# Sodium Dichloroacetate (DCA)

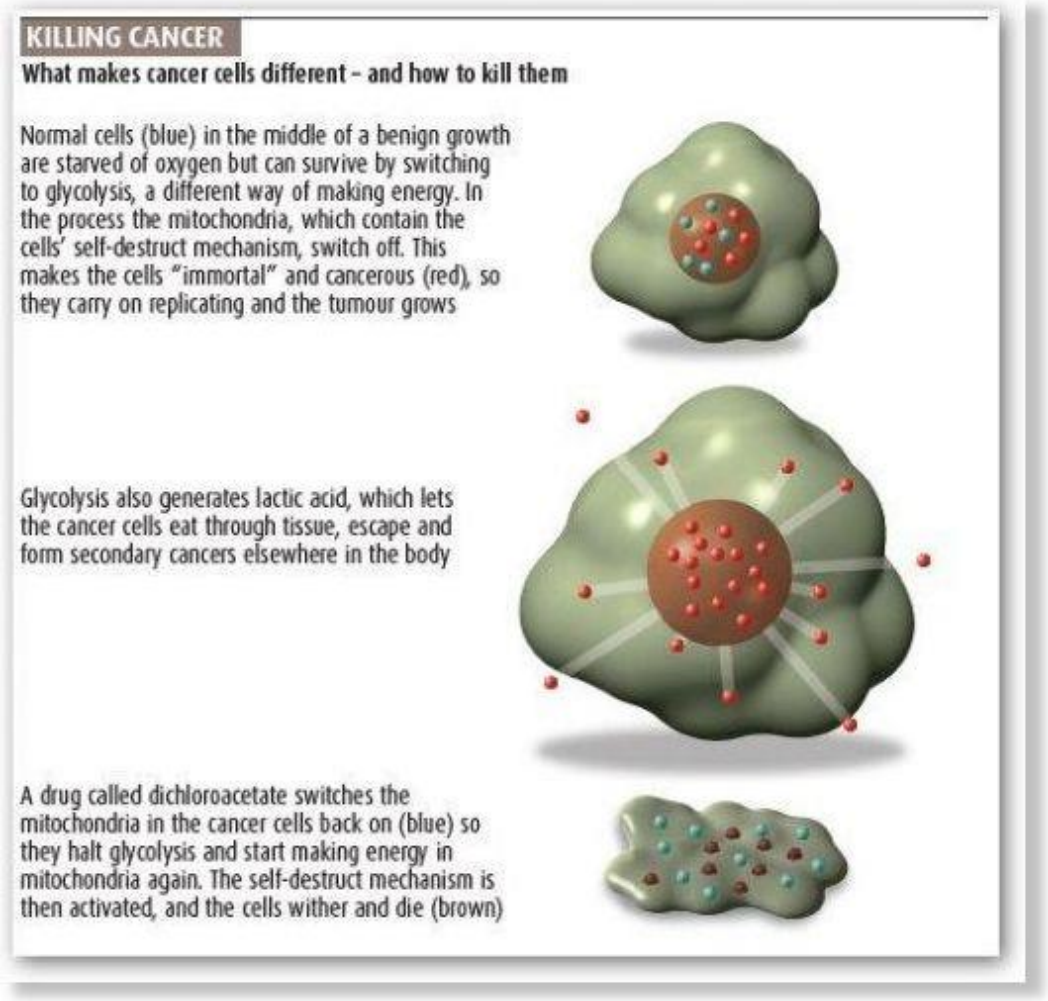
http://www.dcaguide.org/

## Scientists cure cancer, but no one takes notice…

Canadian researchers find a simple cure for cancer, but major pharmaceutical companies are not interested.

Researchers at the University of Alberta, in Edmonton, Canada have cured cancer last week, yet there is a little ripple in the news or in TV. It is a simple technique using very basic drug. The method employs dichloroacetate, which is currently used to treat metabolic disorders. So, there is no concern of side effects or about their long term effects.

This drug doesn't require a patent, so anyone can employ it widely and cheaply compared to the costly cancer drugs produced by major pharmaceutical companies.



Canadian scientists tested this dichloroacetate (DCA) on human's cells; it killed lung, breast and brain cancer cells and left the healthy cells alone. It was tested on Rats inflicted with severe tumors; their cells shrank when they were fed with water supplemented with DCA. The drug is widely available and the technique is easy to use, why the major drug companies are not involved? Or the Media interested in this find?

In human bodies there is a natural cancer fighting human cell, the mitochondria, but they need to be triggered to be effective. Scientists used to think that these mitochondria cells were damaged and thus ineffective against cancer. So they used to focus on glycolysis, which is less effective in curing cancer and more wasteful. The drug manufacturers focused on this glycolysis method to fight cancer. This DCA on the other hand doesn't rely on glycolysis instead on mitochondria; it triggers the mitochondria which in turn fights the cancer cells.

