

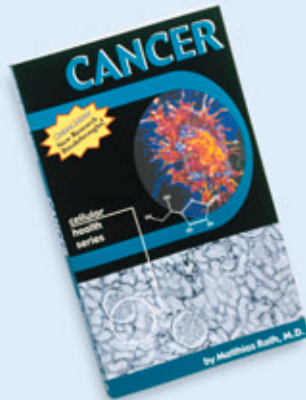
## Matthias Rath, M.D. and His Breakthrough Cancer Research

**Dr. Matthias Rath** is the world-renowned physician and research scientist who made the groundbreaking discovery connecting cardiovascular disease, cancer and many other chronic conditions to nutrient deficiencies. Dr. Rath has defined **Cellular Health™** as the means for optimizing the functions of the body's cells with nutritional supplementation.

Dr. Rath's most recent scientific breakthrough points to connective tissue integrity as a critical factor for blocking the invasion and spread of cancer cells, and this discovery puts Matthias Rath, Inc. on the path to defeating this devastating disease.

In his book **Cancer**, Dr. Rath presents scientific documentation of a new approach to controlling cancer and other serious health conditions using natural substances such as vitamin C and L-lysine, nutrients that have been the subject of extensive research at Matthias Rath, Inc.

Dr. Rath and his company are committed to conducting innovative research and developing Cellular Health therapies that help people lead longer, healthier lives.



### Matthias Rath, Inc.

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or visit **www.dr-rath-research.org**

# The Victory Over Cancer Is At Hand

**A scientific breakthrough made by Dr. Matthias Rath reveals that specific nutrients can inhibit the invasion and spread of cancer cells.**



**Matthias Rath, M.D.**



**Aleksandra Niedzwiecki, Ph.D.**  
Director of Research



**Dr. Matthias Rath's**  
**Cellular Health™ Programs**  
MATTHIAS RATH, INC.

Advancing the Science of Nutrition  
Through Cellular Health Research



**Matthias Rath, M.D.**



## Introduction

The exciting discovery made by Dr. Matthias Rath using a natural approach to control cancer<sup>1</sup> has been confirmed by biomedical researchers at Matthias Rath, Inc. This discovery also opens up new research in the development of safe, effective, and economical cancer treatments.

At Matthias Rath, Inc., we have investigated the natural mechanisms that the body uses to defend against cancer, and we have found a natural way to enhance their effectiveness. Our research shows that specific nutrients are able to stop the spread of cancer cells through connective tissue, the means by which metastasis occurs.

These laboratory research findings are supported by the examples of people who have already successfully used these methods of treatment.

**Our research shows that specific nutrients are able to stop the spread of cancer cells through connective tissue, the means by which metastasis occurs.**

<sup>1</sup> Rath M. and Niedzwiecki A. (1996) Nutritional Supplement Program Halts Progression of Early Coronary Atherosclerosis Documented by Ultrafast Computed Tomography. *Journal of Applied Nutrition*, 48: 68-78.

## The Most Feared Disease

Because of the devastation and suffering it brings, cancer is the most feared disease. It is the second leading cause of death in the United States, exceeded only by cardiovascular disease.

**It is estimated that one out of every two American men and one out of every three American women will develop some form of cancer during their lifetime.** In 2001, more than half a million lives were lost to cancer. And despite the 30-year "war on cancer," we have yet to develop a way to control this dreaded disease.

A consequence of the war against cancer has been the military-like approach to treating those who have been stricken. Conventional cancer treatments involve attacking cancer cells with lethal chemicals, devastating radiation, and dangerous surgery. These methods indiscriminately destroy both diseased and healthy cells. Even when patients are able to survive such harsh therapies, the struggle for health often becomes continuous as their weakened bodies develop new diseases or tumors.

Conventional methods of cancer treatment do nothing to directly prevent the metastasis, or spread, of cancerous cells

from one part of the body to another.

**Metastasis is what causes cancer to be so deadly, and therefore, it is crucial that more be learned about this process.**

## What Is Cancer?

Cancer cells develop in the body as a result of damage to cellular DNA, which destroys the control mechanism of cell replication. Such abnormal cells are constantly created in the body during one's lifetime, but the body has various means to find and destroy these cells.

