

# Harvesting Health WITH THE BELJANSKI FOUNDATION



Mirko Beljanski, Ph.D.  
(1923-1998)

by Sylvie Beljanski

The number of synthetic chemicals introduced since World War II is astonishing (see fig 1). Studies on the health effects of some 85,000 of these chemicals are currently underway but will take decades or perhaps centuries to complete. Nearly 3,000 of those chemicals are produced in excess of 1 million pounds annually. Yet little data is publicly available about even the basic toxicity of 75 percent of these high production volume chemicals.<sup>1</sup>

The link between a polluted environment and cancer was a taboo for a long time, because “polluters” would

have to confront their collective responsibilities, which was not a familiar notion during the “golden age of capitalism” that lasted for the first two-thirds of the twentieth century. Benzene, a known human carcinogen, is a good example of the exponential development in the petrochemical industry. During this period—and just in the U.S. alone—benzene production increased from 125 million gallons in 1940 to 410 million in 1955, to 1.5 billion gallons in 1976. It took 20 years and numerous epidemiological studies before benzene usage was finally regulated in 1977.<sup>2</sup>

The human and financial cost of cancer defies even our imagination. Statistics show the real scope of the problem: From 1990 to 1995, over 6 million Americans died of cancer, more than the number of American casualties during the Civil War, Second World War and Vietnam and Korean wars combined.<sup>3</sup> Even though older statistics might be only partially reliable, these figures are revealing: in the U.S., cancer-related deaths accounted for 3.7

percent of all deaths in 1900, 11.2 percent in 1940 and 23 percent in 2001.<sup>4</sup> According to the National Cancer Institute (NCI) statistics, one male out of two, and one female out of three will develop a type of cancer during their lifetimes.<sup>5</sup>

Two concomitant factors can explain this trend. On the one hand, an increasingly aging population: 75 percent of cancers affect people aged 55 and older;<sup>6</sup> and, on the other hand, environmental degradation and toxicity: as we get older our immunity and our ability to protect ourselves from carcinogens

declines. The progressive and cumulative effect of cell destabilization due to carcinogenic agents intensifies,<sup>7</sup> and not one day goes by when we are not exposed to chemical molecules with carcinogenic potential.

## LITTLE PROGRESS

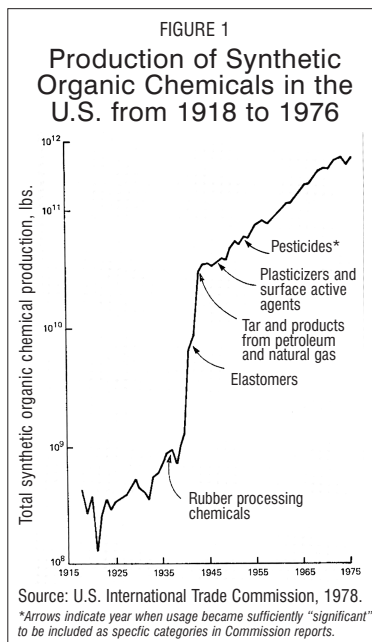
What has the medical and scientific world done to eradicate the scourge of cancer?

The NCI was created in 1937 under the National Cancer Act, as the only federal institution with exclusive responsibility for cancer research. From the beginning, emphasis was put on research for treatment, with little interest on prevention.

Driven by the search for “magic bullets,” the NCI financed a huge cancer chemotherapy program for mass screening of hundreds of chemicals for anti-cancer activity in tissue culture and animal tumor models. On December 9, 1969, a full-page advertisement paid for by the Citizens’ Committee for the Conquest of Cancer, entitled “MR NIXON, YOU CAN CURE CANCER” was published in the *New York Times*. It read, “We are so close to a cure for cancer. We lack only the will and the kind of money and comprehensive planning that went into putting a man on the moon ...Why don’t we try to conquer cancer by America’s 200th birthday?”

The National Cancer Act of 1971 launched the “War on Cancer” and unleashed enormous resources, but it was all about the immediate possibility of a cure with the “magic bullet” of chemotherapy, without attaching any significance to prevention.<sup>8</sup>

In his book, *The War on Cancer*,<sup>9</sup> Guy B. Faguet, M.D. writes, “...an objective analysis of cancer



chemotherapy outcomes over the last three decades reveals that, despite vast human and financial expenditures, the cell-killing paradigm has failed to achieve its objective, the former rallying phrase 'War on Cancer' has been abandoned by the NCI, and the conquest of cancer remains a distant goal. Moreover, as long as the use of inefficacious but toxic drugs is justified by the exigencies of the cell-kill paradigm, a model based on flawed premises with an unattainable goal, cytotoxic chemotherapy in its present form will never eradicate cancer nor alleviate suffering."

