# Electro-Chemotherapy!

## How Irreversible Electroporation Can Help You To Fight Cancer

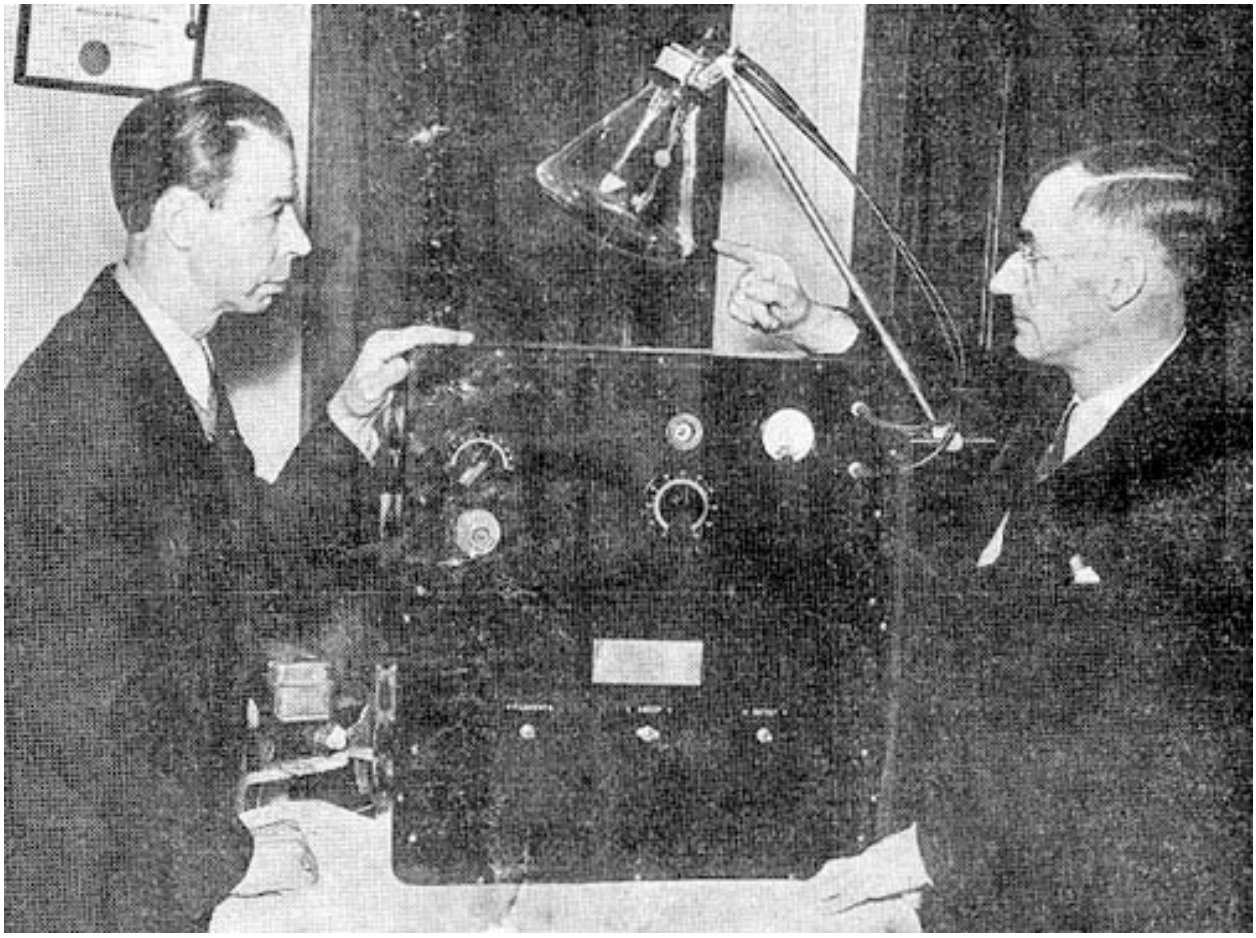
**A White Paper By**

**Prof. Keith Scott-Mumby MD, MB ChB, PhD**

Royal Raymond Rife was right! But let's not keep looking back! Look to the future. With extensive reference to current work published in reputable modern journals, Prof. Keith shows us that Rife's message is alive and well and growing stronger every day. It's even being used by orthodox cancer scientists but under a different name!

# Who Was Rife?

If you have been searching any length of time for better cancer therapies than chemo, surgery and radiation, the chances are you have come across mention of the Rife machine. It's named for Royal Raymond Rife, a brilliant inventor, who devised some of the world's best-ever optical microscopes and subsequently discovered that cancer cells could be slayed by radio frequencies which left the patient quite unharmed.



**Royal Raymond Rife (left) with his engineer Philip Hoyland (right) with the Beam Ray**

Rife worked out the effective frequencies, built devices that could deliver the lethal rays (called a "Beam Ray" machine) and sold it to doctors who used it effectively against a variety of conditions, not just cancer. For example, the same radio-frequency signals can also kill bacteria and parasites.

But there is no question that in people's minds the "Rife" ray machine is most associated with miraculous cancer cures. Only one proper clinical trial was ever conducted in 1934 (at the University Of Southern California), on 16 hopeless cases, and all recovered. 14 during the actual trial period (70 days) but the remaining 2 were also pronounced cancer-free some weeks after the trial ended.

