Application of Magic Light Technology for Cancer and Tumor Treating

Lev Dvorkin
Magic Light Medical Ltd, Nessiei Israel 27/20, Karmiel 2192307, Israel

Abstract

Reprogramming of cancer cells with Magic Light device and technology and treating of cancers and tumors by this method were investigated in both pre-clinical and clinical trials. The main parameters of the Magic Light system and its importance for effective treating cancers and tumors were investigated and described. The observed treatment effect was caused by high frequency RF irradiation and depends on carrier frequency, frequency of modulation and RF power density. There are possible physical explanations for the influence of RF waves on the cancer cells’ genes condition and on their activity. This effect has already been noted in a pre-clinical trial for the treating of Melanoma in a dog and in a clinical trial for the treating of women with Invasive Ductal Carcinoma (IDC) grade III with a laboratory version of the experimental device, named “Magic Light”.

Introduction

Cancer is one of the leading causes of morbidity and mortality worldwide. Cancer is not uniform; there are many types, mutations and diversity, even within the same tumor. Current cancer therapies include Chemotherapy, Surgery, Immunotherapy or Radiotherapy (X-Ray irradiation) with known cell-toxic effects. In addition, some cancers develop tolerance towards these treatments.

Another cancer therapy approach, commonly used as a treatment for many cancers, involves ionizing radiation. The External-beam radiation therapy includes X-rays - producing photons with kilowatt energy; Gamma rays - representing photons with megawatt energy and high energy focused ultrasound (HIFU). In the Internal radiation therapy is also called brachytherapy; the radiation is from radioactive material placed into the tumor or surrounding tissue. This includes permanent implants or temporary internal radiation (from a few minutes to a few days). All these radiation-based therapy methods target tumors and damaging the cancer cells but also affecting healthy tissues around the tumor.

None of the techniques described above for cancer treatment, can cure the cancer completely. None is universal for any type of cancer and many have negative side effects. Thus, considering the degree of effectiveness, development of resistance to the therapies and their side effects, other innovative treatments are urgently needed.

Electromagnetic fields (EMF) are generally believed to have no relevant non-thermal effects on cells, tissues, and living organisms [1, 2]. During the last 20 years, non-thermal effects have been clinically exploited with the Tumor-Treating Field method [3, 4], which applies an EMF at radio frequencies (RF) of 100–300 kHz with a moderate strength of 100–150 V/m. The scientific community considers the risk of such moderate-strength RF-EMF to be negligible, at least compared with potential hazards such as power lines or mobile phones. Tumor-Treating Fields (TTFields) use alternating electric fields which interfere with dividing cells, thereby reducing tumor growth.

Previous reports have suggested that electrical forces on cell structure proteins interfered with the chromosome separation during mitosis and induced apoptosis [3, 4]. At the present time, the Novocure company produces and sells for cancer treatment, such devices as the Optune® System and the NovoTTF-100M system. The Optune System produces alternating
electrical fields within the human body that disrupt the rapid cell division exhibited by cancer cells, with the alternating electrical fields applied to the brain though transducer arrays placed on the scalp. The NovoTTF-100L System produces alternating electrical fields, called tumor treatment fields (“TTFields”) within the torso. TTFields are applied to the patient by adhesive bandages that hold transducer arrays. The transducer arrays are believed to disrupt the rapid cell division of cancer cells, inhibiting tumor growth and causing affected cancer cells to die. The NovoTTF-100L System is a treatment option used in addition to chemotherapy. Neither of these systems however, can cure the cancer completely or can they replace more traditional methods.

The effects of influencing a live cell by a weak high frequency RF EM field were investigated in the article of Miyakoshi [5] and it was discerned that weak, high frequency RF fields, in the frequency range from 800 MHz to 3 GHz (cellular phone frequencies), have no effect on regular cells nor cellular functions. These include apoptosis, the immune system and ROS production [5], RF energy also does not cleave intracellular DNA directly [5].

It is possible to use small interfering RNA (siRNA), for changing the cell metabolism and the option of reprogramming malignant cancer cells into terminally differentiated cells was investigated and described in works [8, 9]. Also it was shown that the possibility exists to reprogram hepatocellular carcinoma cells into quiescent cells with spindle morphology by using of AM modulated RF field at frequency 27.12 MHz [6, 7].

In order to avoid all the disadvantages of existing methods, described above, for treating cancers and tumors, I would like to offer a new and safety method for treating cancers and tumors, involving a process for the reprogramming of cancer cells into normative cells instead of destroying them.

I named this method “Magic Light”, because RF waves used in this method are a part of an electromagnetic spectrum, similar to optical light. The results of a cancer treatment by this method look like magic. The possibility for the reprogramming of cancerous cells by reducing the cells’ metabolism into regular cells by chemical agents was described in [8, 9]. The possibility for the reprogramming of cancerous cells by reducing the cells’ metabolism into regular cells by a weak high frequency RF waves irradiation was described and shown in [10].