Have we definitively lost the "War on Cancer"?

Environmentally, things are slowly changing. The emergence of global climate change as a major issue has focused attention on the declining quality of our environment.

The first prescription is a healthy dose of information.

Knowing the risks and learning how to make conscious choices to reduce them to a minimum by embracing a holistic lifestyle is the very first line of defense. But this consumer-based approach is clearly not sufficient because so much damage has already been done to our planet and to our bodies.

Is it possible to entirely rethink the origin of cancer and find new solutions in order to develop molecules able to selectively block cancerous cell multiplication without killing healthy cells?

I think so. The late Mirko Beljanski, Ph.D., a biologist-biochemist who worked for over 30 years at the famous Pasteur Institute in Paris, devoted a book to the exploration of the basic principles of DNA replication and transcription and the role of trigger molecules in normal and malignant gene expression.<sup>10</sup> At the time, the scientific community at large considered that the difference between normal and cancer DNA was caused by mutations, that is to say by alterations of DNA's primary structure (known as the genetic code). This explanation is still held to be true. Though interest now focuses on oncogenes, their harmful activity is considered to derive from mutations that have occurred in normal proto-oncogenes.

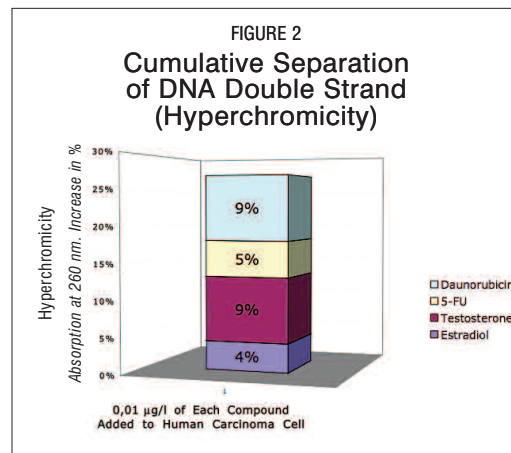
In contrast, Mirko Beljanski demonstrated that the fundamental difference between normal and cancer DNA really lies in their secondary structure; the cancer DNA double helix is permanently destabilized over large areas, whereas, in normal DNA, relaxation only occurs locally and temporarily for replication or for gene expression. Unintentional strand separation and exposure of new initiation sites for replication

and gene expression account for the characteristic properties of the cancer cell, namely enhanced multiplication and spurious protein synthesis. Beljanski focused on complex mechanisms at the biochemical level, analyzing the pathways involved when cells differentiate or escape control during cancer development. Beljanski devoted much effort to investigating the role of endogenous and exogenous molecules in triggering the differential release of information from DNA as well as influencing cell transformation. He found that carcinogens trigger the unwinding of the cancer DNA's secondary structure by successively and randomly attaching to vulnerable sites in purified cancer DNA.<sup>11,12</sup>

An accurate visual method for measuring the soundness of the secondary structure is to evaluate its chromicity, or how much UV light is absorbed by the DNA. He further observed that the unwinding of the cancer DNA is perfectly proportional to the increase in DNA synthesis, which also correlates to the *in vivo* rate of cancer cell multiplication.<sup>12</sup> Each destabilizing substance contributed in varying degrees to the separation of the strands in the cancer DNA helix. Furthermore, he found their effects to be additive and cumulative (see fig. 2). In doing so, Mirko Beljanski offered a scientific explanation, at the cellular level, describing how many pollutants affect our DNA and may induce cancer. At first, Beljanski had the idea to use his breakthrough discovery to devise a high-performance assay called the Oncotest<sup>13</sup> in order to identify the carcinogenic properties of molecules. He naively thought that the industry would be interested to learn that their products were dangerous and be eager to take them off the market! When unable to find any industrialists interested in using the test, Beljanski thought of using it to find anti-carcinogenic molecules.

Dr. Beljanski reasoned that a substance that reacts in an equal and opposite way from carcinogens must surely exist in nature. While carcinogens increase unwinding and duplication in cancer DNA, Beljanski looked for natural molecules that would do the opposite—partially close the DNA strands and slow down cancer DNA synthesis.

Following the analysis of several hundred compounds, Beljanski identified a small



Sylvie Beljanski, daughter of Monique and Mirko Beljanski, is vice-president and spokesperson of the Beljanski Foundation. She is a passionate advocate of protection of the environment, sustainable development, and a holistic approach to medicine. She speaks throughout the world about the debilitating effects of pollution on our health, her father's discoveries and the need to rethink our quest for well-being.

