

'Patchwork' ovarian cancer more deadly

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The most common type of ovarian cancer is more deadly if it consists of a patchwork of different groups of cells, according to a Cancer Research UK study published today (Tuesday) in *PLOS Medicine*.

Serous ovarian cancers containing a variety of genetically-different cells were more likely to become resistant to treatment and come back again than cancers made of more similar cells. Women with this type of tumour also died sooner than those with less varied tumours.

The scientists, from the Cancer Research UK Cambridge Institute and Cambridge University, analysed DNA from 135 samples of serous ovarian cancers from 14 patients having [chemotherapy](#).

The team is the first to measure the genetic variety - called tumour heterogeneity - in a solid [tumour](#) and link this to cancer survival.

Tumour heterogeneity begins as tumours evolve from a single damaged cell, which quickly changes and develops into a patchwork of different cell groups.

Each patch of [cells](#) contains a similar but distinct set of DNA errors, so can look and behave differently from other cell clusters. This makes treating the disease more challenging, with some groups of [tumour cells](#) being more resistant to chemotherapy than others.

Lead researcher Dr James Brenton from the Cancer Research UK Cambridge Institute, said: "Our research is important because it helps

make sense of the genetic chaos inside tumours. It's another step closer to cracking the code on cancer biology so that we can understand sooner how patients will respond to treatment - and how to develop better drugs for this hard to treat cancer in the future."

The team also found that gene faults contributing to drug resistance were present in some parts of tumours before treatment began, replacing the previous belief that chemotherapy caused these genetic changes.

More than 2,000 women in England are diagnosed with serous [ovarian cancer](#) each year. The main treatments for ovarian cancer are surgery and chemotherapy, but some cancers become resistant to chemotherapy which presents a big challenge when treating the disease.

Nell Barrie, Cancer Research UK's senior science information manager said: "Finding out more about how tumours evolve and what this means for patients could help us find a way to cut off cancer's first steps.

"Ovarian [cancer](#) is often not diagnosed until it has spread in the body, making it harder to treat successfully. And Cancer Research UK is funding research to find ways to screen for the disease and spot it earlier when it is more easily treated successfully, to help save more lives."

More information: *PLOS Medicine*. [DOI: 10.1371/journal.pmed.1001789](#).

Provided by Cancer Research UK

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