Unfortunately, abnormal cells sometimes escape destruction and begin to multiply rapidly and grow into tumors. A tumor contained in one location of the body rarely endangers a person's life. However, approximately 90% of all cancer fatalities result from metastasis, the invasion of cancer cells into other organs and tissues.

To facilitate their invasion into body organs, cancer cells secrete enzymes that digest the surrounding connective tissue. The disintegration of connective tissue allows cancer cells to spread and invade other body organs.

## How Cancer Spreads

Cells are surrounded by collagen and connective tissue. In order to grow and expand, healthy cells need to break down the extracellular barrier that confines them. This process is essential for life, and for this reason, cells produce and secrete various enzymes that digest connective tissue components, including collagen and elastin. It is important that these enzymes, called metalloproteinases or MMPs, be regulated by sets of activators and inhibitors so that the integrity of the connective tissue is never compromised.

Excessive disintegration of connective tissue accompanies pathology, and once this disintegration occurs, infectious

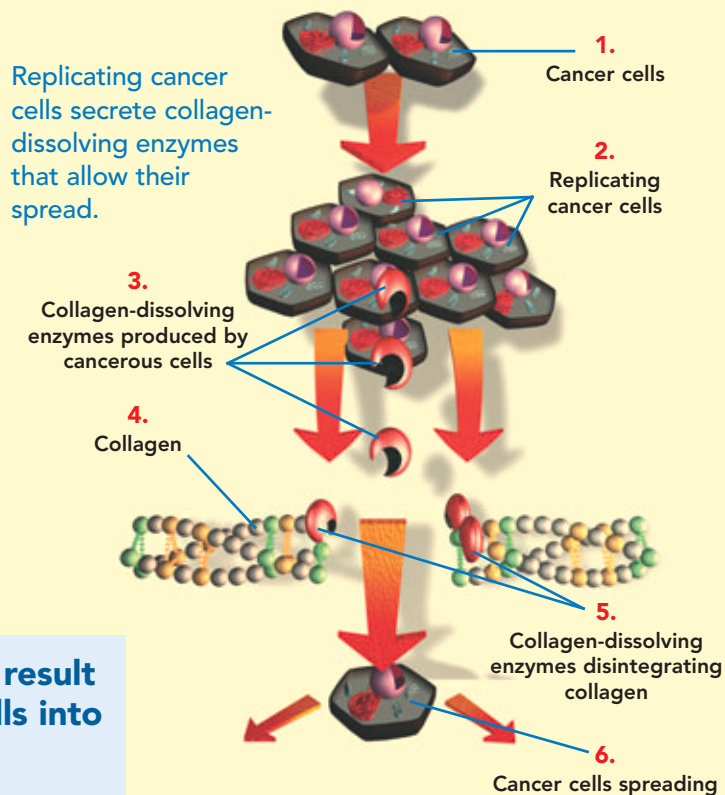
microbes (including viruses) can invade tissues. In extreme cases, such as in cancer, the excessive production of digestive enzymes and the disintegration of collagen and connective tissue by cancer cells are the dangerous mechanisms by which these cells invade and spread to other organs.

In his Cellular Health Series book **Cancer**, Dr. Rath documents his scientific discovery that certain nutrients, including L-lysine, are powerful natural inhibitors of collagen-digesting enzymes. It is his discovery that has put Matthias Rath, Inc. on the path to defeating this devastating disease.



**Approximately 90% of all cancer fatalities result from metastasis, the invasion of cancer cells into other organs and tissues.**

### Metastasis of cancer cells



## The Spread of Cancer Can Be Controlled

In our laboratory at Matthias Rath, Inc., we have conducted research with live cells to provide answers to various scientific questions. Once we understood the mechanism by which cancer cells metastasized, there was one critical question that our researchers sought to answer: How could we naturally inhibit the invasion of cancer cells through collagen and connective tissue in a way that would enhance the body's own capacity for managing disease?