The side effect of this is it also reactivates a process called apoptosis. You see, mitochondria contain an all-too-important self-destruct button that can't be pressed in cancer cells. Without it, tumors grow larger as cells refuse to be extinguished. Fully functioning mitochondria, thanks to DCA, can once again die.

With glycolysis turned off, the body produces less lactic acid, so the bad tissue around cancer cells doesn't break down and seed new tumors.

Pharmaceutical companies are not investing in this research because DCA method cannot be patented, without a patent they can't make money, like they are doing now with their AIDS Patent. Since the pharmaceutical companies won't develop this, the article says other independent laboratories should start producing this drug and do more research to confirm all the above findings and produce drugs. All the groundwork can be done in collaboration with the Universities, who will be glad to assist in such research and can develop an effective drug for curing cancer.

You can access the original research for this cancer here.

This article wants to raise awareness for this study, hope some independent companies and small startup will pick up this idea and produce these drugs, because the big companies won't touch it for a long time.

# Below are highlights from the site: DCAwatch.com

## How it works: http://dcawatch.com/how-dca-works/

## How DCA Works

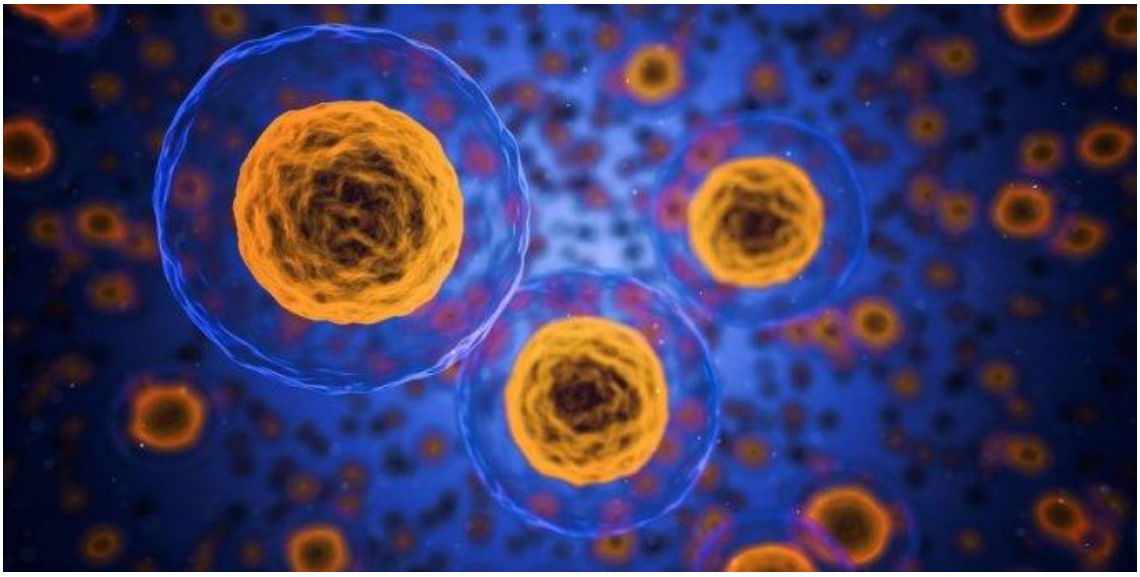
Posted on **December 30, 2018**

For almost half a century, DCA has been a relatively basic substance used for treating people with congenital mitochondrial diseases. Nearly a decade ago, the interest in this drug spiked up because of new research and claims that it could be able to serve those who have cancer. Since then, there has been a lot of interest generated towards this medication.

In this long article, we will attempt to briefly cover what we know about dichloroacetate and how it works. Keep in mind – we'll try to explain the complex mechanisms as simply as possible. We encourage every person interested in DCA therapy to read on.

So… How does a small, inexpensive and a relatively nontoxic molecule like dichloroacetate work ?

**How cancer cells act differently ?**



To better understand the mechanism of DCA, we must be aware of the different processes that thrive in a cancerous cell. Cancer is considered to be a genetic disease in which genes that control how our cells grow and divide start behaving abnormally. Due to error in our DNA, the cells become chaotic, multiply uncontrollably and change their normal metabolic activity.