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The "Beam Ray" machine should have swept into the world medical canon but, unfortunately, Rife fell foul of medical politics here in the USA. The odious Morris Fishbein, leader of the AMA at the time, first tried to grab the Beam Ray machine and then, when Rife wouldn't sell, Fishbein abused his power and position to trash Rife's work and bring down the wrath of authority on this brilliant breakthrough.

That, of course, is the sad story of medicine as practiced in the USA. Under the pretence of being scientifically-based, the AMA continues even today to toady to those who pour money into their coffers and publications, while pouring scorn and accusations on those who THEY deem are outside the mainstream racket.

The FDA too, we know, is at presently engaged in protecting the drug industry and medical orthodoxy against any economic incursions by safer and more effective alternatives. The Rife machine was attacked by the FDA, almost as a matter of routine. They declare it to be a hoax, even though Rife's work has been filmed, as well as validated by reliable witnesses (MDs and published scientists of considerable caliber).

So the Rife machine languished for years and a slimmed-down knock-off versions, which have none of the real characteristics of Rife's original Beam Ray machine, has been peddled by dubious characters and enthusiastic believers alike [for instance, a company has registered the name "Beam Ray Corporation" and purports to sell "Rife Beam Ray machines". In my opinion these are no more than fraudulent junk].

Things got about as bad as they can get lately, when a manufacturer of a supposed Rife machine was indicted by the FDA on serious charges and faces up to 140 years in jail. Whether he was genuine or, as the FDA claim, a fraudster is no longer the issue. What matters now is that in the USA it has become extremely dangerous to be associated in any way with the manufacture and distribution of Rife technology.

## Fact From Fiction

So, is there any real proof that precisely controlled electro-magnetic fields can eliminate cancer cells, while leaving the host intact?

Well let me remind you, this is just a little further down the holistic path than conventional radiotherapy, in which x-rays and gamma rays (short wavelength part of the electro-magnetic spectrum) are used to knock out cancer cells. The theory is that if the dose is adjusted carefully, the cancer cells die but not healthy tissue. The reality is that this ideal dose is a myth and with this kind of radiation it is impossible to kill cancer cells effectively without also damaging the patient.

But Rife's experiments focused on a very different part of the electro-magnetic spectrum; radio waves in fact. These too have potential to harm living tissues but are much less aggressive and destructive than radio-activity. Think about this: if it were not so, you would be unable to stand safely near a radio or television set. You might have to wear a lead apron, to protect you, like the ones you've seen in hospital or at your dentist's office.

Now other scientists have studied the use of electro-magnetic fields in the treatment of cancer and their researches seem to have converged directly with Rife's pioneer work.

Even orthodox medicine is beginning to embrace the whole phenomenon. They now talk about "electrochemotherapy", in which doses of a chemo drug, such as bleomycin or cisplatin are driven into the cancer cells by high-frequency pulsed electro-magnetic waves.

What happens is that the electric pulses upset the cell physiology and cause the cell membranes to become temporarily leaky or permeable. The effect is called "electroporation" and was exactly what Rife discovered, except that in his research the effect was so strong that the cell walls literally burst and the cell contents spilled out, killing it (see "irreversible electroporation" below).

Let me quote a study published in the prestigious conventional British *Journal Of Cancer*. "Electrochemotherapy enhances the effectiveness of chemotherapeutic agents by administering the drug in combination with short intense electric pulses…. applied to tumours percutaneously after intravenous or intratumour administration of bleomycin. The tumours were measured and the response to the treatment evaluated 30 days after the treatment. Objective responses were obtained in 233 (85.3%) of the 273 evaluable tumours that were treated…. The application of electric pulses to the patients was safe and well tolerated."

Over 85% response rate? That's remarkable.

[Cancer. 1998 Jun;77(12):2336-42].

In fact on PubMed, the US government database of medical studies, I found 280 articles on the topic of electrochemotherapy. One fairly recent paper (2008) was entitled "Electrochemotherapy: An Emerging Cancer Treatment" [Int J Hyperthermia. 2008 May;24(3):263-73].

So there is great progress. Of course other drugs and perhaps vaccines can also be administered and driven into cells with this technique. It has even been speculated that electroporation may allow delivery of modified genes in fighting disease.

[Mol Biotechnol. 2009 Jan;41(1):69-82]

Electrochemotherapy is, of course, not the same as Rife's work.

# Irreversible Electroporation

Rife never used chemotherapy or any other drug agent, just electro-magnetic frequencies. Rife's discovery lay in the realm of physics, not biochemistry or pharmacology.

Even so, this convergence of research streams is very gratifying. The FDA's stand that Rife's technology was a fraud now looks wholly untenable, scientifically.

The actual mechanism of cell death in Rife's method is called "irreversible electroporation". A paper from the Department of Bioengineering, Graduate Group in Biophysics, University of California at Berkeley, tells us more:

> Certain electrical fields when applied across a cell can have as a sole effect the permeabilization of the cell membrane, presumable through the formation of nanoscale defects in the cell membrane. Sometimes this process leads to cell death, primarily when the electrical fields cause permanent permeabilization of the membrane and the consequent loss of cell homeostasis, in a process known as irreversible electroporation. This is an unusual mode of cell death that is not understood yet. While the phenomenon of irreversible electroporation may have been known for centuries it has become only recently rigorously considered in medicine for various applications of tissue ablation.

[Technol Cancer Res Treat. 2007 Aug;6(4):255-60.]

Permeabilization is a ridiculous word, even in this context; it simply means "making permeable" (in other words, leaky!) Porous is the familiar word; hence: electroporation.

Ablation is a medical term for destroying (tissues).

