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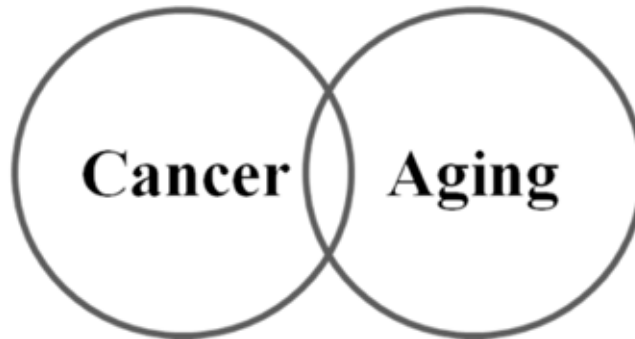
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Foundation Update Winter 2008

The Murphy Foundation's Bold Brand: Cutting Edge Research at the Intersection of Cancer and Aging

“Ignore your mother. Play in the intersection.”

David J. Waters
Director, Murphy Cancer Foundation



Ignore your mother? Certainly bold words to live by. But this is precisely what scientists at the Murphy Foundation are encouraging other scientists to do. We need scientists to courageously expand their collective expertise beyond a single molecule, or a single level of inquiry so we can tackle big health issues.

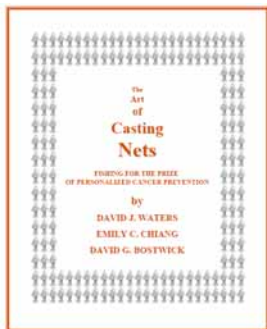
And when it comes to the cancer problem, **we're facing a major challenge.** We realize that most cancers increase with aging. It only follows that the leaders in cancer prevention would know cancer *and* know aging, right? Yet when it comes to cancer and aging, few scientists are cross-trained in both fields. Cancer scientists have had little or no training in the biology of aging, whereas scientists in the field of aging know little or nothing about cancer. **Our line of thinking goes like this:** To beat cancer, we need fresh ideas on how to *prevent* cancer. And the fresh ideas about cancer prevention will come from those cancer scientists who know the biology of aging. Knowing what's happening in old tissues will yield a big payoff since that's where most cancers develop. That's why doing serious research – scientifically 'playing' – in the intersection of cancer and aging makes absolute sense. In fact, it's an idea we can no longer afford to ignore.

The Murphy Foundation is proud that our **Personalized Cancer Prevention Program** stands squarely in the intersection of cancer and aging research. The program brings together a wide range of scientific expertise combined with a passion for prevention. As one of the few groups that are actively engaged in both cancer and aging research, the Murphy Foundation is positioned for success by: making research discoveries in the laboratory; publishing our results in top tier scientific journals and also messaging the public by way of the lay press; and organizing scientific symposia that bring together top-notch scientists from different disciplines to promote the cross-fertilization of ideas. **But perfecting the arts of discovery and message delivery are just not enough.** And that's why we're also deeply committed to cross-training the next generation of scientists in both fields.

In this issue of *Foundation Update*, we provide a snapshot of our most recent accomplishments. Collectively, our research and training efforts are translating into a whole new stance on cancer prevention. **Winston Churchill** said: “Man occasionally stumbles over the truth, but most of the time he will pick himself up and continue on”. The truth is it’s time to get serious about personalizing cancer prevention – one size doesn’t fit all when we’re trying to optimize health in a world in which more of a “good thing” is not necessarily a good thing.

Updates

Fishing For the Prize of Personalized Cancer Prevention - In 2008, Murphy scientists published a report providing a much-needed blueprint to revolutionize the future of cancer prevention research. The report focused on the need for *personalized cancer prevention* — a strategy that will enable each person to reduce his or her risk for cancer by matching the dose, duration, and timing of an intervention with their own cancer risk profile. Until now, most research on how to prevent cancer provided information about the *average* person — nothing tailored for you or me. “The central tenet of personalized cancer prevention is that average is overrated”, said **David G. Bostwick, MD, MBA**, Medical Director of Bostwick Laboratories, co-author of the report. “Average may have been a useful concept in the past, but we are entering a new and exciting era: the era of personalized cancer prevention”, said Bostwick. The report sounded an urgent call to action to change the approach of cancer prevention research, framing the major obstacles to developing personalized interventions. To illustrate our point, we drew a **parallel between fishing and doing cancer research**. Every fisherman knows that where he casts his net determines the catch. The simple question is: When it comes to solving the cancer problem, where should we be casting our nets? The article entitled “**The Art of Casting Nets: Fishing for the Prize of Personalized Cancer Prevention**” appeared in the January 2008 issue of *Nutrition and Cancer*.



