

## VIDEO: New Cheap and Effective Cancer Drug: But Big Pharma Says NO WAY!

Will Dr. Evangelos Michelakis' Invention be blocked by a Profit Driven Pharmaceutical Industry?

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University of Alberta Researcher Dr. Evangelos Michelakis has developed an effective drug which can be used to treat cancer. The project of this inexpensive drug does not fit the plans of the Pharmaceutical industry

## CTV Background Article

Researchers at the University of Alberta have reported that a drug that has been used for decades in the treatment of rare disorders of metabolism, holds promise as a potential effective drug for the treatment of several forms of cancer. Dichloroacetate (DCA) appears to alter the metabolism of cancer cells, without affecting that of normal cells, leading to regression of cancers in test tubes and animals, without apparent toxicity.

These results are exciting and offer hope that similar success might follow its use on the treatment of patients with cancer. The work was published in a prestigious medical journal (Cancer Cell) and has already attracted the interest of media and patients around the world. The interest of the public focuses around two important questions:

1) What do these findings mean for real patients with cancer and how likely are that the tumors growing in patients will respond to the drug in a manner similar to the tumors growing in animals?

There are numerous examples in the history of Medicine of therapies or drugs that failed to show benefit in real patients despite promising effects in animals. The research team at the University of Alberta is optimistic because the tumors studied were actually human cancers growing into animals. In addition, DCA has already been used in real patients for decades and has shown a good safety profile (although the number of patients was relatively small and these were not cancer patients). However, one has to wait for properly performed clinical trials before any conclusions regarding the efficacy and safety of this drug can be drawn.

2) Since the drug is already used and no company owns a patent or its rights (meaning that the drug will not bring the huge profits that other patented drugs bring in pharmaceutical companies), who will fund the many millions of dollars required for multicenter, multinational clinical trials?

The research team at the University of Alberta has been working on this project for more than 2 years now. Early on, two of the investigators (Drs Michelakis and Archer) filed for a "use" patent. Although no patent could be filed for DCA itself, a patent could be claimed for its specific use in cancer. Instead of forming a company in order to pursue this privately, Drs Michelakis and Archer requested a partnership with their University. The University of Alberta sponsored the patent application, which became successful as a "provisional" use patent. However, despite trying for a year, the University failed to attract the interest of any investors or biotech companies for the development of the drug. This is likely the result of the fact that the "use" patents are generally considered to be "weaker" than standard patents and therefore they cannot guarantee profit. Eventually, the University considered this patent "high risk" and withdrew its sponsorship, returning the rights and the cost to support it back to the investigators. In theory, it is still possible that investors will still be interested to take over and sponsor the development of the drug. However, there is no question that for the completion of the large amount of the clinical research that will be required before DCA is proven to be effective and safe in humans with cancer, support from non-profit government organizations, like the CIHR or NIH, will be critical.

Either way, the performance of such trials requires time. The time required for the DCA trials will be shorter compared to brand new drugs that have never been tried in humans before. DCA has already passed phase one trials and can enter directly phase 2 trials in patients with cancer. In addition, at least for Canada, DCA has to be purified, sterilized and appropriately formulated before it can receive approval from Health Canada for oral use in humans. The agony of the public for their loved ones already suffering from advanced forms of cancer can be dramatic but the appropriate steps need to be followed.

To address such concerns, the University of Alberta and the Alberta Cancer Board have created a dedicated website (www.depmed.ualberta.ca/dca) in order inform physicians and patients regarding the commitment to initiate clinical trials in the near future and record the progress towards this goal. In addition, in order to address the large number of calls expressing interest to donate funds for this effort, this website will have a user-friendly mechanism to facilitate donations to the University for these efforts. It is important to say that, so far, there is an impressive number of people expressing their wish to contribute with donations; while there is no indication yet of interest from large companies or industries.

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