HSI HEALTH SCIENCES INSTITUTE
ARTICLE REPRINTED FROM DECEMBER 2005

## *Is it really from heaven above?*

# The cancer miracle that leaves healthy cells healthy

*by Kathryn Mays Wright*

Cancer treatment has come a long way since the use of mustard gas derivatives in the early 1900s—or has it? When doctors discovered during World War I that mustard gas destroyed bone marrow, they began to experiment with it as a way to kill cancer cells. Although they had little success with the mustard gas, it did pave the way for modern chemotherapy—which involves the most toxic and poisonous substances anyone deliberately puts in his body. These treatments kill much more than cancer cells—they have a devastating effect even on healthy ones.

Sometimes it seems as if only a miracle could provide a cure that's both safe and effective. And a miracle is just what Dr. Mate Hidvegi believed he found when he patented Avemar, a fermented wheat germ extract. Studies have shown that Avemar reduces cancer recurrence, cuts off the cancer cells' energy supply, speeds cancer cell death, and helps the immune system identify cancer cells for attack.

### A miracle in the making

Back in World War I, Dr. Albert Szent-Györgyi (a Nobel Prize recipient in 1937 for his discovery of vitamin C) had seen the effects of mustard gas up close and personal and was determined to find a safer alternative for cancer treatment. His goal was to prevent the rapid reproduction that is characteristic of cancer cells. He theorized that supplemental quantities of naturally occurring compounds in wheat germ called DMBQ would help to chaperone cellular metabolism, allowing healthy cells to follow a normal course but prohibiting potentially cancerous ones from growing and spreading. His early experiments, published in the *Proceedings of the National Academy of Sciences USA* in the 1960s, showed effects of naturally occurring and synthetic DMBQ against cancer cell lines, confirming his theory.

But it was then that the science community shifted its focus to killing cancer outright—at any cost. His approach, seen as negotiating with the enemy as opposed to destroying it outright, was cast to the side.

It wasn't until the fall of communism in Hungary in 1989—when scientists were allowed for the first time to pursue independent, personal interests—that Dr. Hidvegi picked up where Szent-Györgyi left off.

But when Hidvegi's funding ran out, it seemed as if the research would once again be set aside. He had no money, he had no prospects, and his wife insisted he give up his research and find a *paying* job. They were desperate. Yet he did still have one thing at that time—faith. Being a devout man, Dr. Hidvegi prayed to the Virgin Mary for guidance—and an investor.

Miraculously, the very next day a stranger wrote Hidvegi a check somewhere in the $100,000 range. With that money, he was finally able to patent a technique of fermenting wheat germ with baker's yeast. He named this fermented product Avemar in tribute to the Virgin Mary (*Ave* meaning hail and *Mar* meaning Mary). It became the standard compound for research and later commercialization because it assured a longer shelf life while maintaining its live food status.

Avemar is supported by more than 100 reports (written for presentation or publication) conducted in the U.S., Hungary, Russia, Australia, Israel, and Italy and is validated by the publication of more than 20 peer-reviewed publications describing in vitro, in vivo, and human clinical trials.

### Reduce cancer recurrence

Since 1996, over 100 studies done on Avemar have impressed oncologists and cancer researchers. Studies have shown that when Avemar is used as an adjunct treatment, it enhances the effects of the standard treatment agents. It's particularly effective in reducing the chances of cancer recurrence.

In a controlled study, 170 subjects with primary colorectal cancer either had surgery and standard care with chemotherapy or the same plus 9 g of Avemar taken once a day. Only 3 percent of the

(over, please)

people in the the Avemar group experienced a recurrence, vs. more than 17 percent of those in the chemo-only group. The Avemar group also showed a 67 percent reduction in metastasis and a 62 percent reduction in deaths.

In a randomized study, 46 stage III melanoma patients with a high risk of recurrence either had surgery and standard care with chemotherapy or surgery plus standard care and 9 g of Avemar taken once a day. Those taking Avemar showed approximately a 50 percent reduction in risk of progression.

In a one-year, non-randomized trial of 43 patients with oral cancer, 21 patients received surgery and standard care while 22 others received the same plus Avemar. The Avemar group showed an 85 percent reduced risk of overall progression. Plus, only 4.5 percent of the patients in the Avemar group experienced local recurrences as opposed to more than 57 percent of the people in the standard care group.

Avemar also reduced the frequency and severity of many common side effects, including nausea, fatigue, weight loss, and immune suppression.