## Now Without Chemo, Just Frequencies!

Matters have moved on again. There are two significant advances. Firstly, the proof that the chemotherapy drug is not needed at all; just frequencies which kill cells (called "ablation"). Then follows a study which discovered that certain frequencies are effective against certain tumors but not against others. This last is not something Rife found but I can explain the difference between two approaches later.

There is a new term for you here which is used in modern science literature: "irreversible electroporation". It's the same as the Rife effect; the cell bursts open and dies. It can happen to organ tissues, bacteria and, importantly, to cancer cells. It's exciting that Rife's discoveries have returned with a modern twist.

But before we go forward, let's take a glance backwards!

## History

In researching I found interesting scientific history to support this report.

A historical review shows that irreversible electroporation may have been observed as early as 1754 when Nollet studied the discharge of a static electrical generator on the skin (Nollet, J. A. *Recherches sur les causes particulieres des phénoménes électriques*. Paris: Chez H.L. Guerin & L. F. Delatour (1754).

Other studies that are possible candidates for a designation as the first studies on irreversible electroporation are the 1898 publication of Fuller, in which it is reported that multiple high voltage discharges have bactericidal effect on a water sample [Fuller, G.W. *Report on the investigations into the purification of the Ohio river water at Louisville Kentucky.* New York: D. Van Nostrand Company (1898)].

Some of the first systematic studies that describe phenomena typical of irreversible electroporation were done on myelinated nerve tissue such as the 1956 work of Frankenhauser and Widen, who base their work on the 1898 work of Biedermann (Biedermann, W. *Electrophysiology* Vol. (vol 2). London: Macmillan (1898)), and whose results were confirmed by Stampfli and Willi in 1957 (Stampfli, R., Willi, M. Membrane

potential of a Ranvier node measured after electrical destruction of its membrane. *Experientia 13*, 297-298 (1957).).

The seminal study on irreversible electroporation is a series of three 1960s papers by Sale and Hamilton who demonstrate a non-thermal lethal effect of high electrical fields on organisms in suspensions.

- Sale, A. J. H., Hamilton, W. A. Effects of high electric fields on microorganisms. 1. Killing of bacteria and yeasts. *Biochimica et Biophysica Acta 148*, 781-788 (1967).
- Hamilton, W. A., Sale, A. J. H. Effects of high electric fields on microorganisms. 2. Mechanism of action of the lethal effect. *Biochimica et Biophysica Acta 148*, 789-800 (1967).
- Sale, A. J. H., Hamilton, W. A. Effects of high electric fields on microorganisms. 3. Lysis of erythrocytes and protopasts. *Biochimica et Biophysica Acta 163*, 37-43 (1968).

While ignored by medicine, until recently, irreversible electroporation has been used in the food industry for sterilization and preprocessing of food since the 1961 work of Doevenspeck [Doevenspeck, H. Influencing cells and cell walls by electrostatic impulses. *Fleishwirtshaft 13*, 986-987 (1961)].

## China Ahead!

This is the first of two very recent and important studies (both published in April 2009) By a Chinese team headed by researcher Xiao-Jun Yang from the Department of Obstetrics and Gynecology, Hospital of Wenzhou Medical College [*Journal of Experimental & Clinical Cancer Research* 2009, **28:**53doi:10.1186/1756-9966-28-53]. Full electronic versions at: http://www.jeccr.com/content/28/1/53

They investigated what they termed high frequency steep pulsed electric fields (SPEFs) on *in vitro* and *in vivo* antitumor efficiency of ovarian cancer cells. They were aware that repetition of low-frequency electric pulses induces painful muscle contractions,

which can be unpleasant, and they wanted check that higher frequencies, rapidly pulsed, got over this unpleasant side effect, without losing the cancer-killer result.

They studied gradually increasing frequencies (1, 60, 1 000, 5 000 Hz) and electric field intensity (50, 100, 150, 200, 250, 300, 350, 400 V/cm) respectively; V/cm is a measure of "how much" electricity. We don't need to be any more technical than that.

The experimenters looked at both microscope samples, measuring the amount of damage to cancer cells (*in vitro*), and also the actual size and appearance of the tumors (*in vivo*). They studied mice.

**Results**

SPEFs with a given frequency and appropriate electric field intensity could achieve similar cytotoxicity until reached a plateau of maximum cytotoxicity (approx. 100%). Cell damage (cytotoxicity) was clearly seen. Also the frequency of 5 kHz could induce apoptosis seen both in vitro and in vivo. Apoptosis is the "programmed cell suicide" you may have heard about. It's Nature's way of getting rid of aged and rogue cells.

They were using a pulsed technique (short bursts of exposure to electromagnetic waves) that was a mixture of millisecond bursts and nanosecond bursts.