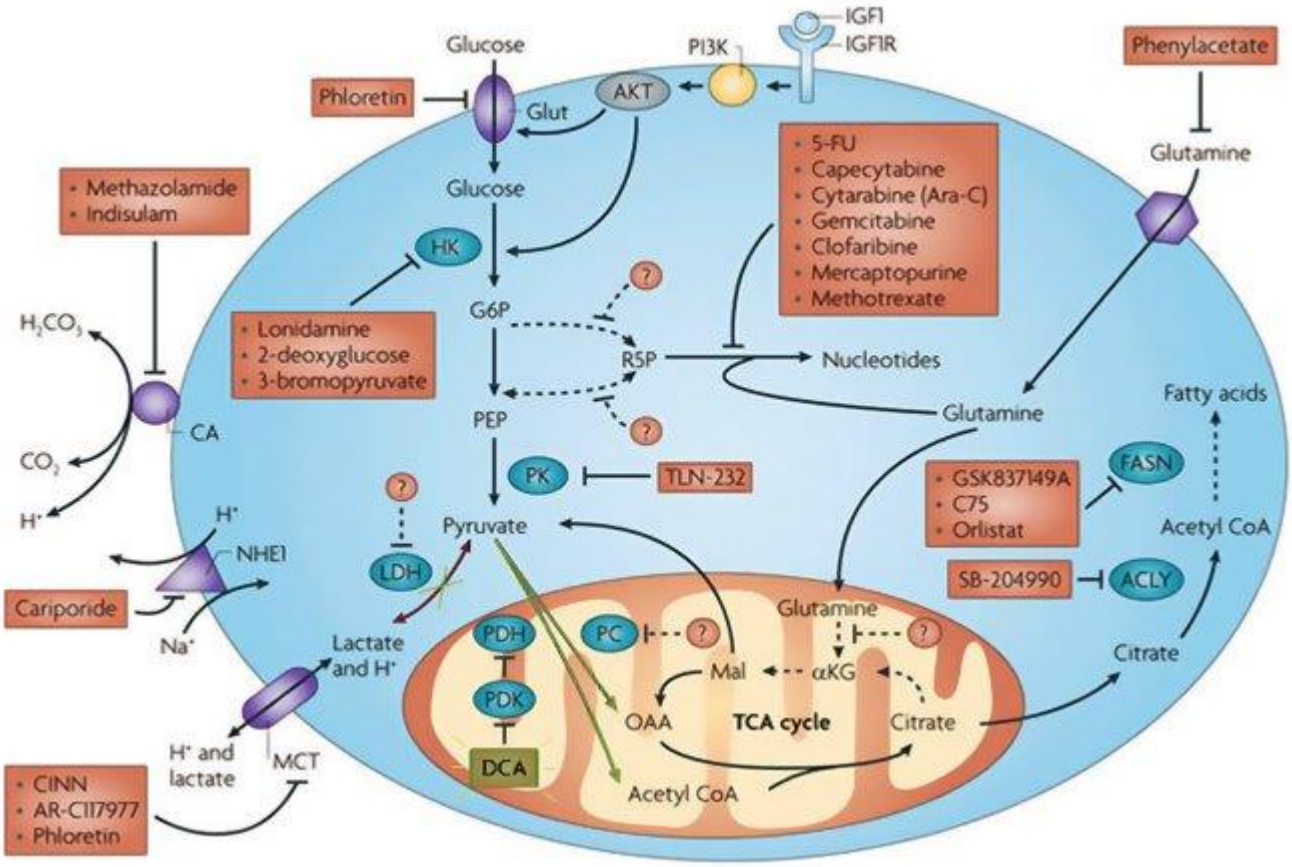
Every cell contains important organelles called mitochondria. These structures can be called "cellular power plants" because they produce the energy needed for live organisms to function properly. Besides, mitochondria are important in the cells life cycle – they play key roles in activating apoptosis.

Unfortunately, cancer cells have reduced mitochondrial function. This means that cancerous cells mostly produce energy by extremely high rates of glycolysis outside the mitochondria, rather than oxidative phosphorylation inside the mitochondria (Warburg effect) which also causes a massive increase in uptake of glucose and the exhaustion of the patient.

Because of the intracellular metabolic changes apoptosis *(natural cell death)* is stopped and it makes the malignant cells "immortal".
Suppressed mitochondrion function leads to a lot of advantages for the tumor – it can survive and grow without oxygen in anaerobic conditions (eg. the cells in the middle of a cancerous mass), it promotes biosynthesis (cancer growth and division), it evades immune cells and disrupts the normal architecture of tissues (the cancer becomes more malignant and dangerous).

On the top of that, the Warburg effect produces an acidic environment. Such conditions damage the intercellular matrix, set the cancerous cells free into the bloodstream or lymph and promote metastasis (the cancer can spread and become deadly).
As we can see, the Warburg effect causes metabolic changes that make cancer a hardly manageable illness. Nevertheless, recently there have been ideas to begin perceiving and approaching cancer as a metabolic disease and this is where the molecule of DCA comes in handy.

**How DCA affects cancer ?**




So far we can understand how the cellular metabolism of tumors differs from that of our healthy, normal cells. Malignant cells switch off their mitochondria and start producing energy mainly through cytoplasmic glycolysis and these changes generate a lot of advantages for the tumor.

Dichloroacetate works by restoring the suppressed mitochondrial function and rendering the “bad cells” non cancerous. The normalized mitochondria then are able to resume the halted apoptosis process (the natural intracellular suicide system) and the harmful cells start dying on their own. What’s more important, the drug is selective. It doesn’t poison healthy tissues and cause significant effects on non carcinogenic cells like cytotoxic chemotherapy drugs.

