

# Scientists discover how to switch cancer 'protector' gene on

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(PhysOrg.com) -- A new UCL study has revealed that a gene that normally protects against ovarian cancer is switched off in two-thirds of cases and switching it back on arrests tumour growth.

The researchers found that the 'protector gene', known as EPB41L3, is inactivated in 65 per cent of ovarian cancers and reactivating the gene halted tumour growth and triggered large numbers of the cancer cells to commit suicide.

The research, co-funded by Cancer Research UK and the gynaecological cancer research charity The Eve Appeal, raises the prospect for developing therapies that mimic or restore the function of the gene to

kill [ovarian cancer](#) cells in a targeted way.

UCL's Dr Simon Gayther, who led the study, said: "Previous studies have found similar 'protector [genes](#)' but ours is the first to uncover EPB41L3 as a gene specific to ovarian cancer.

"We also discovered that the gene is completely lost in about two-thirds of the ovarian tumours we looked at.

"When we switched it back on in these tumours, it had a positive effect in killing cancer cells. This is a very exciting result because it means therapies that mimic or reactivate this gene could be a way to kill many ovarian cancers."

The scientists, based at UCL's institute of Women's Health, used a cutting-edge approach which involves transferring whole [chromosomes](#) into ovarian cancer cells. They found that introducing an additional copy of chromosome 18 boosted the activity of 14 key genes, triggering large numbers of the cells to die.

The scientists examined more than 800 ovarian tumours and found that one of the 14 genes - EPB41L3 - was inactivated in around two-thirds of malignant ovarian tumours, compared to less than a quarter of benign tumours and no normal ovarian cells.

Reactivating the gene had the same deadly effect on the [cancer cells](#), suggesting that it was the trigger that was causing the cells to self-destruct.

Jane Lyons, CEO of The Eve Appeal, said "This research is an exciting step forward - a gene has been identified that can help halt the growth and spread of ovarian cancers. The challenge now is for the researchers and clinicians to find a way to use this new information to increase

survival from the disease.”

Dr Lesley Walker, director of cancer information at Cancer Research UK, said: “We know that there is a class of genes that protect us from developing cancer. This is an exciting new one specific to ovarian cancer. Advanced ovarian [cancer](#) is very difficult to cure, which makes this type of research even more important.”

**More information:** Study in *Neoplasia* - [www.neoplasia.com/](http://www.neoplasia.com/)

Provided by University College London

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