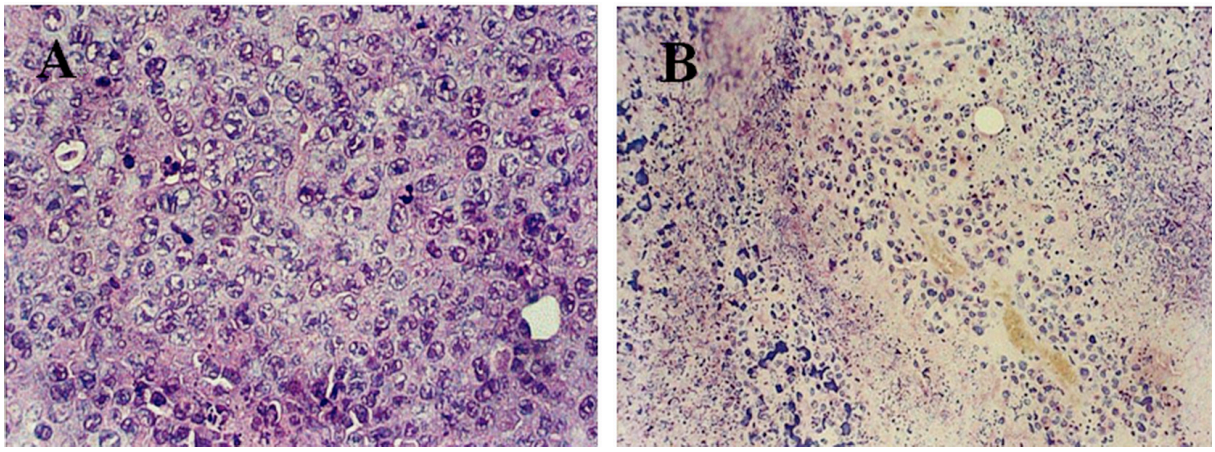
**What they are reporting, in essence, is that certain frequencies and amplitudes achieved 100% cell death. That's what Rife found, 80 years ahead of the curve.**

What was interesting in the Chinese group findings is that SPEFs clearly worked at destroying tumor cells, yet, the frequency did not seem to be as important as the intensity, at least when gauged by reduced tumor size and reduced rate of growth. All frequencies had a degree of cytotoxicity.

This doesn't quite fit with the next study, or what we learned from Rife, which is that the frequency is actually quite critical.

Note the 5 kHz frequency and it's link with forced apoptosis.

**Here is an illustration of the effects of irreversible electroporation:**




**A. The slide on the left shows tissue with many active cancer cells.**
**B. On the right 3 days after exposure to SPEF (5 kHz), extensive necrosis can be seen in cancer tissue (no cell boundaries, nuclei deformed and non-viable).**

The authors concluded that: "Recent advance in biomedical engineering has enabled great progress in pulsed electric fields. Furthermore, microsecond electric pulses with intensive energy may induce irreversible membrane electroporation which can be used to implement tumor ablation directly, without any drugs."

Two further Rife-supportive references to tissue ablation, using only a pulsed frequency generator (no chemo, as in electrochemotherapy), are given here:

1. Davalos RV, Mir IL, Rubinsky B: **Tissue ablation with irreversible electroporation.** *Ann Biomed Eng* 2005, **33:**223-231

   Edd JF, Horowitz L, Davalos RV, Mir LM, Rubinsky B: **In vivo results of a new focal tissue ablation technique: irreversible electroporation.** *IEEE Trans Biomed Eng* 2006, **53:**1409-1415.

# Frequencies Do Matter!

It was clear from Rife's work that frequencies were indeed critical.

The frequency or oscillation rate which killed cancer cells or other pathogens he called the "mortal oscillatory rate" or MOR. What happens is that the cell walls disintegrate (extreme electroporation) and the cell contents spill out, with lethal consequences for the cells or organisms targeted by that exact frequency.

Using his brilliant advanced optical microscope, Rife isolated numerous organisms and found the MORs for TB, E. coli, tetanus, chickenpox, herpes, pinworms, streptothrix (fungus), rabies, and many other pathogenic forms.

Rife also identified and isolated what he called the "BX" bacillus, a transmittable cause of cancer. To him it was the cancer virus. If the BX form was killed, no cancer. In the famous 1934 study he showed once and for all that killing the BX bacillus led to a total recovery from cancer.

There was also a "BY" form, that transmitted sarcoma (a kind of cancer that arises from connective tissue and bone).

The MORs Rife found for most cancers and sarcomas were: 1,604,000, 11,780,000 and 17,033,000 or 1.6 megaHertz (Mhz), 11.78 MHz and 17.03 MHz (these frequencies are in the AM radio band). There is controversy over these numbers, however. We have scant few of Rife original papers left to refer to.

It is worth noting that these frequencies are easily attainable with relatively inexpensive modern electronic devices. The price for a "Beam Ray" machine was a shocking $7,000, even back in the 1930s!

# Swiss-Brazilian Study

Given that Rife's work has been condemned, it is interesting to find that scientists abroad have been able to substantiate the core mechanism of his findings. This is good news, because we can easily generate the frequencies required to kill pathogens and cancer cells.

**Forget what the FDA says: the scientific community is very interested in frequency technology and irreversible electroporation against cancer cells, and evidence that Rife was right all along is steadily assembling in great detail (refer to the large list of related references I have appended).**

This second study was carried out by a research team working under Alexandre Barbault at the Cabinet Médical, Lausanne, Switzerland and was published April 14, 2009. So it is very up-to-date.

The Swiss team undertook their study to identify tumor-specific frequencies and test the feasibility of administering such frequencies to patients with advanced cancer. They examined patients with various types of cancer using a noninvasive biofeedback method to identify tumor-specific frequencies.

A total of 115 patients were examined in Switzerland, 48 in Brazil. There were 76 females and 87 males. The median age was 59 years (range 19 – 84). The most common tumor types were hepatocellular carcinoma (46), breast cancer (32), colorectal cancer (19), and prostate cancer (17).

Twenty six patients were treated in Switzerland and two patients were treated in Brazil. All patients were white, and 63% were female. Patients ranged in age from 30 to 82 years (median, 61 years). 79% of patients had received at least one prior systemic therapy, such as chemo, 57% had received at least two prior systemic therapies (Table 2).