The present work method offered is Magic Light, which is able to directly influence and reprogram the activity of single nucleotides inside the cell genes at the time of the cell’s proliferation. At the time of their proliferation, live cells are very sensitive to any outside influence, even if this influence is very weak. The main difference between cancer cells and regular tissue cells is their frequency of proliferation. Cancer cells are immortal and proliferate without cease. Regular cells seldom proliferate and even when they do, such proliferation is limited.

So, because the method Magic Light for cancer treatment has influence only on dividing cells at the time of the cells’ proliferation, it is possible to avoid any damage to regular tissue cells during cancer treatment. For this reason, the Magic Light method for treating cancers and tumors is absolutely safe for any patient; however, the treatment is not recommended for women during pregnancy as the cells of the fetus divide naturally and very active.

**Design of the Magic Light System**

The magic Light system consists from following four main elements:

1) High frequency RF generator with carrier frequency 430 MHz with possibility for frequency modulation; 2) Low frequency generator; 3) Stand; 4) Antenna; 5) Metal reflector with open aperture 60 cm x 60 cm.

The Magic Light system has the following main parameters, which are very important for its efficiency in cancer treatment: Carrier Frequency, Frequency of Modulation, Depth of Modulation and RF Power Density.

High frequency RF generators create electromagnetic waves, which are directed by a metal reflector onto the patient’s body. Low frequency generator use is for frequency modulation of the RF signal. Modulated RF signals induce in the patient’s body, fields of virtual photons [10]. The field of each virtual photon has a size equal to that of a single nucleotide, which allows these fields to interact with each nucleotide with better efficiency.

Interaction between virtual photons and their own electrical field of nucleotides, allows the possibility to directly influence the nucleotides’ biological activity, as well as the possibility to cleave the connection between nucleotides at the telomeres ends at the time of the cell
proliferation and at a time when these connections are more sensitive to outside influence. The distance between the antenna and the metal reflector, must be equal to half of the wavelength. When we use frequency 430 MHz, what correspond to the wavelength $\lambda = 68$ cm, the distance should be equal to $\lambda/2 = 34$ cm. In this case, the photons reflected from the metal reflector have a phase shift of 180°, which makes it possible to create a field of virtual photons with a uniform distribution in space. This significantly increases the effectiveness and reliability of the cancer therapy.

Let’s start with the Carrier Frequency. The author of this work has theoretically predicted, and experimentally proven, that the optimal frequency for cancer cells reprogramming is 430 MHz, and this is irrespective of the type of cancer [10]. See experimental graph below.

![Figure 2: Efficiency of Cancer Cells Reprogramming Versus Carrier Frequency](image)

Frequency of Modulation and its importance was tested in the treating of the Prostate Adenoma by measuring once a month of such blood parameter, as PSA, at different frequencies of the frequency modulation, see Fig. 3 below.

![Figure 3: Efficiency of Prostate Adenoma Treatment vs Frequency of Modulation](image)

As one can see from the picture above, the possible optimal values for frequency modulation are 4 kHz and 7 kHz. However, in experimental tests, it was discovered, that the frequency of 4 kHz was ineffective for the breast cancer Grade III treatment but the next test, with 7 kHz frequency modulation, showed a decrease in the size of the tumor from 5.5 cm to zero. This was within one month of the beginning of the treatment.

Depth of the frequency modulation: all experiments were conducted at a depth of 80 %.

RF Power density: When used, a metal reflector with an open aperture of 60 cm x 60 cm with output RF power 10 W, gives a power density at the distance of 1 m equal to: $10/3600 = 3$ mW/cm$^2$ or even less.

Previous results of experiments for reducing the metabolism of live cells in leaves of the plant, Sansevieria by RF irradiation, described in [10] are shown below, at Figure. 4. As it was shown in [8], for metabolic reprogramming the value of reducing the cell metabolism, it is very important for the efficiency of the reprogramming process.

Also, as can be seen in Fig. 4, increasing the output power from 5 W up to 40 W will decrease the rate of change of metabolism during RF irradiation. For this reason, the value for RF output power 10 W and corresponding to this RF power density of 3 mW/cm$^2$ looks to be an optimal choice for treating cancers.

A possible explanation of observed influence by frequency modulated RF waves on the cancer cells’ activity and their apoptosis, may be found directly from results of experiment with treatment of the cancer IDC (Invasive Ductal Carcinoma) Grade III, where a tumor of 5.5 cm disappeared completely during only one month of the treatment.
One may see that after each irradiation with the above-mentioned parameters of the patient with cancer, the size of a tumor during the next 1-2 days, decreases. This means that a part of tumor cells die and disappear from the body.

