

# 'Starving' Cancer Cells

University of Southampton



A University of Southampton Professor, in collaboration with colleagues at the BC Cancer Agency Research Centre, have discovered a novel way of killing cancer cells. The research, recently published in the journal *Cell*, has found a new potential treatment for cancer, which leaves the body's healthy cells undamaged, unlike traditional therapies such as radiotherapy.

Chris Proud, Professor of Cellular Regulation in Biological Sciences at the University of Southampton says: "Cancer cells grow and divide much more rapidly than normal cells, meaning they have a much higher demand for and are often starved of, nutrients and oxygen. We have discovered that a cellular component, eEF2K, plays a critical role in allowing cancer cells to survive nutrient starvation, whilst normal, healthy cells do not usually require eEF2K in order to survive. Therefore, by blocking the function of eEF2K, we should be able to kill cancer cells, without harming normal, healthy cells in the process."

Almost all cells in the human body contain the same basic components, meaning that to attack one of them in a cancer cell, that component will also be affected in normal cells. This study has identified a specific protein that is not necessary in normal cells but seems to be important to the survival of cancerous cells. A treatment that could block this protein could represent a significant breakthrough in the future of cancer treatment.

Traditional chemotherapy and radiotherapy cause damage to healthy cells, and other more targeted treatments are usually only effective for individual types of

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cancer. Contrastingly, this new development does not damage healthy cells and could also be used to treat a wide variety of different cancers. Professor Proud and the team are now working with other labs, including pharmaceutical companies, to develop and test drugs that block eEF2K, which could potentially be used to treat cancer in the future.

Professor Proud is also researching the origins of cancer. He says: "Protein synthesis – the creation of proteins within cells – is a fundamental process that enables cells to grow, divide and function. If it goes wrong, it can contribute to the development of cancer. We are interested in how defects in this process can cause cancers and other diseases."

For more information, visit [University of Southampton](#) [1].

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