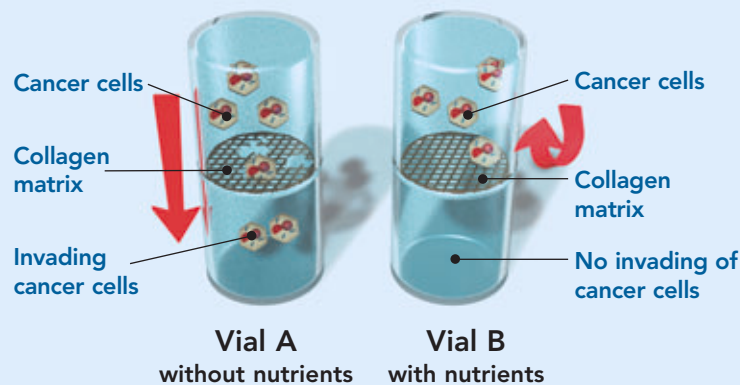
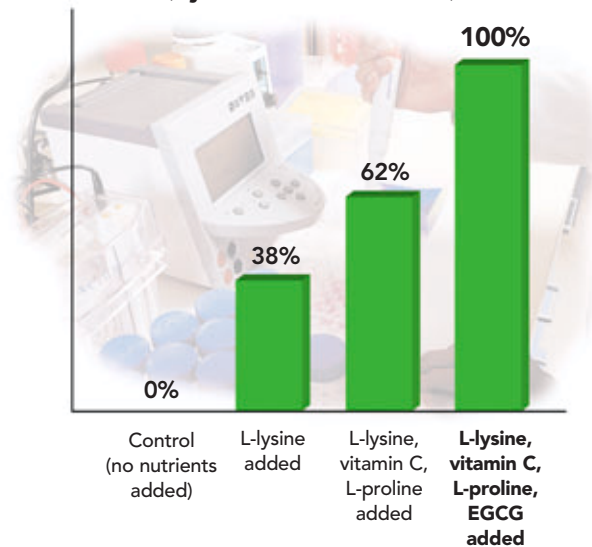
In seeking this answer, our researchers designed an experiment so that they could first investigate the ability of cancer cells to digest through a collagenous matrix and then develop a method to control it. For this purpose, our researchers used specific vials that included partitions made of collagenous material similar to that which surrounds cells in the body. In the upper chamber of some vials, they incubated cancer cells with nutritive agents. In the upper chamber of other vials, they incubated cancer cells without nutritive agents. Afterwards, our researchers were able to determine which group of cancer cells was able to digest the collagen membrane and migrate to the lower chamber.

### The Matthias Rath, Inc. Cancer Cell Experiment

Scientific experiments conducted by the Matthias Rath, Inc. research team involved the use of cancer cells, nutrients, and collagen. Cancer cells in Vial A not incubated with vitamin C, L-lysine, L-proline, and EGCG were able to pass through the collagen matrix. Cancer cells in Vial B incubated with vitamin C, L-lysine, L-proline, and EGCG were unable to dissolve the collagen matrix.

The results of the experiment were remarkable. **A simple combination of nutrients was able to stop cancer cells from invading the collagen matrix!** The most powerful nutrient combination contained vitamin C, the amino acids L-lysine and L-proline, and a polyphenol fraction of green tea known as Epigallocatechin Gallate (EGCG).

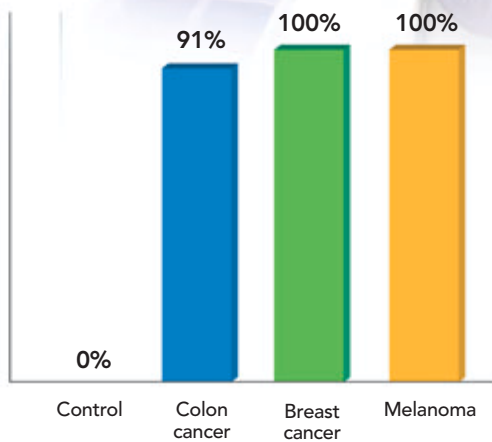
**Percentage of breast cancer cells blocked from invading collagen matrix (by nutrient combination)**



Right: Vadim Ivanov, M.D., Ph.D. and Shrirang Netke, Ph.D., Senior Researchers

The combination of vitamin C, the amino acids L-lysine and L-proline, and EGCG was effective in stopping the invasion and spread of a variety of cancer cells, including those of the colon, breast, and skin (melanoma).