The way DCA achieves these results is by reversing the Warburg effect. The substance inhibits an important enzyme which is essential for cancer proliferation – pyruvate dehydrogenase kinase (PDK). Once again the cell starts producing most of its energy in a normal way (through oxidative phosphorylation). The mechanism restores normal cellular metabolic activity.

Notably, Sodium Dichloroacetate has a lot of characteristics of an ideal antitumor therapy. We will discuss these characteristics further.

**Why DCA is a good anticancer medication ?**

To begin with, as a result of increased apoptosis, the substance effectively stops tumor growth (proliferation) and can even cause them to shrink in size or disappear.

To our surprise, DCA can also reduce the vascularity of tumors (by inhibiting angiogenesis). This prevents the nutrients from reaching and feeding the “bad cells”. Less blood vessel deposition on the cancerous masses also means that there are fewer pathways for cancer to spread – this lowers the probability of metastasis and disease progression.

Last but not least, since dichloroacetate is a small molecule, it crosses the blood-brain barrier and can help manage brain tumors. Currently, there are *only few* prescriptions that can reach the cerebral matter, making DCA a considerable option for therapy.

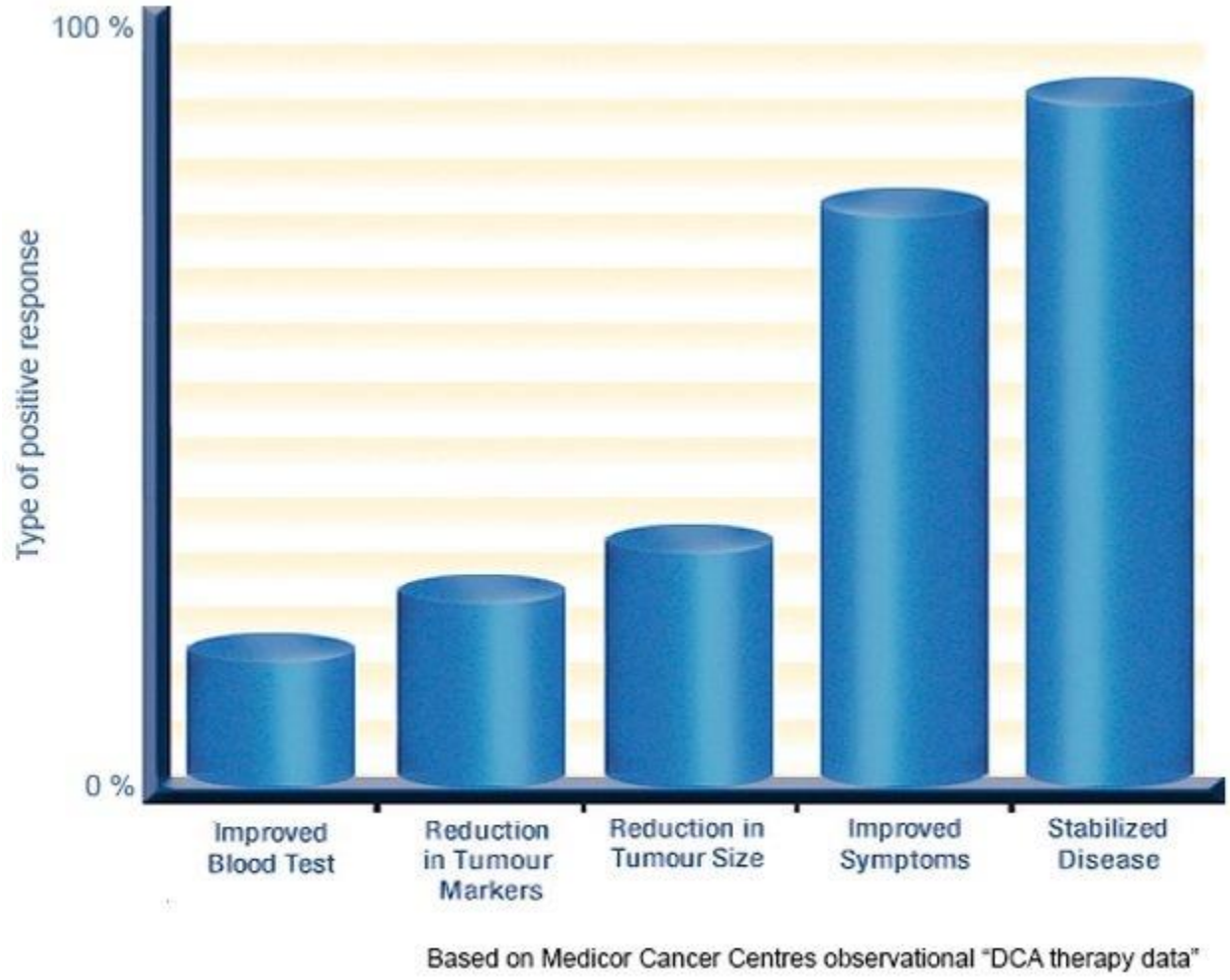
However, we are used to the reality that anticancer medications cause severe outcomes. Chemotherapy can have a very harsh effect on the body and provide unpleasant experiences. This is why patients are specifically prepared and receive medications prior to the administration of chemotherapy, to help minimize this

Despite that, DCA isn’t considered to be a cytotoxic chemotherapy drug and it appears to cause minimal systemic toxicity. Dichloroacetate is a gentle non-chemo treatment option that can have none, little or mild side reactions.