Murphy Foundation Organizes and Co-Sponsors Scientific Symposium on “When More is Not Better” – In October 2008, at an international meeting of scientists, the Murphy Foundation unleashed a provocative research symposium entitled “**The U-shaped Curve: When More is Not Better**”. More than 400 scientists from around the world attended the 39th Annual Scientific Meeting of the Environmental Mutagen Society in Puerto Rico. The overarching theme was to explore how genes and the environment contribute to the development of cancer and other degenerative diseases. The symposium featured 4 scientists offering timely perspective on U-shaped dose responses between health and environmental exposures, prescription drugs, cancer-fighting nutrients, and exercise. **Take Home Message:** Promoting health in a U-shaped world demands that we pay close attention to the “how much”. The symposium was **co-sponsored by the Murphy Foundation, Bostwick Laboratories, The Purdue Center on Aging and the Life Course, and Integrated Laboratory Systems**. By creating this symposium, the Murphy Foundation demonstrates its commitment to educating scientists and the lay public that “how much” provides the essential context for predicting what things promote or diminish health.

Shorts

Murphy Foundation Featured in *The Prostate Net : Put You In The Know*

A recent interview with Dr. Waters was featured in the August 2008 issue of “In the Know”, the newsletter of **The Prostate Net**. The Prostate Net is a non-profit organization focused on prostate cancer education and awareness. Their website, www.prostatenet.org, is rated among the top 10 sites frequented by men seeking health information. The interview, conducted by **Virgil Simons**, CEO of the Prostate Net, provided an up-to-date look at selenium and prostate cancer prevention, emphasizing that more is not necessarily better. That’s why it pays to know your selenium level and get it right by using the Foundation’s first personalized cancer prevention product, the **SeleniumHealth™** toenail test. SeleniumHealth™ was featured in “**Cancer-Proof Your Body**”, an article in the October 2007 issue of

Men's Health magazine that highlighted 8 things men can do to reduce their cancer risk. To learn more about how to get the test, go to: www.seleniumhealthtest.org or e-mail the Murphy Foundation at seleniumhealth@gpmcf.org.

News from the Frontiers of Prostate Cancer Treatment: The Male Lumpectomy

Recently, Dr. Waters joined a multidisciplinary panel of urologists and basic scientists to debate a new approach to treating prostate cancer — focal therapy. The idea that a man's prostate cancer could be destroyed without the complications associated with radical surgery or radiation therapy is radical thinking indeed. Yet, that kind of fresh thinking revolutionized breast-conserving surgery for treatment of breast cancer. A report summarizing the consensus statements by the panel was published in December 2007 in a **special issue of the scientific journal, *Urology***, and now serves as a critical benchmark for future objective scientific debate regarding focal therapy and other prostate cancer treatments. Stay tuned to see how the growth of knowledge in this area of medical practice parallels that of lumpectomy for breast cancer. Will history repeat itself once again? Interested in finding out more? The case for focal treatment is laid out in urologist Gary Onik's book, "The Male Lumpectomy: A Rational New Approach for Treating Prostate Cancer".



An Olympian Feat: Murphy Foundation Article is Published in China as Cover Story in *Scientific American*

- In 2008, millions of people watched the exploits of Michael Phelps and other athletes at the Olympic Games in Beijing. At the same time, millions of citizens in China got a chance to read Dr. Waters' guided tour of the opportunities and challenges facing scientists who explore the similarities and differences between the cancers of people and animals. Two years ago, "Cancer Clues from Pet Dogs", was published in *Scientific American*, captivating readers in the United States. The far reaching message: the power of using a comparative approach to tackle tough questions about preventing diseases like cancer and promoting healthy longevity in people. On August 29, 2008 the *Wall Street Journal* thrust the issue of comparative aging in dogs and humans front and center in "The Seven-Year Glitch: Looking for a Better Man-to-Dog Lifespan Ratio". In that article, Dr. Waters advanced how research on aging in pet dogs moves us closer to understanding the process of human aging. Stay tuned this Spring for some exciting news about our recent advancements in this area!

