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## RESEARCH ARTICLE

### ANTIGENIC BIOCONVERSION THERAPY—A NEW APPROACH TO THE TREATMENT OF CANCER

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#### ABSTRACT

Spontaneous regression of malignant tumors occurs very rarely. Although this has been noted and described by many observers over the years, its cause and mechanism remain unknown. In my opinion the antigenic makeup of the malignant tumor changes from “self” to “foreign” as a result of exposure to a foreign biological agent due to a clinical or subclinical infection and that sets the stage for its rejection by the immune system. Based on this theory I have devised and introduced a new method of treating cancer that would provide customized therapy for each patient.

#### INTRODUCTION

A cancerous cell is a rogue cell that has lost the discipline of normal growth, maturation, differentiation and recognition of and respect for the surrounding cells and tissues. It keeps on multiplying relentlessly. The resulting malignant tumor as the name implies, continues to grow and eat neighboring cells and tissues and also metastasizes to lymph nodes and distant organs, eventually causing death. Detected early when it is small and confined, in many cases it can be treated with a potentially curative surgical resection. In majority of cases, however, at the time of diagnosis it is either locally advanced or has spread to the lymph nodes and/or other organs. Surgical resection under such circumstances is palliative at best and therefore other modalities of treatment become necessary. These include chemotherapy, radiation therapy and sometimes immunotherapy. Chemotherapy by and large is a “weed killer” type of treatment. It is toxic to normal multiplying cells also, but causes more damage to the cancerous cells since these are multiplying much faster and are much less differentiated. Radiation therapy has similar effects locally. Immunotherapy has limited value because the cancer cell, as rogue as it is, it still has essentially the same antigenic make up as the normal cell and therefore must be respected as “self” by the immune system. Sophisticated immune therapies with interferon, interleukin and similar agents fail to eliminate or kill the rogue

cell for the same reason. Recently targeted gene therapy seems to be showing some promise. But it is essentially chemotherapy and so far has shown successful results only in occasional cases. Hormone therapy and/or hormonal control may help in slowing down the growth of cancer in certain hormone receptor positive tumors but it is not curative. I propose a new approach to the treatment of cancer wherein the cancerous cells will be made to change their antigenic makeup from “self” to “foreign” with the help of an antigenic bioconversion agent. Once this happens successfully the normal immune mechanisms will come into play with full force and the body will reject the cancerous tumor like an allograft. This should result into a cure. Antigenic bioconversion therapy will include the following two phases:

#### TESTING PHASE

This will consist of the following steps: (1) At the time of the biopsy or surgical resection a portion of the malignant tumor will be sent in a fresh state to a specialized laboratory for tissue culture. Assuming that the patient is fit even if the disease is advanced, surgical resection would be recommended. This will provide sufficient tissue for tissue culture and also help decrease the tumor burden. If the patient is not fit for surgical resection or biopsy, CT guided needle biopsy will be taken. (2) After the tissue culture of malignant cells has become established, these cells will be exposed to an array of antigenic bioconversion agents – one agent to one small portion of tissue culture in a separate container.

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Each such sample of malignant cells in tissue culture with one antigenic bioconversion agent will be incubated for further growth. Each antigenic bioconversion agent will consist of and represent a single strain of dead bacteria, fungi, protozoa or viruses derived from a microbial culture. All other potential sources including recombinant RNA or DNA will be explored for possible use. (3) After incubation together for a few days, histochemical, immunohistochemical, immunofluorescent and other necessary methods will be used to determine which antigenic bioconversion agents were successfully taken by the malignant cells. These will be recorded in order of preference as specific antigenic bioconversion agents for that particular patient's cancer. This will complete the testing phase and this study will be called Antigenic Bioconversion Agent Compatibility Test or ABACT.

### TREATMENT PHASE

This will consist of the following steps: (1) The antigenic bioconversion agent showing maximum affinity for the malignant cells in tissue culture will be developed into a sizeable culture of pure organisms. (2) These organisms will then be killed in a manner that will fully preserve their chemical and physical nature thus converting a live culture into a quantifiable amount of specific antigenic bioconversion agent. This will be stored in a sterile state at low temperatures to maintain and ensure its efficacy for a long period of time. (3) The delivery of the specific antigenic bioconversion agent (SABA) to the tumor will depend on the site and accessibility of the tumor. If accessible, intratumor injections of small doses at regular intervals will be employed until the tumor disappears. Intraarterial route may become necessary for a deep seated malignancy using a catheter inserted percutaneously and advanced as close as possible to the tumor site. This will allow the delivery of the maximum dose of SABA to the tumor. For a malignancy with multiple metastases intravenous route through a vein or an infusion port will make sense. It will be hoped under such circumstances that the rogue cancer cells will take and remove SABA from the circulation much faster than the cells of the immune system normally delegated with this function. In some situations intramuscular or subcutaneous route may be considered adequate. It may be possible to use the oral route making it sure that SABA gets absorbed through the GI tract intact and unaltered. (4) Regular clinical follow up will be done with office visits, radiology studies and lab workup, and hospitalization if necessary.

Antigenic bioconversion therapy will offer customized treatment for each individual afflicted with cancer. If it shows promise, many microbiology laboratories will develop and carry a large stock of antigenic bioconversion agents ready to be tested for ABACT. After a successful and positive test they will be equally ready to supply doses of SABA for clinical use for each individual patient. Many biotechnology and pharmaceutical companies will find this new approach to the treatment of cancer quite interesting and develop it fully within a short period of time for routine clinical application.

### RATIONALE

Some cancerous tumors undergo spontaneous regression [1—5] and may completely disappear. Although it occurs only occasionally, it has been noted and reported by many observers over the years. The cause and the mechanism of spontaneous regression is not known. Here is my theory:

The cancer gets exposed to a foreign biological agent as a result of clinical or subclinical infection. By a rare happenstance the cancer cells which are multiplying at a fast speed find this biological agent compatible. They accept it, incorporate it and undergo antigenic bioconversion. The cancerous cells become foreign in their antigenic makeup and set the stage for rejection by the natural immune response of the host. If the dose and duration of exposure to the foreign biological agent is adequate, total regression of cancer occurs with cure. If it is less than adequate, partial regression takes place with remission lasting for a variable period of time, or as it happens sometimes, the primary tumor disappears completely and metastatic lesions after remaining dormant for a period, start growing again. With this theory I have proposed a mechanism by which spontaneous regression of malignant tumors can be explained scientifically. It also makes the basis for a new approach to the treatment of cancer with antigenic bioconversion of malignant cells with the help of foreign biological agents.

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