Then again, all the side effects are reversible which makes it the most appealing characteristic of using this molecule.

To put in simply, DCA induces intracellular as well as macroscopic changes that can help you accomplish successful therapy against cancer and achieve good improvements. Many people start feeling better in weeks.

**What positive improvements people can expect ?**




Given the fact that now we understand enough things about this relatively new cancer treatment, we can turn our attention from a scientific perspective to a more practical point of view. What are the possible experiences when using Sodium Dichloroacetate ?

Bare in mind that the information we present is based on real and open observational data gathered from the clinical practise of top DCA therapy centers in the world. We must remember the main point which is true to every cancer case there is – *the earlier the disease is caught and diagnosed, the sooner we take action, the better results we will achieve. The DCA treatment will not always provide positive outcomes and help everyone.*
The lowest positive response is disease stabilization. This means that the tumor stops spreading and growing. There are no further signs of cancer progression.

As a result of taking DCA, a much better positive response can be improved symptoms. Patients regain their appetite, feel more energized, reduce their fatigue, regain weight and feel less pain. These things tend to last for a sustained period of time.

More importantly, people suffering from cancer obtain an improvement in blood tests and a reduction of tumor markers.

The best results of using DCA are measurable tumour size reduction or complete cancer remission. DCA users have their tumours screened by imaging techniques such as CT scans, Magnetic resonance imaging, Ultrasonography and report significant cancer size reduction. Some of them even report complete cancer recovery.

Half of the people who take DCA experience mild side effects that most of the time are neurological and can be improved by a couple of dietary supplements (eg. Vitamin B1, Alpha-Lipoic Acid) or by taking a break from the treatment.
When all the things are considered, we must emphasize that sodium dichloroacetate can be taken alone or in combination with other anticancer medications. Naturally, a lot of people are eager to know – is DCA acceptable with other forms of cancer therapy ?

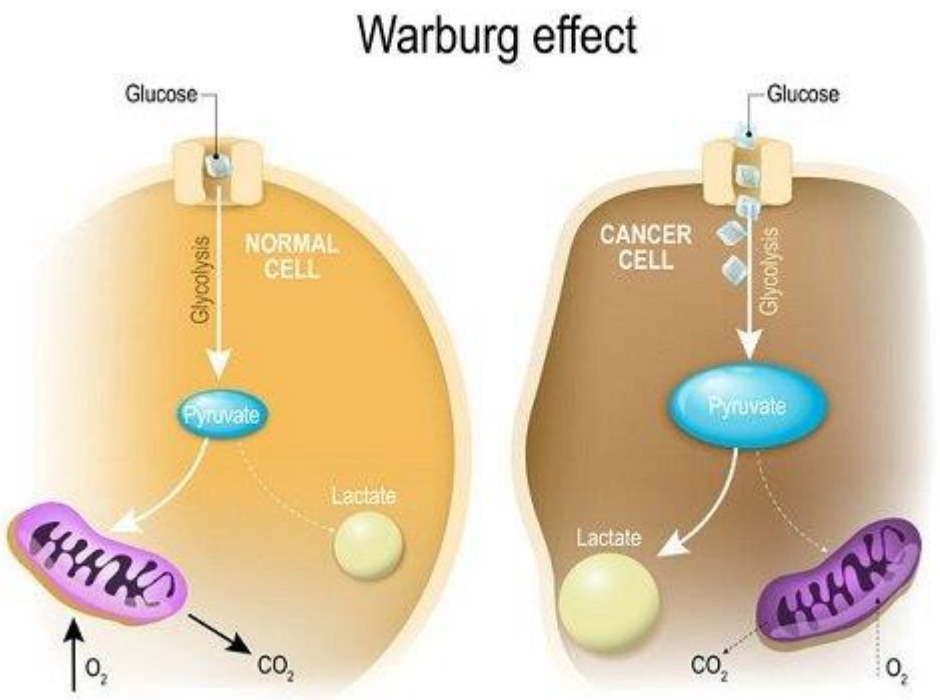
In short – yes. It is possible and even encouraged (with a couple of exceptions).