In general, researchers found more effective frequencies in patients with large tumor bulk than in patients with small tumors. Also if the disease was active, it responded to a wider range of frequencies.

A total of 1524 tumor-destructive frequencies ranging from 0.1 to 114 kHz were identified during a total of 467 frequency detection sessions. The number of tumor-destructive frequencies identified in each tumor type ranges from two for thymoma to 278 for ovarian cancer. Overall, 1183 (77.6%) of these frequencies were tumor-specific, i.e. they were only worked effectively in patients with the same tumor type.

One patient with hormone-refractory breast cancer metastatic to the adrenal gland and bones had a complete response lasting 11 months. One patient with hormone-refractory breast cancer metastatic to liver and bones had a partial response lasting 13.5 months. Four patients had stable disease lasting for +34.1 months (thyroid cancer metastatic to lung), 5.1 months (non-small cell lung cancer), 4.1 months (pancreatic cancer metastatic to liver) and 4.0 months (leiomyosarcoma metastatic to liver).

The authors of the study note that there was excellent compliance with this novel treatment as patients were willing to self-administer experimental treatment several times a day. The only observed adverse effects in patients treated with tumor-specific frequencies was fatigue, which was short-lived. Naturally, alternative therapists would recognize this as a "healing response". Tiredness (enforced rest) is one of Nature most capable healing modalities!

Moreover, they also noted there were no untoward reactions in patient receiving either chemotherapy or targeted therapy in combination with amplitude-modulated electromagnetic fields.

Their conclusion was: "Cancer-related frequencies appear to be tumor-specific and treatment with tumor-specific frequencies is feasible, well tolerated and may have biological efficacy in patients with advanced cancer."

Source: *Journal of Experimental & Clinical Cancer Research* 2009, **28:**51doi:10.1186/1756-9966-28-51

The electronic version of this article is the complete one and can be found online at: http://www.jeccr.com/content/28/1/51

# Other Significant Studies

I really want you grasp that all this supposed shady technology is out in the clear light of day. Here are two more studies on the effects of frequency on cancer cells and dividing cells, published in reputable journals:

1. Kirson ED, Gurvich Z, Schneiderman R, Dekel E, Itzhaki A, Wasserman Y, Schatzberger R, Palti Y: **Disruption of Cancer Cell Replication by Alternating Electric Fields.** *Cancer Res* 2004, **64:**3288-3295.

   This study, from the Department of Biomedical Engineering, NovoCure Ltd., Haifa, Israel, showed low-intensity, intermediate-frequency (100-300 kHz), alternating electric fields, delivered by means of insulated electrodes, were found to have a profound inhibitory effect on the growth rate of a variety of human and rodent tumor cell lines and malignant tumors in animals. This effect, shown to be nonthermal, selectively affects dividing cells while quiescent cells are left intact. These fields act in two modes: arrest of cell proliferation and destruction of cells while undergoing division

2. Kirson ED, Dbaly V, Tovarys F, Vymazal J, Soustiel JF, Itzhaki A, Mordechovich D, Steinberg-Shapira S, Gurvich Z, Schneiderman R, Wasserman Y, Salzberg M, Ryffel B, Goldsher D, Dekel E, Palti Y: **Alternating electric fields arrest cell proliferation in animal tumor models and human brain tumors.** *PNAS* 2007, **104:**10152-10157.

   It reports on a pilot clinical trial of the effects of so-called tumor treating fields (TTFields) in 10 patients with recurrent glioblastoma (GBM). Median time to disease progression in these patients was 26.1 weeks and median overall survival was 62.2 weeks. As the researchers point out, these times more than double the average survival of patients with this condition.

   The clear conclusion, according to the study authors, is that TTFields are a safe and effective new treatment modality which effectively slows down tumor growth in vitro, in vivo and, as demonstrated here, in human cancer patients.

   **This paper was published in the Proceedings Of The National Academy Of Sciences Of The United States Of America.**

# How Can We Use This Valuable Knowledge?

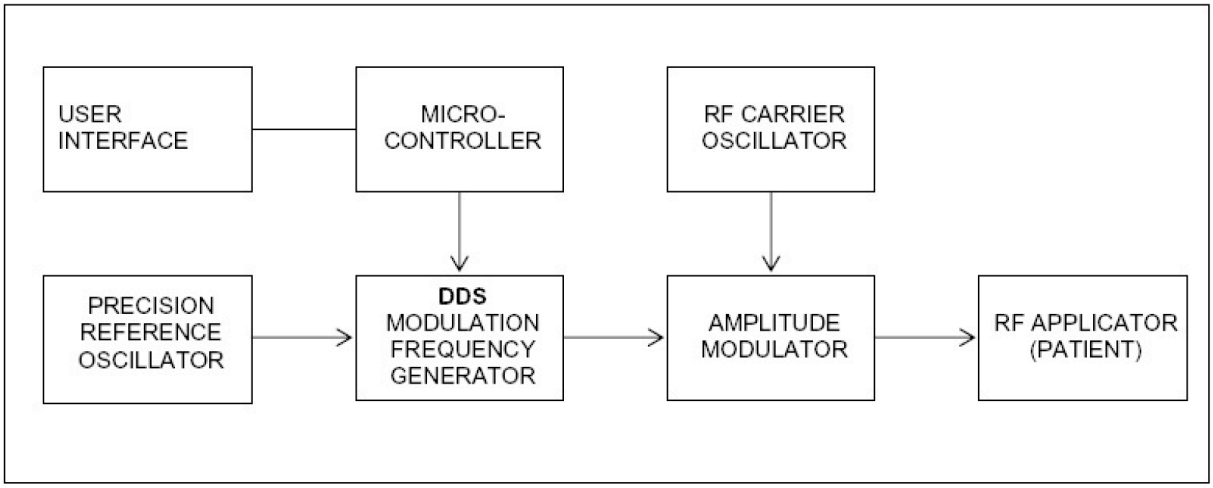
Simply put, get yourself a frequency generator. You don't need a Rife machine. Besides, broadcasting radio frequencies exactly as Rife did would contravene FCC regulations in the USA and similar laws in most countries.

