

## Possible origin of ovarian cancer in the fallopian tubes

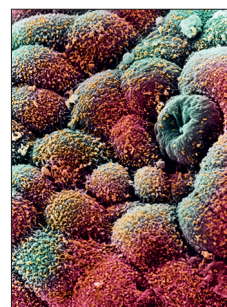
Less than 30% of patients with ovarian cancer survive beyond 10 years after diagnosis. To improve diagnosis and treatment, and therefore the chance of survival from ovarian cancer, its history and progression need to be fully understood. Findings from a recent US study suggest that the fallopian tubes are the site of origin for high-grade serous ovarian carcinomas (HGSOC).

In their analysis, S Intidhar Labidi-Galy (Geneva University Hospitals, Geneva, Switzerland) and colleagues did whole-exome sequencing of samples from five patients diagnosed with stage III sporadic HGSOC who had a serous tubal intraepithelial carcinoma (STIC) in their fallopian tubes. They also did structural copy-number analyses of isolated STIC lesions from four patients. The whole-exome sequence analyses identified identical sequence changes in *TP53* in

all samples. Additionally, analysis with a subclone hierarchy inference tool suggested that the ancestral clone for the observed ovarian cancers already contained mutations in *TP53* and shows STIC lesions as an early event in tumour development. The data suggest that the formation of cancer in the ovaries could be seeded from a primary tumour in the fallopian tubes containing changes in key genes such as *TP53*, *PTEN*, and *BRCA1* or *BRCA2*. The investigators also used a mathematical model to estimate that the average interval between a tumour founder cell and the ancestral precursor cell was 6.5 years (90% CI 1.4–10.7). By contrast, estimated time from development of the ovarian lesion to metastasis was short (average 2 years) and seemed to occur with none or just a few additional genetic changes.

Co-author Ronny Drapkin (Penn Ovarian Cancer Research Center, Philadelphia, PA, USA) commented “The data revealed a 6–7 year window between the onset of in-situ disease and spread to the ovary. This level of genomic evidence will likely influence new prevention strategies and early detection approaches.” Annwen Jones (Target Ovarian Cancer, London, UK) added, “There is a growing consensus that ovarian cancer originates in the fallopian tubes and this research is a useful addition to that debate. While further, larger studies are needed, a better understanding of the disease’s origins will help us better identify, treat, and in some cases, where women know they are at a heightened risk, potentially prevent, ovarian cancer in the future.”

Priya Venkatesan



Steve Gschmeissner/Science Photo Library

**Lancet Oncol 2017**

Published Online  
November 2, 2017  
[http://dx.doi.org/10.1016/S1470-2045\(17\)30834-3](http://dx.doi.org/10.1016/S1470-2045(17)30834-3)

For the study by Labidi-Galy and colleagues see *Nat Commun* 2017; **8**: 1093. DOI:10.1038/s41467-017-00962-1