# DCA History

**http://dcawatch.com/dca-history/**

Posted on **December 30, 2018**

Since 1973 Sodium Dichloroacetate *(DCA)* was used to treat various mitochondrial disorders. It inhibits the activity of pyruvate dehydrogenase kinase, and reduces the accumulation of lactate in body tissues. Its usage for treating lactic acidosis has been successful and is still continued to this day, it is used in several research and medical centers in the United States and Canada.
The majority of the people who have used *DCA* are children with congenital mitochondrial disorders. The use of the drug could resume the normal function of the cellular enzymes and prevent further neurological damage, mental disability, microcephaly, blindness and movement disorders. *Dichloroacetate* safety has been confirmed long before the idea, that it could be helpful for someone who has cancer.
In 1920s German biochemist Otto Warburg found abnormalities in metabolism in cancer cells. Normal cells obtain energy by glucose oxidation, which requires the presence of oxygen. Cancer cells depend on glycolysis to obtain energy, and it can occur without the presence of oxygen, but is dependent on the availability of sugar. Cancer cells favor glycolysis even in the presence of adequate oxygen for oxidative phosphorylation, leading to a voracious appetite for glucose. This phenomenon prompted Warburg to propose that mitochondrial malfunction was the primary cause of cancer. Sodium Dichloroacetate (DCA) works by inhibiting the "Warburg Effect".




DCA forces cancer cell to abandon its preferred metabolic process and also induces apoptosis, or cellular suicide. The reason cancer is so fast growing is that the mitochondria have been deactivated, so the cells evade apoptosis and are able to grow in the absence of oxygen. DCA reverses this. In effect, DCA directly causes cancer cell apoptosis and works synergistically with other cancer therapies.

• In 2007 dr. Evangelos Michelakis of the University of Alberta in Canada published a research paper that renewed interest in DCA. It showed potential of DCA to shrink cancer tumors. In the study DCA was administered to rats with transplanted tumor cells (brain, breast and lung). DCA killed cancer cells without affecting healthy cells. The rats' tumors decreased by up to 70 percent in three weeks of DCA treatment:
A Mitochondria-K Channel Axis Is Suppressed in Cancer and Its Normalization Promotes Apoptosis and Inhibits Cancer Growth
Other researchers have followed and confirmed anti-cancer effects of DCA. Yet most of the studies have been done on cell cultures in the lab, and not on the cancer patients themselves. But results are very consistent, suggesting DCA is effective against a wide variety of cancer types.

• In 2013, Phase 1 clinical trial of dichloroacetate (DCA) was completed in Canada. It showed that DCA is feasible and well tolerated in patients with recurrent malignant gliomas and other tumors metastatic to the brain using the dose range established for metabolic diseases:
Phase 1 trial of dichloroacetate (DCA) in adults with recurrent malignant brain tumors

• In another study, five glioblastoma multiforme patients were treated with oral DCA for up to 15 months. The research showed clinically promising results in four of the five patients:
Metabolic modulation of glioblastoma with dichloroacetate

• Medicor Cancer Center in Canada is a cancer clinic currently offering DCA therapy for its patients. It has published several case studies about the safety and effectiveness of DCA. Its real-world Observational DCA patient data is available to the public.

• Till this day, there are several ongoing clinical studies and a lot of pre-clinical research going on. Recently it has been noted that DCA can work by itself, however, it provides the maximum results in combination therapy with other drugs for a prolonged time period.

# Clinical Trials:

**http://dcawatch.com/dca-papers-and-clinical-trials/**

## DCA Papers and Clinical Trials

Posted on **December 30, 2018**

For almost a decade there has been a growing interest in Dichloroacetate potential to successfully get rid of cancer while causing minimal harm to healthy organs. DCA is a relatively cheap substance which cannot be patented by the pharmaceutical industry, thus it could not generate profit for private drug companies. Right now, because of this reason, Dichloroacetate isn't receiving enough funding and attention which it deserves.

Despite that, there are plenty of ongoing and completed studies which examine the facts of DCA appliance for therapy. This site will present a handful of completed scientific investigations and will constantly update you with the most recent publications related to the subject.

Below you can find full research reports of Sodium Dichloroacetate (DCA) as an anti-cancer agent.

Long-term stabilization of stage 4 colon cancer using sodium dichloroacetate therapy (Case report)

Complete response with DCA in non-Hodgkin's lymphoma after disease progression (Case report)

Non-Hodgkin's Lymphoma Reversal with Dichloroacetate (Case Report)

Long-term stabilization of metastatic melanoma with sodium dichloroacetate (Case report)

Dichloroacetate inhibits neuroblastoma growth

Metabolic Modulation of Glioblastoma with Dichloroacetate

Antitumor Effect of Dichloroacetate in Combination with 5-Fluorouracil in Colorectal Cancer

Targeting metabolism with arsenic trioxide and dichloroacetate in breast cancer cells

Anticancer drugs that target metabolism: is dichloroacetate the new paradigm?

Role of SLC5A8, in the antitumor activity of dichloroacetate

# Where to Buy

**http://dcawatch.com/where-to-buy-dca/**

Sodium Dichloroacetate NaDCA available on line will cost $2-$3 per day.

You have obviously arrived here because yourself or someone in your life has cancer. Please take a minute and go to the home page of this site and read some of the published medical journal articles on DCA. Get an understanding of the Warburg effect the scientific principle behind this discovery, and you will then not question whether DCA works! This is not a hoax, this is not just one major University making the claim, there are papers published on this site from many major Universities.