Today we would use a *Direct digital synthesis* (DDS) method of producing an analog waveform—usually a sine wave—by generating a time-varying signal in digital form and then performing a digital-to-analog conversion. Because operations within a DDS device are primarily digital, it can offer fast switching between output frequencies, fine frequency resolution, and operation over a broad spectrum of frequencies. With advances in design and process technology, today's DDS devices are very compact and draw little power.

You can learn more about DDS here, if you are technically minded:

http://www.analog.com/library/analogdialogue/archives/38-08/dds.html

Again, for those who understand what it means, here is a schematic of the device used in the Swiss study, quoted above:




Some knowledgeable manufacturers have put together frequency generators (sometimes called function machines) specifically with health applications in mind. In choosing one that might help you with cancer, Lymes, parasitosis or any other health condition, these are the points to look for:

- A frequency range of 1 Hz or less, up to 18 MHz (mega-Hertz)
- Pulsing capabilities (usually called "gating" in function generators)
- Choose one that has a high frequency carrier wave (above 1 mHertz). The crude devices with plates or electrodes which deliver only a basic frequency are nowhere near the technology described here, though many devices claiming to follow Rife's method are like this.
- You might want to look for a device which will "sweep" through a range of frequencies each session. The rationale is that this will sooner or later pass through an MOR frequency and have its cancer-killer effect, rather like a stopped clock is accurate at least twice a day!
- Some sequencing and programming capabilities may turn out to be convenient, though this is not strictly necessary, if you don't mind the labor of manually inputting the settings each time you use it (this can be tedious).
- Of course it goes without saying you should make sure there is technical support from people who understand the health applications of an electroporation frequency machine.

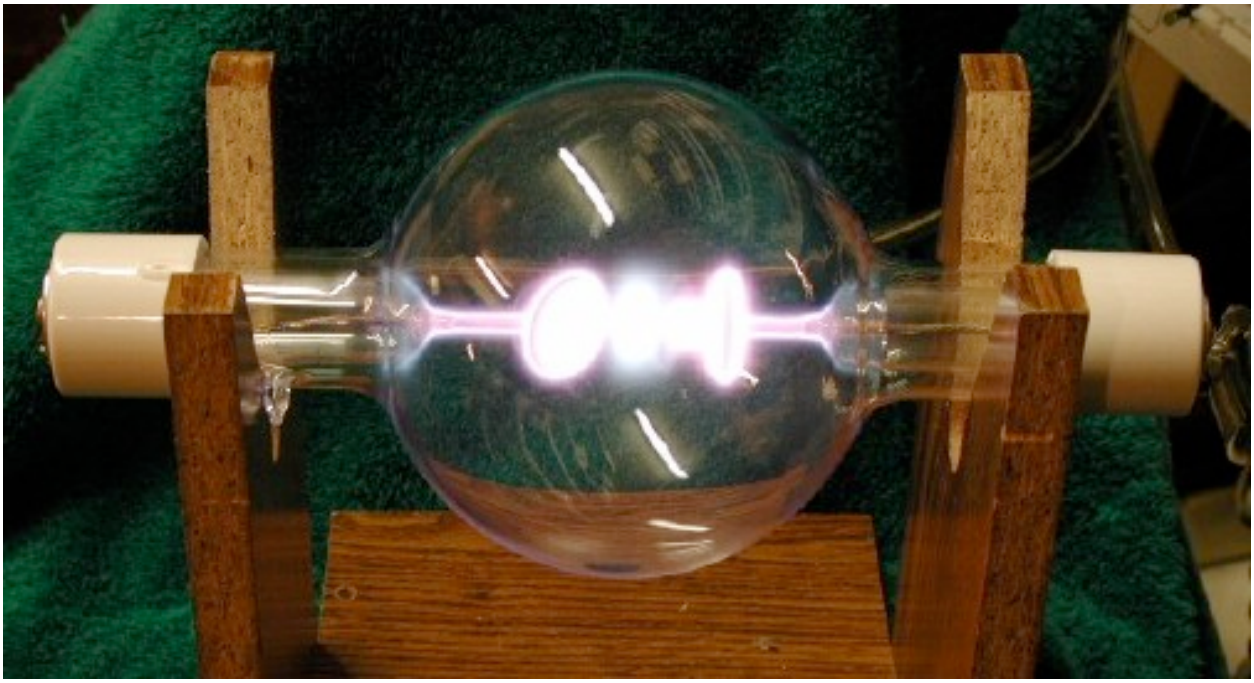
The good news is that frequencies can be generated using any standard electronic function generator, such as an HP, B&K or Lucent. But the device I found which best meets all the above specifications is the GB400, made in the USA by knowledgeable health and electronics experts. It has an additional amplifier for more electroporation power and also has some very useful pulsing features. It's much easier to use than a basic generator because it's designed for health uses.