### Cut off cancer cells' energy supply

One of Avemar's most unique benefits is that it cuts off cancer cells' energy supply by selectively inhibiting glucose metabolism. Cancer cells love glucose: It fuels the voracious growth and spread of tumors. In fact, cancer cells utilize glucose at a 10- to 50-times higher rate than normal cells do.

Cancer cells that have a higher rate of glucose utilization have a greater chance of spreading. It's on these cells that we see Avemar's most dramatic effects. In fact, the greater the metastatic potential of the cancer cell line tested, the higher the glucose utilization rate and the more dramatic Avemar's effect.

Typical cancer treatments like chemotherapy kill off all cells—cancerous and healthy ones alike. But because of how Avemar interacts with glucose, it can selectively attack cancer cells while leaving healthy cells alone. Studies have shown that it would take a 50 times higher concentration of Avemar than is in a normal therapeutic dose to inhibit glucose utilization in normal healthy cells.

### Avemar speeds cancer cell death

The second way Avemar works against cancer is to keep cancer cells from repairing themselves. Cancer cells reproduce quickly and chaotically, producing many breaks and other mistakes in the cellular structure. Because of this, cancer cells need a lot of the enzyme known as PARP (poly-ADP-ribose) to repair breaks in DNA before the cells divide. Without adequate PARP, cancer cells cannot complete DNA replication. When there's no PARP to repair the damage, an enzyme called Caspase-3 initiates programmed cell death.

Avemar has been shown to speed up the death of cancer cells by inhibiting the production of PARP and enhancing the production of Caspase-3.

Researchers at UCLA also showed that Avemar reduces the production of RNA and DNA associated with the rapid reproduction of cancer cells. It also restores normal pathways of cell metabolism and increases the production of RNA and DNA associated with healthy cells.

### Undercover cancer cells exposed

Avemar also acts as a biological bounty hunter for disguised cancer cells. Healthy cells have a surface molecule called MHC-1 that tells natural killer (NK) cells not to

### Rejuvenate your immune system

Although Avemar was born out of cancer research, it can also help if you don't have cancer. In fact, since one of its main actions is to keep your immune system operating at peak performance, there really isn't anyone who *can't* benefit from it. The biological state of aging counteracts your immune function, particularly after the age of 40. Many of the symptoms generally associated with simply "aging" are due to the declining ability of the immune system to differentiate between "foreign" proteins and natural ones. When this happens, the immune system not only becomes less capable of resisting infection and cancer but also begins to attack the body's own healthy tissues.

Avemar has been shown to normalize the imbalance in the immune system that results from age and stress. It has also been shown to improve the ability of T-cells to respond to antigens and the ability of B-cells to produce antibodies. And it enhances the functioning of macrophages—the key players in the immune response to foreign invaders like infectious microorganisms. So Avemar supports and enhances overall immune strength, coordination, and function. In a sense, it rejuvenates your aging immune system.

attack. Virally infected cells don't display this molecule, which makes them targets.

But cancer cells have also been shown to display the surface molecule MHC-1, which means that cancer cells can actually hide from NK cells. Avemar helps the immune system identify cancer cells for attack by suppressing their ability to generate this MHC-1 mask, which allows the NK cells to recognize it as a target for attack.

### Children with cancer get a fighting chance

Possibly one of the most powerful studies on Avemar shows its effectiveness on children with cancer. Most forms of pediatric cancer have high cure rates from chemotherapy as compared with adult cancers, but one of the limiting factors in using chemotherapy to treat children is the infection that can often occur during treatment.

Infection often sets in because chemotherapy kills large numbers of the child's infection-fighting white blood cells and destroys many of the bone marrow cells that produce them.

Doctors aware of the immune-enhancing properties of Avemar wanted to learn if it could possibly prevent the life-threatening infections that often occur in pediatric cancer patients.

A recent study published in the prestigious medical journal *Pediatric Hematology Oncology*, showed that such infections and the fever that accompanies them (called febrile neutropenia) were reduced by 42 percent in the children given Avemar after chemotherapy, compared to those not getting Avemar.

Avemar has this effect because it helps rebuild the immune system, increasing the number and activity of functioning immune system cells. It's clear that, unlike conventional cancer therapy, Avemar does not produce side effects—it reduces them. It also allowed the children in the study to take more cycles of chemotherapy, increasing the chance of a cure.

