

Alphabet Soup
responds to
cutting-edge vaccine



PROMISING CANCER TREATMENT FOR AN OLD FRIEND

BY FRANK ANGST

OLD FRIENDS FOUNDER MICHAEL BLOWEN pats the head and neck of Alphabet Soup, providing comfort of a familiar touch, a familiar voice, while the 1996 Breeders' Cup Classic (gr. I) winner undergoes the beginning step in a revolutionary cancer treatment that could save his life.

While Blowen, staff, and visitors regularly shower racing's retirees with love, the farm's pensioners also benefit from top veterinary treatment from the likes of Dr. Bryan Waldrige, following in the footsteps of the late Dr. Doug Byars. While much of the vet work focuses on keeping aging horses comfortable, the vet work can include cutting-edge treatment.

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Michael Blowen, with Alphabet Soup at Old Friends, has noticed a reduction in the skin cancer in the Breeders' Cup Classic winner

Such is the case with Alphabet Soup, who is receiving a vaccine that will allow his immune system to fight the skin cancer that has developed near his tail. The IFx-VET multi-indication cancer vaccine allows the retired stallion's immune system to target and eliminate cancer cells. The efforts are being funded by the son of Cozzene's former residence, Frank Stronach's Adena Springs Kentucky.

Just weeks after the treatment Blowen and the vets noticed a significant reduction in the skin cancer as the treatment—along with that love never in short supply at Old Friends—appears to be working.

The progress amazes Blowen, who is all too familiar with the problem of skin cancer developing in aging gray and roan horses. It's a malady that struck 1991 Classic winner Black Tie Affair, who in fighting the skin cancer developed laminitis and died at age 24 in 2010.

"If we'd had this procedure when Black Tie Affair was with us, he'd still be alive today," Blowen said.

A look at the treatment of Alphabet Soup outlines an amazing ap-

proach to treating cancer, a treatment that is being used on many forms of the disease in both animals and humans. In late August the *New York Times* offered a three-part, front-page story on the progress of immunotherapy cancer treatments.

In the case of Alphabet Soup, Waldrige had heard positive reports about the success of the procedure and, with the disease still in its early stages in Alphabet Soup, thought the 25-year-old would be a good candidate.

In mid-July, Waldrige removed cancerous tissue from Alphabet Soup while he was conscious, any pain blocked by an epidural. Waldrige placed the cancerous tissue in containers with a liquid that sustained the cancer cells, then shipped those containers to Veterinary Oncology Services in Tampa, Fla.

Waldrige noted that it's relatively common for gray and roan horses to develop such skin cancers as they age. He said while many people believe the cancers are tied to sun exposure, he said actually scientific study suggests the cancer is somehow related to pigmentation changes of the horses as they age, often going from gray to more white.

One reason cancer is so difficult to fight, Waldrige noted, is that the body does not recognize the cancer cells as the enemy. While white cells know to fight a virus or bacteria, because cancer cells are mutated cells of the person or animal's own body, the immune system does not fight them.

The IFx-VET cancer vaccine—and others like it—places an indicator on the cancer cells to alert the immune system of the enemy. Veterinary Oncology Services received the cancerous tissue taken from Alphabet Soup and added a streptococcal bacterium—bacteria that can cause a sore throat—to the tumor cells.



Dr. Bryan Waldrige has been treating Alphabet Soup

ANNE M. EBERHARDT PHOTOS

The cellular machinery then expresses the antigen on the surface of the tumor cells and those cells are irradiated so that they cannot divide when returned to the patient. Moved to a liquid vehicle, the cells with the bacteria on their surface are then injected back into the patient, in this case Alphabet Soup.

When this occurs, the body goes to battle with cells it thinks are a bacteria that may cause a cold, but in fact are the tumor cells. At this point the body's immune system can spot the enemy, and it directs a strong response to multiple tumor cells.

In the case of Alphabet Soup, this has meant a significant reduction in the skin tumors while not using some of the more invasive treatments sometimes needed to fight cancer.

Steve Hazell, director of business development for Veterinary Oncology Services-Morphogenesis, said the technology has been used on 35 different types of cancer in cats, dogs, horses, and other animals. He said when the bacteria—actually a harmless gene taken from the bacteria—is added to the cells, the cancer can no longer hide.

"The cancer cell will express itself; it will throw that protein out onto its own surface. It's like putting a Halloween mask on yourself and saying, 'Hey, look at me, I'm a bacteria.' But you're not a bacteria," Hazell said. "What it does is put out that antigen that says to the immune system, 'Ahh, there's a strep bacteria, go after it and kill it.' The gene expressed on the exterior—the Halloween mask if you want to call it that—will induce the immune system to come after it.

"Cancer, in and of itself, has protection from the immune system just like normal cells have protection from the immune system. The reason your immune system doesn't recognize cancer for what it is, being destructive and all of that, is that all cancers begin from what at one time were normal cells," Hazell said. "Something tragically occurs in the message of one transition to another; it mutates, and that's what causes a cancer cell.

"It has what's called self-antigen, which gives it protection from the immune system, and that's why the immune system can't see it. What we do is defeat that process. By putting this gene within the cancer cell, we mimic what's called a bacteria insult. When the immune system sees that, it will go after it; of course, it thinks it's going after a bacteria cell. But when it destroys it, 100% of all the different tumor antigens that make up the neoplastic cell are now communicated to the entire immune system. The system becomes educated to that and now you don't need that bacterial primer on the exterior anymore. Now the cancer cells that have their own normal chemical makeup—called antigens—have the danger signal and the immune system sees it wherever it is in the body, from the tip of the nose to the tip of the tail and it no longer can escape."

Hazell believes the ideas behind the treatment can be used on many different cancers.

"The science of it says that it should work on any type of cancer in which a tumor sample can be sent to us and we can actually alter the cancer cells within that sample to be returned to the animal to invoke an immune response directly toward that cell type, which is a tumor," said Hazell, who added that soon the company will come out with an immunization that will not require the initial collection of cancer cells. The company also hopes to expand into treating people.

Veterinarian Dr. Maya Jerald said the vaccine that will



Waldrige injects Alphabet Soup with the IFx-VET cancer vaccine that is developed from the horse's own cancerous tissue

not require initial collection of cancer cells also is promising.

"The mechanisms are the same but will eliminate the need for the surgical biopsy and eliminate the need for us to manipulate those cells in a laboratory setting, the logistical nightmare of maintaining individual vaccines for individual horses," Jerald said. "We're going to be able to have a vaccine that will work exactly the same that veterinarians are going to be able to buy and use off the shelf."

Patricia Lawman, chief executive officer of the developer of the treatment, Morphogenesis, said even though her company has been on the front line, the treatment sometimes still amazes her.

"For so many people it sounds too good to be true being able to treat these cancers with no side effects and relatively little money...but that's what this technology is and how it works," Lawman said. "It's not specific to any tumor because it's a bacteria that can be injected into any tumor, and it doesn't cause side effects." BH