**Percentage of cancer cells blocked from invading collagen matrix (with vitamin C, L-lysine, L-proline, and EGCG)**



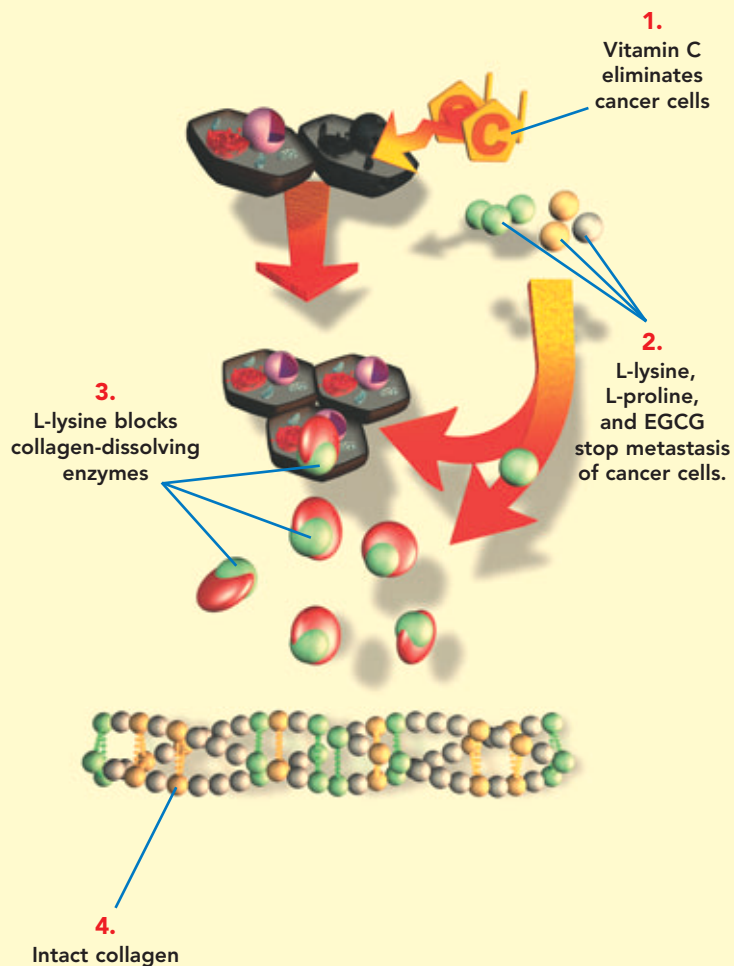
## Presentation of Research Findings

Research findings documented in this brochure were presented at the 19th Annual Miami Breast Cancer Conference February 27 – March 2, 2002.

## Research Conclusion

### Metastasis of cancer cells inhibited

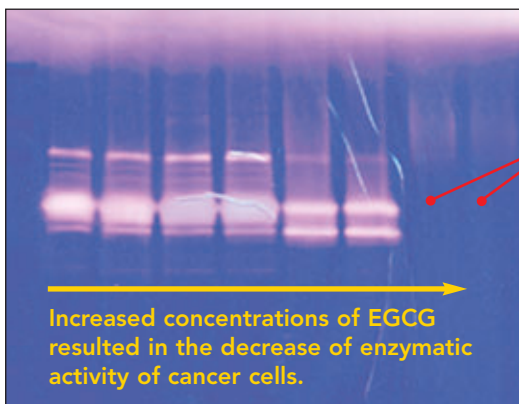
Specific nutrients stop the replication of cancer cells and prevent metastasis.



## How These Nutrients Work

Our study indicates that the nutrient combination containing vitamin C, L-lysine, L-proline, and EGCG inhibited MMP-2 and MMP-9, two of the digestive enzymes that cancer cells use to invade tissues in the body. In fact, the more effective the nutrient inhibition of cell movement was, the lower the enzymatic activity of cancer cells.