**You can learn more about the GB4000 here:** GB4000

If any readers find a device with a similar high specification, please make it known to me. I'll add it to this white paper.

Let me finish by saying the GB4000 is not a "Rife machine". That term should be abandoned, since it is controversial and Rife himself hated it. Owing to regulations about radio frequency transmissions, there is no real prospect of a genuine Beam Ray device coming back to life, except as an exploratory curiosity.

The devices currently sold are NOT real Rife machines. If it doesn't have one of these, it's not a genuine "Rife machine", remember that:



A phanotron tube

The other factor which means these modern knock-offs are not genuine is that they don't have Rife's radio "carrier wave" model. I repeat: current FFC regulations prohibit private broadcasting on this band. The GB4000, incidentally, has the carrier wave function but is not broadcasting it, so does not violate FCC regulations.

But we've moved on. "Rife machines" are no longer the issue.

**Amplitude-modulated frequency devices capable of causing significant electroporation of tissue is where the technology has reached today.** The cheapness, accuracy and convenience of available technology is a boon, while being something of a frustration to purists and historians like myself.

But then, I use a transistor radio, not an old valve radio. Progress goes in a forward direction, not backwards! Rife, the inventive genius, would have approved, I'm sure.

# Rife is Finally FDA Approved (Kinda)!

To those who know the full story, it seems kind of ironic that the FDA would approve a Rife-type device. Yet that is precisely what happened in April 2011, when an FDA panel backed a novel, noninvasive device that uses an electrical field designed to blast apart cancer cells, as a potential treatment for brain cancer.

The device, called the NovoTTF (for tumor treating fields), was designed by a private firm, NovoCure Ltd., which has operations in Israel and the U.S. It is being developed for use in patients with glioblastoma, a common form of brain cancer, initially for use after standard treatments fail.

NovoCure's device is designed to disrupt the division of cancer cells in the brain using alternating electrical fields delivered by means of insulated electrodes applied to the surface of the scalp.

The portable device uses electric fields to disrupt the division of cancer cells that allows tumors to grow and spread. The electric fields have little effect on healthy cells because they divide at a much slower rate, if at all, compared with cancer cells.

The FDA approved the device specifically for a tumor type known as glioblastoma, the most aggressive form of brain cancer. Five-year survival for the disease is just 2% for patients over 45 years old, according to the American Cancer Society.

If it proves out, then we may see approval extended to a wide variety of cancerous situations; not just the hopeless glioblastoma cases.

The panel of non-FDA medical experts voted 7 to 3 in favor of a question that asked whether the benefits of the device outweighed the risks. Two panel members abstained from voting. The panel unanimously said the product was safe, but split on whether the product is effective.

Unfortunately, in a 237-patient trial, this device did not produce the miracle recoveries we would like to see. In fact survival for those using the device was about on a par with those taking chemo (about 6 months). But at least their quality of life was better.

In a European study, patients fared better and the therapy produced DOUBLE the normal survival time. The FDA, of course, couldn't care less about studies on non-Americans (since they can't control the outcomes!)

Brain tumors are notoriously aggressive and difficult to treat. Only time will tell whether, with tweaks, modern electroporation devices can start to get the amazing results that Rife did.

Novocure has not released the frequencies that they use in the NovoTTF.

Also, here is a link to the USA article about the newest approved NON-DRUG cancer treatment

http://yourlife.usatoday.com/health/medical/cancer/story/2011/04/FDA-clears-first-of-a-kind-device-for-brain-cancer/46174922/1?csp=usat.me

# GEMM Therapy And Seckiner Gorgun

While we are on the topic of EMF devices and electroporation as a cancer treatment, do not forget the work of the late Suleyman Seckiner Gorgun in Turkey. In fact his reputation spread throughout and he enjoyed considerable credibility. He is a largely unknown modern equivalent of Rife and, it has to be said, he carried out far more scientific proofs of his method than Rife ever did.

Gorgun was born in Istanbul on 12th of May, 1950 and graduated in medicine in Pakistan.

In 1972 he began working on cell cultures at the Marine Biology Laboratory in Izmir, Turkey, to observe the effects of external electromagnetic fields on cells. He developed what was first called the "Method of Gorgun" but later became known as GEMM therapy (Italian: Generatore Elettro Magnetico Modulato), a therapeutic device generating specially modulated, low power (0.25 watt) radio waves.

In 1974 he had fine tuned his method and went to Germany to present the outcomes to Prof E. Shaumlöffel at Marburg University. There was significant regression of the tumors on mice inoculated with cancer.

In 1979 Gorgun went to Thailand to continue his research on the biological effects of electromagnetic waves at the Thailand National Cancer Institute. The Institute's Chief of Research Laboratory Petcharin Srivatanakul's report states the following :

"Dr. Seckiner Gorgun and Mr. Erol Banko from Turkey came to demonstrate the effect of microwaves on lymphoblastoid cell lines, i.e. P3H3 and P3HR1 cells at Research Division, National Cancer Institute, Thailand. After treatment with microwaves for 2-5 hours at the frequency range between 1 Hertz to 50 MegaHertz. Some experiments showed that almost all of the cells are dead, as well quantity of the cells are markedly decreased."

Outcomes of the research were submitted at the 6th Balkan Medical Congress in Ankara in 1979 under the title "Sur le Traitement du Cancer par Controle de la Mitose".

