The healthy aging Corner

Part of Parke County's Healthy Aging and Cancer Preventive Initiative

The Frontiers of Cancer Research: Fighting Fire With Fire

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Can the growth of a patient's cancer be suppressed by giving that patient more cancer cells?

The most deadly diseases demand the attention of the most innovative minds. Cancer is one of those diseases calling out for unexpected discoveries. Saving more lives will depend upon sure-footed advances on three battle fronts: prevention, early detection, and treatment. Currently used cancer treatment plans rely heavily on the use of cytotoxic drugs that kill tumor cells. But these drugs also poison normal cells so treatments carry with them a dose-limiting toxicity. As a result, cancer patients and their physicians are looking for new options – more effective, less toxic.

Research published last week in *Cancer Research* expands the cancer-fighting armamentarium to include a new, innovative approach*: treating cancer patients by implanting bead-encapsulated living mouse tumor cells.* Giving more cancer cells to patients sounds irrational, even dangerous. How does the treatment work? Researchers have found that mouse tumor cells caged within agarose beads produce substances that suppress their neighboring cancer cells trapped within the bead. These cancer-fighting substances can then move out of the beads into the cancer patient. Because the introduced cancer cells are of mouse not human origin, they pose no threat to the patient. It's one truly creative assault on the cancer problem.

My research group at the Murphy Cancer Foundation in West Lafayette, teaming up with investigators at The Rogosin Institute in New York City, are helping to develop this new cancer-fighting technology. The work represents an exciting new way of advancing cancer treatment for two reasons. First, the idea of fighting cancer cells with cancer cells is a fresh and unexpected twist. It's like fighting fire with fire. Secondly, by showing that pet dogs stricken with prostate cancer benefitted from the bead therapy, we propelled the research more quickly into human cancer trials. Thus, the work is testing the idea that pet dogs with naturally-occurring cancers can become a dependable part of the pipeline for developing new cancer treatments for humans. Discovering a more productive path to defeating cancer is the very essence of a win-win variety of comparative cancer research that benefits both pets and people, a research program we call PATH to Progress®.

New tools mean new hope. "Science flourishes best when it uses freely all the tools at hand, unconstrained by preconceived notions of what science ought to be," wrote physicist Freeman Dyson. And putting into patients constrained cancer cells may be exactly the kind of unconstrained thinking we need to advance the fight against cancer, to put the fire out for good.

Sources: Winslow, Novel effort to fight cancer with cancer cells. The Wall Street Journal, January 25, 2011, WSI.com; Smith et al, Hydrophilic agarose macrobead cultures select for outgrowth of carcinoma cell populations that can restrict tumor growth. Cancer Research 2011, 71: 725-735; Dyson, The scientist as rebel. In Nature's Imagination (J Cornwell, ed), 1995; Waters and Wildasin, Cancer clues from pet dogs. Scientific American 2006, 295: 94-101.

The Healthy Aging Corner is prepared by health professionals and researchers at the Gerald P. Murphy Cancer Foundation in West Lafayette, IN. Look for The Healthy Aging Corner to provide a glimpse at the most recent research exploring ways we can live longer and healthier lives. Supported by the Parke County Cancer Prevention Fund of the Murphy Cancer Foundation.