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## Resources

For more information regarding the work of Dr. Beljanski, please refer to the following:

Beljanski Foundation  
217 East 86th Street, Suite 101  
New York, NY 10028  
[www.beljanski.com](http://www.beljanski.com)  
[www.pubmed.gov](http://www.pubmed.gov)  
(keyword Beljanski)  
[www.natural-source.com](http://www.natural-source.com)  
[www.schachtercenter.com](http://www.schachtercenter.com)  
[www.holisticurology.columbia.edu](http://www.holisticurology.columbia.edu)

*Disclosure: Sylvie Beljanski is also the president of Natural Source International, Ltd.*

number that reduced UV absorption and template activity of cancer DNA in the Oncotest. What is more, these extracts did not affect the results obtained with normal DNA. These were the extracts Beljanski was looking for. Two of the extracts he found, derived from tropical plants, were particularly effective and became the focus of his research.<sup>14</sup> Beljanski created a new frontier for cancer therapy.

Beljanski's extracts were subjected to a long series of tests to examine their effect on cultured cancer cells, on animals with various kinds of cancer, and ultimately in numerous human case studies.<sup>15,16,17,18</sup> The extracts showed several consistent and remarkable properties. First, they stopped the proliferation of cancer cell lines maintained in the laboratory, while sparing healthy cells. They were toxic to cancer cells in mice, but did no harm to healthy mice. They have proven to have anticancer effects on a range of human malignancies, but have shown no significant side effects. The activity of these extracts is selective to cancer DNA, to cancer cells, and to the tumors in organisms with cancer.

Unfortunately, the development of natural molecules, even if they are efficient and nontoxic, does not interest mainstream industry because there is no "return on investment." Natural compounds are very difficult to patent and often do not fare well with tests designed for synthetic molecules. By and large, the industry is only interested in the development of new synthetic molecules which can be patented.

However this is also slowly changing, as the need for quality natural dietary supplements that are tested with the same rigorous approach as pharmaceuticals is now being recognized. Beljanski's extracts have finally found a manufacturer, and two of Beljanski's extracts have caught the interest of Dr. Aaron Katz, director of the Columbia University Center for Holistic Urology.

The Columbia University experiments encompassed *in vitro* cell-based assays that confirm the anticancer activity of the extracts in the human prostate cancer cell line LNCaP. These results justified an animal study involving transplantation of LNCaP cells into athymic mice and subsequent administration of the extracts to the mice. The results of these experiments were positive: The volumes of the tumors in the mice treated with both extracts were reduced in a dose-dependent manner; otherwise, the mice suffered no ill effects. A series of cell-free *in vitro* assays were also performed that shed new light on the mechanism of action of the Pao pereira (*Geissospermum laeve*)

and *Rauwolfia vomitoria* extracts. The study on the *Rauwolfia vomitoria* extract was the subject of a scientific publication,<sup>19</sup> and the other study on Pao pereira is still underway. These experiments suggested that, while the mechanisms of the anti-prostate cancer action of the two extracts overlap, they are nevertheless distinct. This observation supported the concept of combining the two extracts together, and it is this new mix, named Prostabel®, that is being used in the clinical trial with Dr. Katz at Columbia University. The clinical trial is for men with an elevated PSA, who run a higher risk of developing prostate cancer. The clinical trial is not finished, but preliminary results are very encouraging.<sup>20</sup> As these lines are being written, a few spots remain available in this clinical trial at Columbia University.

These positive results vindicate Beljanski's approach and interest in looking into natural substances to come up with a safe, nontoxic answer to the damage induced by our polluted world. Beljanski led the way with a few precious compounds isolated from some exotic plants, but this type of research could be applied to other plants that could be easily grown. How does the idea of harvesting health sound? Cultivating this idea is the mission that the Beljanski Foundation gave itself.

The Beljanski Foundation is a U.S.-based not-for-profit organization created to further a breakthrough new path of research, initiated nearly 50 years ago and still full of promise, to promote the protection of our environment, and to inform the general public that it is time to take charge of ourselves. The Beljanski Foundation promotes an integrative approach to research, where rigorous scientific methods are used to evaluate natural and nontoxic molecules. In 2006, the Foundation award was given to Dr. Aaron Katz during a scientific presentation that took place at Columbia University. All donations to the Beljanski Foundation are tax deductible in the U.S. to the extent allowed by law.

Monique S. Beljanski, widow and retired research engineer (NNRS), was Mirko Beljanski's collaborator and is president of the Foundation. She is retired from the National Center for Scientific Research (CNRS) in France and worked with her late husband, Mirko Beljanski, for more than 20 years at the Pasteur Institute, as well as for 2 years in Severo Ochoa's department at NYU, followed by 10 years at the Faculty of Pharmacology in France. She is the coauthor of many of Mirko Beljanski's publications, and the author of several books. ■