In 1982 Dr. Gorgun went to France to work with the renowned French Immunologist Prof. Raymond Pautrizel at the University of Bordeaux to demonstrate the effects of his treatment on Trypanosoma and Plasmodium, which also proved susceptible to RF terminal electroporation.

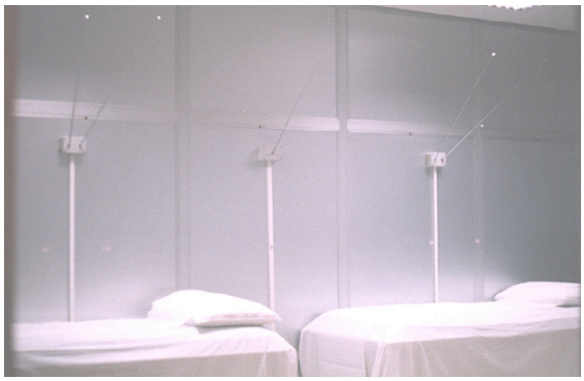
In 1988, after some controversy in Italy, a Turin Court declared that the GEMM Therapy was safe and let Dr. Gorgun to continue to work on his system. The expert designated by the court Prof Mario Maritano states in his comprehensive report that the system is not only safe but also beneficial.

## Procedure

Therapy sessions are carried out daily, generally lasting around 30 minutes through antennas directed towards the patients lying in therapy beds.

Depending on the type and stage of the disease & the condition of the patient, the therapy may last anywhere from a few weeks to several months.

GEMM Therapy is very safe. It is CE certified. It uses a power of only 0.25 watts). Compared to X or Gamma Rays used in conventional radiotherapy, radio waves have at least a billion times less energy and have no direct destructive effect on normal, healthy issues.



Therapy beds with antennas

## Gorgun's Model

GEMM Therapy shares what may now be the traditional few of EMF radiation as a means of destroying cancer cells. But he went further with our understanding of what

happens (remember, Rife was not medically trained and knew very little medical science).

Gorgun focused on molecular communication. In this sense he is closely aligned with the writings of Georges Lakhovsky and his theory of molecular and cellular frequencies.

Gorgun's own theories are a little unclear, in that he believes that he is stimulating good cellular mechanisms, which are favored over those of malignant cells. That may be, but it is clear from published studies that he ended up with a bunch of dead cancer cells! So irreversible electroporation is still at the heart of his method.

In other words, GEMM's therapeutic waves are at the target protein's precisely calculated specific resonant frequency in order to give orders to stop, modify or reverse the malfunctioning processes.

## Cellular Resonance In More detail

A typical human cell consists of 10,000 different proteins where all biological processes within a cell, tissue or organism depend on selective interactions between them and their targets such as other proteins, DNA regulatory segments or small molecules.

Proteins are linear sequences of 20 different amino acids, and their unique three-dimensional structure transcribed and translated from the DNA determines their biological function.

So what is it that enabled the tens of thousands of different kinds of molecules in the organism to recognize their specific targets?

## The Classic Lock and Key Model

The classical "lock and key" or its modified "induced fit" models assumes that in the extremely crowded environment of the cell (where there are billions of molecules) by random collisions those molecules that have complementary shapes lock onto to each other so the appropriate biochemical reactions can take place.

This random collision approach also supposed to explain how enzymes can recognize their respective substrates, how antibodies in the immune system can grab onto specific foreign invaders and disarm them and how proteins can dock with different partner proteins or latch onto specific nucleic acids to control gene expression etc.

Well, that's what everyone is taught. And the theory is NONSENSE. If you have read my book "Virtual Medicine" (2nd edition), you will know I draw extensively on the late Jacques Benveniste's work (the Memory Of Water man). Benveniste pointed out that the "lock and key" model was totally untenable and would require thousands of years, statistically, for any two related molecules to actually collide.

He realized that molecules were actually signaling their presence to their key receptors using resonance magnetic frequencies. This are instantaneous, virtually, and act across distance.; in other words no actual contact of molecules an receptors is required.

You can get a copy of "Virtual Medicine" here:

http://www.alternative-doctor.com/virtual_medicine.html

## Resonant Recognition Model

Now that Benveniste is no longer with us, Prof. Irena Cosic holds the chair. She is currently Head of the School of Electrical and Computer Engineering in RMIT in Melbourne. She teaches and writes on bioelectromagnetism and has published a research book and over 120 publications, including book chapters, journal, and conference papers.

Prof Cosic showed in her extensive research that all protein sequences with the common biological function have common characteristic frequency component in the distribution of free energy of electrons along the protein backbone that is related to the protein's biological function.

Furthermore, it was shown that the proteins and their targets have the same characteristic frequency in common that can be used for recognition and interaction between the particular protein and its target at the distance.

Thus, protein interactions can be considered as resonant energy transfer between the interacting molecules and by applying an electromagnetic field, it is possible to program, predict, design and modify proteins and their bioactivity.

GEMM is based on the principle of applying the precisely determined electromagnetic fields to the target proteins at the selected resonant frequency to regulate the malfunctioning biological process in a controlled fashion.

A comprehensive description of the method and its effects on neoplastic cells is provided in Dr Gorgun's article "Studies on the Interaction Between Electromagnetic Fields and Living Matter Neoplastic Cell Culture" which appeared at the Journal of Frontier Perspectives [ISSN: 1062-4767., Volume: 7., Number: 2., Fall, 1998].

# Here Is A List Of Useful References

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