### As toxic as a slice of bread

As dangerous as Avemar is for cancer cells, it won't harm the rest of your body. In fact, according to an independent panel of medical, food safety, and toxicology experts: "Avemar is as safe as whole wheat bread."

In Hungary, where it was developed and is manufactured, it is classified as a "dietary food for special medical purposes, for cancer patients" and is a standard therapy for patients with cancer. It is available as a food or dietary supplement in several other countries as well, including Austria, Australia, Switzerland, Italy, Slovakia, Czech Republic, Russia, Israel, and South Korea.

Avemar is made using a patented process that yields a uniform, consistent, all-natural dietary supplement. Although it is not certified organic, it is free of chemicals and synthetics. According to our contacts at American BioSciences, the exclusive North American distributor of Avemar, there is simply no comparison between their product and other wheat germ products on the market because it is the only one supported by research demonstrating its effectiveness in maintaining normal, healthy cellular metabolism and immune regulation.

But since this is a wheat product, there is the potential for allergic response. Although the process of making the product removes all gluten, the principal allergen in wheat, the product can still come in contact with gluten-containing wheat. American BioSciences says that Avemar should not be consumed by people who have had an organ or tissue transplant, those who have malabsorption syndrome, or those with allergies to foods containing gluten, such as wheat, rye, oats, and barley.

It's also not recommended for people with fructose intolerance or hypersensitivity to gluten, wheat germ, or any of the components or ingredients of this product.

If you suffer from bleeding ulcers, you should stop using Avemar two days before undergoing a barium X-ray contrast examination and resume taking it two days after the completion of the examination. This precaution is necessary because wheat germ contains lectin, which can potentially cause red bloods cells to clump.

If you are currently taking medications or have any adverse health conditions, you should consult with your pharmacist or physician before taking Avemar.

### Unique delivery system makes fighting cancer easier —and even tasty

The Avemar product our contacts at American BioSciences offer is an instant drink mix called Avé, which combines Avemar with natural orange flavoring and fructose in pre-measured packets.

As a dietary supplement, the recommended usage is one packet per day mixed with 8 oz. of cold water (or any other beverage containing less than 10 mg of vitamin C). I found that the best way to mix it is to shake it in a closed

(over, please)

container. When I tried it, it reminded me of Tang, though it wasn't quite as sweet.

You should consume it within 30 minutes of mixing a batch. Also note that it's a good idea to take Avé one hour before or after a meal and two hours before or after any drugs or other dietary supplements.

If you weigh over 200 pounds, use two packets per day. If you weigh under 100 pounds, only use half of a packet per day. Consult with a healthcare professional for recommended usage levels for children, for guidance on alternative usage levels, and for use in combination with other dietary supplements.

Most people who use Avé daily notice an effect within three weeks, reporting improvements in appetite, energy, and general quality of life.

If you work with your health care professional to use Avé as an adjunct cancer treatment, you should know that it will take a good three months before you will see a change in objective measurements—such as blood markers, CAT scans, MRIs, etc. Although some people reported uneasiness in their stomachs during the first few days of using Avemar, the effect only lasted a few days. No vomiting, diarrhea, or any other symptoms were reported.

*Citations available upon request and on HSI website*

**Avemar research citations via Pubmed.org**


1: Farkas E., "Fermented wheat germ extract in the supportive therapy of colorectal cancer," *Orv Hetil*. 2005 Sep 11;146(37):1925-31.

2: Boros LG, Nichelatti M, Shoenfeld Y., "Fermented Wheat Germ Extract (Avemar) in the Treatment of Cancer and Autoimmune Diseases," *Ann N Y Acad Sci*. 2005 Jun;1051:529-542.

3: Telekes A, Kiss-Toth E, Nagy T, Qwarnstrom EE, Kusz E, Polgar T, Resetar A, Dower SK, Duda E., "Synergistic effect of avemar on proinflammatory cytokine production and ras-mediated cell activation," *Ann N Y Acad Sci*. 2005 Jun;1051:515-28.

4: Illmer C, Madlener S, Horvath Z, Saiko P, Losert A, Herbacek I, Grusch M, Krupitza G, Fritzer-Szekeres M, Szekeres T., "Immunologic and biochemical effects of the fermented wheat germ extract Avemar," *Exp Biol Med (Maywood)*. 2005 Feb;230(2):144-9.