The American Cancer Society warns you that these sellers are out to fleece desperate people of their money". If you do your research you will be disappointed to find that

these organizations you should be able to trust are actually working hand in hand with the Pharma companies to suppress any non-pharma cancer treatment.

As we have said on this site NaDCA is a very simple molecule resembling vinegar and is documented in peer reviewed medical journal studies as being as safe to take for healthy people as it is for sick people.

If you are still questioning whether DCA works you need to only answer for yourself 2 questions.

1) **Is the Warburg effect really the law of cancer**? (meaning that all normal cells achieve respiration from Oxygen and all cancer cells receive respiration from glucose) PROOF….. The Warburg effect is the science behind the PET scan machine (patient is injected with radio active glucose and cancer cells light up on the screen) What Wargurg discovered was that when a cell became a cancer cell (reverted to glucose respiration) the mitochondria shut down. The mitochondria is the control center of a cell, every day as our cells divide the mitochondria looks at the cell and if it's dna is not correct, (a bad cell) it kills itself through a process known as apoptosis. Every day our bodies expel millions of bad cells through apoptosis. Therefore a cancer cell is simply a cell that achieves energy from glucose and continues to divide and multiply without our bodies being able to kill it through the normal process of apoptosis.

2) **As the University of Alberta research claims** does DCA turn the mitochondria of the cancer cell back on, allowing it to recognize itself as a bad cell and trigger apoptosis? The answer is YES! Read the published articles on the home page and believe in your own research, not what someone you think should know is telling you. At the very least use this information to start questioning your treatment or the treatment of a loved one suffering from cancer.
NaDCA advocate Martin C. Winer has come up with a protocol combining NaDCA with a supplement called Avemar, the protocol can be found here, this may be a a good option for anyone in later stage cancer or has had orthodox treatment and a weakened immune system.http://www.martincwiner.com/dca-and-avemar-a-theoretical-protocol-for-cancer/
This protocol has been tested by the Medicor Cancer Clinic in Toronto with great results.

There appear to be 3 main sites on line selling NaDCA. One thing you need to know is that these sites can not buy the NaDCA in North America or Europe. From what we have been able to find, the only supply sources at present are in China. This is due to the FDA , Health Canada and the European health agencies restrictions placed on Sodium

dichloroacetate in 2007. The claimed intent of restricting NaDCA , (which is about as harmful as taking to much baking soda) being to protect us from ourselves.

For years we have seen many media reports of safety issues involving Chinese products. However, with what we have discovered about the ethics of North American drug companies and their ability to influence what the media reports to us, we began to question how bad quality issues could be. If you look into the Chinese pharmaceutical industry you will find they operate under very strict guidelines, with as much or more oversight as facilities in North America.

The truth is if there was as much medical journal published evidence that **cocaine** cured cancer, as there is regarding DCA, you would be asking everyone you knew if they knew a dealer! If the quality is your concern one of the online companies has every batch randomly tested in Canada. www.certifieddca.com
The NaDCA clinical trails are supplied world wide by a company called TCI America http://www.tciamerica.com/catalog/D1719.html and have been for decades, they do not sell to the general public. It also would appear from TCI's sales site that the product they sell also comes from Asia. Medicor Cancer Center in Toronto claims to be purchasing their NaDCA from the USA which we would guess comes from TCI.
If you are going to take NaDCA, 100 grams is about a 90 day supply for most people treating cancer. As a supplement to prevent a cancer recurrence or just to keep you healthy 100 grams is about a 200 day supply at a half gram per day.

Keep in mind that there has not been a large demand for DCA and world wide supply is limited, one pharmaceutical company we spoke with indicated their excess available supply at 900 kg per year, that would only treat 9,000 people for 3 months. We also found that the difference in price varies in china, we found chemical companies that manufacture technical grade product are also now offering pharmaceutical grade, however pharmaceutical grade from an actual pharmaceutical company is more expensive which can be the price difference between the 3 major suppliers.

Since the amount taken is based on body weight it is not necessary to spend the extra for the product in capsules as you would only be breaking them apart to get the proper weight.

The other thing to consider is that all sites selling NaDCA were closed down by the FDA in 2007 and this could happen again, our point is if you are thinking of using NaDCA it may become hard to get as more people find out about it.

There have been some issues reported on The DCA Site regarding problems with DCA coming in from Mexico, if the price seems too cheap there could be good reason for it.