**Left to right: Glow emitted from each vial represents the enzymatic activity of cancer cells that allows them to spread. As increased concentrations of EGCG were added to each vial, the glow dimmed, indicating a decrease in the enzymatic activity of cancer cells.**



**The two vials located to the far right have no visible glow, indicating 100% inhibition of the spread of cancer cells.**

Because these nutrients can stop the collagen-dissolving activity of cancer cells, they also can stop these same cancer cells from spreading in the body.

## Research Support for Nutrient Control of Metastasis

Recent research confirms that the following nutrients are effective inhibitors of the invasion of various kinds of cancer cells through collagen and other connective tissue components.

**Epigallocatechin Gallate (EGCG)** is an important polyphenolic compound of green tea. Green tea polyphenols such as epigallocatechin gallate exert anti-mutagenic, anti-proliferative, and anti-neoplastic properties. In addition, EGCG is a powerful antioxidant capable of neutralizing free radicals and preventing cell damage. EGCG also stimulates detoxification systems through selective induction and modification of phase I and phase II metabolic enzymes.

- Demeule, M., Brossard, M., et al. (2000) "Matrix metalloproteinase inhibition by green tea catechins." *Biochim Biophys Acta*. 1478(1): 51-60.
- Zhang, G., Muira, Y., et al. (2000) "Induction of apoptosis and cell cycle arrest in cancer cells by in vivo metabolites of teas." *Nutr Cancer*. 38(2): 265-273.



**Vitamin C** in its lipid soluble form, ascorbyl palmitate, has been shown to be effective in eliminating abnormal cells in the body while protecting normal cells.

- Liu, J.W., Nagao, N., et. al. (2000) "Anti-metastatic effect of an autooxidation-resistant and lipophilic ascorbic acid derivative through inhibition of tumor invasion." *Anticancer Res.* 20(1A): 113-118.
- Niedzwiecki, A., Rath, M., et. al. (2001) "Cytotoxic effect of lipophilic substitution at 2-, 6-, and 2, 6- positions in ascorbic acid and expression of matrix metalloproteinases in HepG<sub>2</sub> cells, melanoma cells, and normal human dermal fibroblast." *J Am Coll Nutr.* 20(5): 575.
- Ross, D., Mendiratta, S., et. al. (1999) "Ascorbate 6-palmitate protects human erythrocytes from oxidative damage." *Free Radic Biol Med.* 26(1-2): 81-89.

**L-lysine and L-proline** are natural amino acids that are the building blocks of collagen and elastin fibers. In addition, L-lysine prevents digestion of collagen by blocking sites where enzymes attach, making this nutrient critical in preventing the degradation of connective tissue. Although they are essential for life, vitamin C and L-lysine are not produced by the body. The health of the connective tissue depends on optimal daily intake of these two key nutrients.

- Rath, M., Pauling, L. (1992) "Plasmin-induced proteolysis and the role of apoprotein(a), lysine and synthetic lysine analogs." *Journal of Orthomolecular Med.* 7: 81-82.
- Kikuchi, Y., Kizawa, I., et. al. (1986) "The inhibitory effect of tranexamic acid on human ovarian carcinoma cell grown in vitro and in vivo." *Gynecol Oncol.* 24(2): 183-188.

**Selenium** is an important component of the body's antioxidant defense system and has also been shown to protect cells exposed to toxins. As a cancer-fighting compound, selenium suppresses tumor promotion and early stages of tumor progression through the inhibition of angiogenic enzymes.

- Gopalakrishna, R., Gundimeda, U. (2001) "Protein kinase C as a molecular target for cancer prevention by selenocompounds." *Nutr Cancer.* 40(1): 55-63.

**N-acetyl-cysteine (NAC)** is a powerful antioxidant, and is essential in the production of glutathione, another potent antioxidant. NAC has also been shown to block the metastatic potential of cancer lines at the cellular level through inhibition of enzymes that encourage tumor vascularization.