5: Marcsek Z, Kocsis Z, Jakab M, Szende B, Tompa A., "The efficacy of tamoxifen in estrogen receptor-positive breast cancer cells is enhanced by a medical nutriment," *Cancer Biother Radiopharm*. 2004 Dec;19(6):746-53.

6: Garami M, Schuler D, Babosa M, Borgulya G, Hauser P, Muller J, Paksy A, Szabo E, Hidvegi M, Fekete G.,"Fermented wheat germ extract reduces chemotherapy-induced febrile neutropenia in pediatric cancer patients," *J Pediatr Hematol Oncol*. 2004 Oct;26(10):631-5.

7: Szende B, Marcsek Z, Kocsis Z, Tompa A., "Effect of simultaneous administration of Avemar and cytostatic drugs on viability of cell cultures, growth of experimental tumors, and survival tumor-bearing mice," *Cancer Biother Radiopharm*. 2004 Jun;19(3):343-9.

8: Jakab F, Shoenfeld Y, Balogh A, Nichelatti M, Hoffmann A, Kahan Z, Lapis K, Mayer A, Sapy P, Szentpetery F, Telekes A, Thurzo L, Vagvolgyi A, Hidvegi M., "A medical nutriment has supportive value in the treatment of colorectal cancer," *Br J Cancer*. 2003 Aug 4;89(3):465-9.

9: Comin-Anduix B, Boros LG, Marin S, Boren J, Callol-Massot C, Centelles JJ, Torres JL, Agell N, Bassilian S, Cascante M., "Fermented wheat germ extract inhibits glycolysis/pentose cycle enzymes and induces apoptosis through poly(ADP-ribose) polymerase activation in Jurkat T-cell leukemia tumor cells," *J Biol Chem*. 2002 Nov 29;277(48):46408-14. Epub 2002 Sep 25.

10: Fajka-Boja R, Hidvegi M, Shoenfeld Y, Ion G, Demydenko D, Tomoskozi-Farkas R, Vizler C, Telekes A, Resetar A, Monostori E., "Fermented wheat germ extract induces apoptosis and downregulation of major histocompatibility complex class I proteins in tumor T and B cell lines," *Int J Oncol*. 2002 Mar;20(3):563-70.

11: Boros LG, Lee WN, Go VL., "A metabolic hypothesis of cell growth and death in pancreatic cancer. *Pancreas*. 2002 Jan;24(1):26-33.

12: Ehrenfeld M, Blank M, Shoenfeld Y, Hidvegi M., "AVEMAR (a new benzoquinone-containing natural product) administration interferes with the Th2 response in experimental SLE and promotes amelioration of the disease," *Lupus*. 2001;10(9):622-7.

13: Zalatnai A, Lapis K, Szende B, Raso E, Telekes A, Resetar A, Hidvegi M., "Wheat germ extract inhibits experimental colon carcinogenesis in F-344 rats," *Carcinogenesis*. 2001 Oct;22(10):1649-52.

14: Hidvegi M, Raso E, Tomoskozi-Farkas R, Szende B, Paku S, Pronai L, Bocsi J, Lapis K., "MSC, a new benzoquinone-containing natural product with antimetastatic effect. Cancer *Biother Radiopharm*. 1999 Aug;14(4):277-89.

15: Jakab F, Mayer A, Hoffmann A, Hidvegi M., "First clinical data of a natural immunomodulator in colorectal cancer," *Hepatogastroenterology*. 2000 Mar-Apr;47(32):393-5.

16: Beck M. "Remedies and quackeries," *Acta Pharm Hung*. 1999 Jan;69(1):5-8.

17: Hidvegi M, Raso E, Tomoskozi Farkas R, Lapis K, Szende B.," Effect of MSC on the immune response of mice," *Immunopharmacology*. 1999 Apr;41(3):183-6.

18: Baintner K. "A wheat germ preparation and its possible action," *Orv Hetil*. 1999 May 16;140(20):1141-3.

19: Szende B, Raso E, Hidvegi M, Tomoskozine FR, Paku S, Pronai L, Bocsi J, Lapis K., "A new benzoquinone-containing antimetastatic product," *Orv Hetil*. 1998 Nov 29;139(48):2893-7.

20: Hidvegi M, Raso E, Tomoskozi-Farkas R, Paku S, Lapis K, Szende B., "Effect of Avemar and Avemar + vitamin C on tumor growth and metastasis in experimental animals," *Anticancer Res*. 1998 Jul-Aug;18(4A):2353-8.