The www.dcasite.com is your best source for getting dosage information from others that have experience with NaDCA. Do keep in mind that social media people from the Pharma industry commonly take part in the chats and online discussions just to confuse people.
The top sites supplying NaDCA to the public are below, However It has recently come to our attention that www.shouldyoubuydca.com which has been a site used by Pharma DCA as a "we don't sell DCA but buy this one site" has claimed recently that they are an anonymous crusader for DCA and tested all the other suppliers product and only Pharma DCA and Sigma Aldrich passed, which of course Sigma Aldrich does not sell to the public. The site recommends people do not buy the other suppliers DCA now claiming their products have high Bromine counts however they provide no testing results. (their claim according to their site February 15,2015 as they may change it) What tells me no testing ever took place is that they report the Pure DCA and Certified dca as having 170mg per kg and 148mg per kg of bromine. Had they actually tested, firstly the results would be reported as PPM (parts per million) or ug not mg per kg. They report Pharma dca and Sigma Aldrich as <2. less than 2 what? it should be less than 2 ug/kg which is also what the other 2 suppliers bromine levels are had they reported correctly .170ug and .148 ug both <2 if reported in the same unit of measure as their product and Sigma Aldrich (information directly from Sigma Aldrich's web site).

We have over the last three years received various comments and complaints about suppliers. We do not approve them without proper evidence that there is an issue with the supplier that could harm people. We set up this site as a place where people could find relative published medical Journal studies and form their own conclusions. We have long recommended these 3 sites as a source for DCA as they have been around the longest. What people may not realize is that these sites get regular orders from government buildings where the product is tested not for your protection but in an effort to catch a supplier selling something other than +99% pure dca. Believe me when I say if one of these suppliers was offering unsafe product you would have read about it everywhere, it would be a huge media circus.

We did have product tested from these 3 suppliers about 10 months ago and all passed, which I reported on this site, however I decided to take it down due to liability if there was an unexpected problem with a batch they put out. The sad part is that DCA does work and yet it is hard to get people to read through the medical journal articles and reach their own conclusions without second guessing themselves. There is a huge amount of propaganda put out by the Pharma companies disguised as Medical Websites and literally hundreds of pharma employees participating in social media sites using fear

to keep people away from DCA. The last thing DCA needed is some idiot supplier trying to spread more false fear about other suppliers!

We still recommend the 3 suppliers below strictly based on the fact that they have been around for more than 3 years and we have tested the products ourselves in the past.

www.certifieddca.com
www.pharmadca,com
www.puredca.com **347-535-4322**

We will continue to purchase from www.certifieddca.com simply because we have always had great service and each batch is tested in Canada for purity and any solvents or heavy metals. They also send you a test report for the batch once you have ordered. It is a little more expensive, about 20-40 cents per day. However they have always been very help full with questions. I don't want to be seen as promoting them it is just the only supplier we have experience with, and as I said above, as far as quality goes It is my opinion that all 3 are safe to buy from.
Having the product tested yourself can cost up to $750 depending on where you go. If it is out of your budget by all means buy from whichever company you can afford.

If you do start taking NaDCA please let us know about your progress as it may help others as they try to make a decision that is best for them.

## WEBSITE LINKS

PAGES

- Effects of sodium dichloroacetate dose. Brain metabolites associated with cerebral ischemia
- F.D.A. Approves Drug for Bone Marrow Disease
- Fair Use Notice
- High concentrations of dichloroacetate have minor effects on the vitality of the mammalian nerve fibers: an ex-vivo electrophysiological study.
- History of the Drug Trust
- Home
- how
- How to Buy DCA
- Investigation on the mechanism of dichloroacetate (DCA) induced apoptosis in breast cancer
- Is Akt the "Warburg kinase"?—Akt-energy metabolism interactions and oncogenesis
- Mammograms cause breast cancer (and other cancer facts you probably never knew)
- Metabolic Effects of Dichloroacetate in Patients with Diabetes Mellitus and Hyperlipoproteinemia
- New conflict of interest disclosure rules favor drug companies, puts onus on us to determine who is paid to write what?
- PDF – DCA Inhibits Metastic Breast Cancer Australian National University Medical School
- PDF Clinical Trial Publication U of A 2010
- PDF Publication of U of A Study in Cancer Cell Journal
- Prenatal and Postnatal Expression of Glutathione Transferase ζ 1 in Human Liver and the Roles of Haplotype and Subject Age in Determining Activity with Dichloroacetate
- Proof that the cancer industry doesn't want a cure – even if it's a pharmaceutical
- Role for miR-204 in human pulmonary arterial hypertension
- Screening for Prostate Cancer: U.S. Preventive Services Task Force Recommendation Statement
- Sodium dichloroacetate selectively targets cells with defects in the mitochondrial ETC†
- The contribution of cytotoxic chemotherapy to 5-year survival in adult malignancies.
- The Danger in Drug Kickbacks
- The Efficacy of Chemotherapy for Cancer
- The Great Cancer Hoax: The Brilliant Cure the FDA Tried Their Best to Shut Down…
- The influence of sodium dichloroacetate on the oxidative processes in sarcoma 37
- What is DCA?
- Why 75% of Doctors Would Refuse Chemotherapy on Themselves
- New Findings Support Warburg Theory Of Cancer
- The Big Business of Breast Cancer Gold Mine for Pink Profiteers