Dunn Family Fund Established to Train Young Scientists in Cancer and Aging

The Dunn Family Fund provides targeted support for the cross-training of young scientists in the two disciplines of cancer and aging, addressing an unmet need by cultivating the next generation of scientists with the necessary interdisciplinary acumen to lead fresh thinking in cancer prevention. This unique training experience, made possible through the combined expertise of the Personalized Cancer Prevention Program of the Murphy Foundation, the Foundation's Center for Exceptional Longevity Studies, and **Purdue University's Center on Aging and the Life Course** in West Lafayette, Indiana, was launched by an initial gift to the Murphy Foundation and will be perpetuated through recurrent targeted funds supporting the Foundation's training mission in cancer and aging.

Expanded Lab Facilities within the Purdue Research Park

- Murphy Foundation scientists are enjoying an expanded research facility that provides additional specialized laboratory space for cellular and molecular assays. "Our mechanistic studies of cancer cells in the laboratory are an integral part of our research effort. Our work is really connecting the dots: from cells to animals to people", said **Muriel Cuendet, PhD, PharmD**, Research Scientist. In August 2008, the Foundation added more than 3000 square feet of new research space, which also accommodates our growing **Center for Exceptional Longevity Studies, home of the Exceptional Longevity Data Base**. The Purdue Research Park (<http://www.purdueresearchpark.com>) encompasses 591 acres in West Lafayette, IN adjacent to the Purdue University campus. The Research Park is home to the largest university-affiliated, state-of-the-art business incubator complex in the nation. Within the park, 140 businesses, of which more than 90 are high-tech, employ more than 2,900 people.

Thanks to the support of **more than 100 Gallery Club members**, the inspiring Gallery entrance to our headquarters presents a visual history from Dr. Murphy's pioneering research on the PSA blood test to our latest discoveries – a vibrant testimony to the broad reach of our bold research vision. If you are in the area, come for a visit! We are certainly eager to provide our friends and colleagues a first hand look at our scientific progress in action.

In Memorium - We are honored to recognize the passing of three special individuals with strong ties to the Murphy Foundation. **Judah Folkman, MD**, the world's foremost leader in the biology of tumor angiogenesis who trailblazed innovative therapies starving tumors by cutting off their blood supply, was a colleague of Dr. Waters. Waters and Folkman co-authored a scientific paper on bone and prostate cancer and served together on a 1997 committee that formulated the U.S. Prostate Cancer Research Agenda. **Homer Harris**, a pioneer in the telecommunications industry, vigorously supported the Foundation's research mission. Harris and his wife Delores faithfully stepped up to the plate whenever the Foundation needed it. **Charlie "Tremendous" Jones**, motivational speaker and author of "Life is Tremendous", supported the Murphy Foundation as a member of The Gallery Club. Waters and Jones held many mutually inspiring meetings during the final years of his 9-year battle with prostate cancer.

Kudos

Murphy Foundation, Paul Ehrlich, and Magic Bullets: What's the Connection?

In October 2008, Murphy Foundation scientists were invited to present their cutting edge research at **Ehrlich II—The 2nd World Conference on Magic Bullets**. More than 1400 scientists from 99 countries gathered in Nuremberg, Germany for the prestigious event. Dr. Waters was selected as one of 225 cancer scientists who spoke at this international scientific symposium celebrating the **100th anniversary of the Nobel Prize in Medicine awarded to Paul Ehrlich**. This was elite company for sure, since more than 4500 scientists worldwide had petitioned for the opportunity. Dr. Waters' talk was entitled, "When More is Not Necessarily Better: Interdisciplinary Inquiry into the Implications of U-Shaped Dose Responses for Personalizing Anticancer Interventions". The notion that anti-cancer strategies — prevention as well as treatment — can be individualized fits precisely within Ehrlich's vision of discovering magic bullets to target specific diseases. Clearly, the Murphy Foundation's innovation in the field of cancer prevention research is being recognized around the globe.