- Galis, Z.S., Asanuma, K., et. al. (1998) "N-acetyl-cysteine decreases the matrix-degrading capacity of macrophage-derived foam cells: New target for antioxidant therapy?" *Circulation.* 97(24): 2445-2453.

**Arginine** is a conditionally essential amino acid that becomes increasingly necessary under conditions of stress, injury, or disease. Arginine functions to enhance the immune system and inhibit cellular replication of tumors. The highest concentrations of arginine are found in the connective tissue.

- Milner, J.A., Stepanovich, L.V. (1979) "Inhibitory effect of dietary arginine on growth of Ehrlich ascites tumor cells in mice." *J Nutr.* 109(3): 489-494.

**Copper and manganese** are necessary for a multitude of body functions, but particularly for optimal connective tissue structure and stability, as well as free radical defense.

- David C.D., Johnson, W.T. (2001) "Dietary copper and dimethylhydrazine affect protein kinase C isozyme protein and mRNA expression and the formation of aberrant crypts in colon of rats." *Biofactors.* 15(1): 11-26.



## The Human Factor

The following cases document the successful use of natural substances in inhibiting the invasion and spread of cancer cells.

### Case Study #1: Personal Testimonial of Werner Pilniok

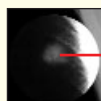
In September 1999, a fast-growing tumor was discovered in my lung. The doctor recommended removing the tumor along with a section of my lung.

Because I had obtained positive results using natural therapies to reverse my arteriosclerosis, I refused surgery and in October 1999, I began a nutritional supplementation program to fight my tumor. In addition to taking vitamin formulas to enhance my cellular metabolism and support blood vessel integrity, I increased my intake of the nutrients vitamin C, L-lysine, and L-proline.

In April 2000, a CT scan revealed that the tumor had completely disappeared! I thank Dr. Rath and his research team from the bottom of my heart.

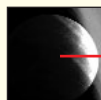


Werner Pilniok



Tumor

Mr. Pilniok's  
x-ray **before**  
supplementation



No  
tumor  
present

Mr. Pilniok's  
x-ray **after**  
supplementation

### Case Study #2: Female Patient With Breast Cancer

A 60-year-old female patient had been diagnosed with breast cancer. The cancer metastasized to her bones, leaving the patient with a very poor prognosis. She was told by doctors that there was nothing they could do for her.

Daily, the patient began taking approximately 30 grams of a formula containing vitamin C and L-lysine. After 30 days, her alkaline phosphatase (an indicator of bone degradation) levels decreased by 27% from 1100 to 806, and her CA15 (an indicator of cancer) levels decreased from 60 to 30. She then further increased her intake of vitamin C and L-lysine and added L-proline to her regimen.

As a result, the patient's alkaline phosphatase levels decreased to 437. A bone scan detected no new lesions and a substantial reduction in existing lesions. Recently, it has been reported that both cancers in the patient's bone and breast have gone into full remission.

## The High Cost of Cancer

In 1971, then-president Richard Nixon declared America's war against cancer, promising to end its toll within a decade. Each one of his presidential successors has since devoted billions of research dollars toward the conquering of this disease, and yet, the number of cancer cases and deaths has continued to grow.

Not only has the number of lives claimed by cancer been high, but also the cost of treatment has increased exponentially. According to the National Institutes of Health, cancer costs reached an all-time high of \$180.2 billion in 2000.

The costs of cancer care are greatest during the first six months following diagnosis for treatment and therapies. The next most expensive period of cancer treatment occurs during the six months prior to death, when disease usually recurs.

**According to the National Institutes of Health, cancer costs reached an all-time high of \$180.2 billion in 2000.**

The use of natural substances in the treatment of cancer would not only lessen the tremendous financial burden of this disease, but would also eliminate the harsh side effects of treatments that only add more expense and suffering. As with his groundbreaking work in the area of cardiovascular disease, Dr. Rath and his team of researchers have focused their research on the development of an effective, natural therapy for the treatment of cancer that enhances the body's own capacity for managing disease. This therapy will also be safe, affordable, and accessible to all people.