old as 58 years—with a mean age of diagnosis of only 24 years old. In this study, the youngest patient was 9 years old.

"Inclusion of our study in ASCO's annual report underlines the importance of this discovery and the anticipation of developing new treatment options," said Dr. Jeffrey Trent, TGen President and Research Director and the study's senior author. "The correlation between mutations in SMARCA4 and the development of SCCOHT is simply unmistakable."

By applying its groundbreaking work in genomics, TGen led a study that included: Mayo Clinic in Arizona, Scottsdale Lincoln Health Network, Johns Hopkins University, St. Joseph's Hospital and Medical Center, Evergreen Hematology and Oncology, Children's Hospital of Alabama, the Autonomous University of Barcelona, British Columbia Cancer Agency, University of British Columbia, and the University Health Network-Toronto.

"It is a great honor to have our work highlighted by ASCO as one of the year's biggest cancer research advances," said Dr. Aleksandar Sekulic, M.D., Ph.D., a physician-scientist with a joint appointment as Assistant Professor at TGen and the Mayo Clinic in Arizona, and also an author of the study. "But more importantly, we hope this work will benefit the patients suffering from SCCO. Identifying the genetic driver in SCCO is key to understanding the disease mechanisms, which in turn may help us develop better treatments for the patients afflicted with this cancer."

Much of the work in this study was inspired by the memory of Taryn Ritchey, a 22-year-old TGen patient who in 2007 lost her battle with ovarian cancer, the 5th leading cause of cancer death among American women.

"We set out to uncover any small sliver of hope for women afflicted with this rare cancer. What we found instead are the nearly universal underpinnings of SCCOHT," said Pilar Ramos, a TGen Research Associate, and the study's lead author. "By definitively identifying the relationship between SMARCA4 and SCCOHT, we have high confidence that we have set the stage for clinical trials that could provide patients with immediate benefit."

"The past decade of research has taught us that cancer is a vastly complex disease. Profound patient-to-patient variability has made treatment and diagnosis for many tumor types at times very difficult. In this case, however, we have found a single genetic event driving SCCOHT in nearly every patient," said Dr. William Hendricks, a TGen Staff Scientist and another author of the study.

More information: The ASCO report will be published online in the Journal of Clinical Oncology at www.jco.org, and online with supplemental resources at www.cancerprogress.net

Provided by The Translational Genomics Research Institute

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