Telomeres are located at the ends of chromosomes and protect them from degradation. Suppressing the activity of telomerase, a telomere-synthesizing enzyme, and maintaining short telomeres is a protective mechanism against cancer in humans. In most human somatic cells, the expression of telomerase reverse transcriptase (hTERT) is repressed and telomerase activity is inhibited. This leads to the progressive shortening of telomeres and inhibition of cell growth in a process called replicative senescence. Gene hTERT induction and telomerase activation not only create unlimited cancer cell proliferation potential by stabilizing telomere length (telomere lengthening-dependent), but also cause oncogenic effects independent of the telomere lengthening function [11, 12]. Therefore, in order to stop the proliferation of cancer cells, we need to inhibit the activity of telomerase and hTERT gene, which works as catalyst for telomere lengthening process [11, 12]. In addition, for cancer cells to die quickly, we need to shorten telomeres ends (to cleave them). All of this can be done by electrical fields of virtual photons during the time of the cell proliferation, when connections between nucleotides inside genes are loose and may be easily severed. Experimental evidence for this mechanism was obtained as in Lab tests, as well in pre-clinical and clinical Trials (See below).

**Results**

**Experimental confirmation for the Magic Light reprogramming mechanism**

Results of Lab tests for reprogramming efficiency of the Magic Light device are presented at Picture 5 below.

The experiment with irradiation by RF waves of two different kinds of cancer cells at the same parameters was carried out by the author of this article. Only one difference between these two cell lines was found: The cells SHSY5Y (Neuroblastoma) proliferation activity was twice as fast in comparison with the cells SCC (Squamous Cell Carcinoma). This means that the SHSY5Y cells’ division is twice as fast as the SCC cells division. This experiment measured the quantity of cancer cells before the 30-min irradiation by RF waves, and then two days after the irradiation. The results of Laboratory tests for reprogramming efficiency of the Magic Light device are presented in Picture 5 (A and B) below.

**Figure 4. Maximum Temperature Drop during RF Irradiation Versus RF Power Density**

**Figure 5A: Percentage of reprogrammed SCC cancer cells after 30 min of irradiation by modulated RF waves at parameters: Frequency 430 MHz, Modulation Frequency 1 kHz and Power Density 3 mV/cm²**
Figure 5B: Percentage of reprogrammed Neuroblastoma cancer cells after 30 min of irradiation by modulated RF waves at parameters: Frequency 430 MHz, Modulation Frequency 1 kHz and Power Density 3 mV/cm²

As can be seen from these results, the average value of reprogrammed cells for SCC cells was $100 - 60 = 40\%$, and for SHSY5Y cells, the average value of reprogrammed cells was $100 - 20 = 80\%$, which is twice as high. Thus, we may conclude that cancer cells with faster division can be reprogrammed more effectively, which confirms the above proposed reprogramming mechanism.

Figure 6: Pre-Clinical Trial for Treatment of Melanoma/SCC of a Dog
Note: 1 - Floor, 2 - Stand, 3 - Metal reflector, 4 - Antenna

14.06.2023  
04.07.2023  
21.07.2023

Figure 7: Before Start of the Treatment  
Figure 8: After 3 Sessions of the Treatment  
Figure 9: After 6 Sessions of the Treatment

Treatment Protocol
Magic Light device parameters – Carrier Frequency 430 MHz, Frequency of Modulation 7 kHz, Depth of Modulation 80\%, RF Power Density 3 mW/cm², Distance 1 m. Duration of each session 30 min, once a day, two times in a week.

Clinical trial for Treatment with Magic Light Device and Technology of Breast Cancer
The breast cancer was IDC (Invasive Ductal Carcinoma), Grade III, with tumor size 5.5 cm. Results of Mammography and Ultrasound before and after treatment is shown below on Fig. 10 - 12.
Magic Light device parameters – Carrier Frequency 430 MHz, Frequency of Modulation is 7 kHz, Depth of Modulation is 80 %, and RF Power Density is equal to 3 mW/cm² at distance 1 m.

The second step
Irradiation of the patient during 2 month period. Magic Light device parameters – Carrier Frequency is 430 MHz, Frequency of Modulation is 10 kHz, Depth of Modulation is 80 %, and RF Power Density is 3 mW/cm², at distance 1 m.

One can see in the picture 11 above on the former tumor site several empty areas, what confirms that tumor was cured successfully. This image also confirms the mechanism of the cancer and tumor treatment, which was described above. Power density of RF irradiation was very low in our case, and all thermal effects can be neglected by this reason.

Conclusion
The Magic Light method is a safe and universal method that allows one to achieve a complete cure for cancer at any stage of the disease. Its effectiveness has already been tested and proven by the author for the treatment of various forms of cancer, such as Prostate Adenocarcinoma [10], SCC (Squamous Cell Carcinoma) and Neuroblastoma [10], Melanoma, IDC (Invasive Ductal Carcinoma) and High Grade Serous Papillary Carcinoma. The principle of operation of the method Magic Light itself, suggests its applicability in the treatment of any type of cancer.
The Magic Light method is safe and has no negative side effects. This method is very simple and easy in its application, does not require qualified personnel to use
it and can even be used for ambulatory treatment of cancer by the patient himself.

The Magic Light device design is very simple and can be assembled by any electronic engineer or technician. This gives people with oncology the opportunity to cure themselves immediately.

The Magic Light device can be applied in parallel with traditional chemotherapy, as well as independently. In this latter case, it can replace such traditional methods for cancer treatment as surgery, chemotherapy, immunotherapy and X-Ray irradiation.

References