



infertility but also to determine whether such damage can cause deleterious effects in the offspring, such as birth defects or childhood cancers (Aiken and Sawyer. *Adv Exp Med Biol.* 2003;518: 85-98). Zini noted that pregnancy is possible despite some degree of DNA damage, but little work has been done to evaluate the potential influence of sperm DNA damage on the health of resultant offspring.

This may be particularly relevant for ICSI because this technique removes the natural barriers to fertilization and infertile men have higher levels of sperm DNA damage compared with fertile men. In addition, there is increasing concern regarding the safety of ICSI, which has been associated with significant increases in chromosomal abnormalities. Several studies have noted that an association may exist between ICSI and Beck-

with-Wiedemann and Angelman syndromes. These are rare disorders arising from abnormal genetic imprinting, which is the process that silences either the maternal or paternal copy of a gene early in development (Powell. *Nature.* 2003;422: 656-658).

“What is the implication of a successful ICSI pregnancy if you have damaged sperm DNA?” said Zini. “We don’t know the answer.” □

## Ovarian Cancer Inspires Art Exhibit

Lynne Lamberg

WASHINGTON, DC—The bronze helmet and shield—a single sculpture called *Warrior*—is Mary Magnan’s favorite among the 15 works her husband, artist John Magnan, created in response to her diagnosis and treatment for advanced ovarian cancer.

John fashioned the armor from castings of Mary’s hairless skull and torso, taken while she was receiving chemotherapy.

“At first I was reluctant to put this work on display,” Mary said. “I felt so exposed.” But visitors to John’s New Bedford, Mass, studio convinced her the work honors the strength women muster to confront a life-threatening disease. Now, *Warrior* and other works in several media constitute a traveling exhibit, *Body Image/Body Essence*, on view through March 31, 2006, at the National Museum of Health and Medicine in Washington, DC.

By highlighting the experiences of women and families dealing with ovarian cancer, the Magnans hope to raise awareness of the disease, prompting earlier detection and treatment. An estimated 22 220 new cases of ovarian cancer will be diagnosed in the United States in 2005, according to the American Cancer Society. Four in five women have regional and distant disease when diagnosed. Mary’s cancer was in stage IIIc when she was diagnosed in 1999 at age 52 years.

John’s first work, *Sharps!* grew out of efforts to subdue his anxiety following Mary’s diagnosis. Drawn to a football-sized pine egg left in his studio from an earlier project, he clipped heads from about 100 straight pins, making small tacks. He tapped these into the egg, cov-



The sight of women undergoing cancer treatment and receiving infusions inspired artist John Magnan to “view the ever-present IV pole as a human form.”

ering a dime-sized area. “It was calming,” he recalled, “like knitting.” He bought more pins, clipping 1000 at a time and saving both parts. He carried the egg with him to Mary’s chemotherapy treatments and worked on it perhaps 2 hours a day for 7 months, covering the egg’s entire surface with 46 000 pins. The shiny egg rests on a prickly nest of the cut-off pin shafts, reminding viewers of the many needlesticks patients with ovarian cancer endure.

“Ovarian cancer usually strikes relatively healthy active women in their 50s and 60s,” notes Michael Seiden, MD, PhD, a specialist in gynecologic cancers at the Massachusetts General Hospital Cancer Center, in Boston, and part of the team treating Mary Magnan.

Hair loss predictably occurs about 17 days after the start of treatment with paclitaxel, Seiden said. “It’s like wearing a sign saying, ‘I have cancer.’ It forces not only the woman but also other people to confront their own mortality. It changes old relationships: some friends retreat, while others hover.”

Physicians, nurses, and others sometimes tell patients, “Don’t worry, it will grow back,” Mary noted. This assertion, painted on the exhibit wall, is readable from across the room. “Women seldom find these words comforting,” Mary said. “Hair loss threatens one’s sense of self. Women want other people, particularly their physicians and nurses, to acknowledge their pain.”

One woman told the Magnans her hair fell out all at once while she was washing it at her bathroom sink. Squeezing it in her hands, she had to steel herself to look up into the mirror. John carved a cherry wood mirror frame with lush autumn leaves that symbolize the “fall,” calling it *Day 17*.

Some works address hair loss with whimsy—a useful coping strategy, according to John and Mary. John carved *Wig*, a wearable although patently fake walnut wig that mimics Mary’s pretreat-



John Magnan



In one work from an exhibit that explores the effects of the artist's wife's diagnosis of and treatment for ovarian cancer, a head swathed in snippets of treatment-related paperwork rests on a pillow that lists her treatment dates. The patient herself made the pillowcase from a skirt she couldn't fasten because of abdominal bloating caused by her illness.

ment hairstyle. *They Say It Never Grows Back the Same* is an abstract female figure with hair fashioned from 2400 bobby pins. The work's title recalls women's many conversations about hair loss.

In *Dear Diary*, a head swathed in snippets of Mary's extensive treatment-related paperwork rests on a pillow.

Mary made the pillowcase from a skirt she could not fasten after developing abdominal bloating, a characteristic but often overlooked symptom of ovarian cancer. She embroidered her treatment dates on the pillowcase.

A 7-foot-square photo montage overlooks the exhibit, featuring 25 digitally

enhanced candid snapshots of Mary. The first photo shows Mary before her diagnosis, her hair wind-tossed. In most of those taken during treatment, she wears a colorful hat, a scarf, or a wig, along with a pearl necklace and, almost always, a smile. In three, she is bald. Finally, there is Mary in remission, her hair growing back, shorter and grayer; she wears dangling earrings with stars. This work's title: *Survivor*.

Funding for the show comes from the Massachusetts General Hospital Cancer Center; the National Ovarian Cancer Coalition, based in Boca Raton, Fla; and other donors. The exhibit has made nine previous stops around the country and will open in Spartanburg, SC, in May 2006. For information on the Washington exhibit, see <http://www.nlm.nih.gov/washingtondc/museum>. For images and John Magnan's comments on the works, see <http://www.bodyimage-bodyessence.com>. □

## Gene Fusion Found in Prostate Cancer

Tracy Hampton, PhD

WHILE CHROMOSOMAL TRANSLOCATIONS resulting in fused genes have been found in various types of leukemias, lymphomas, and sarcomas, few have been documented in most types of solid cancers. But now a chromosomal rearrangement has been implicated as a potential cause of some prostate cancers, a finding that could lead to new diagnostic and therapeutic strategies (Tomlins et al. *Science*. 2005;310:644-648).

The findings come through the use of a research tool called Oncomine, a collection of data from numerous cancer studies across the globe, studies that use devices called microarrays to simultaneously screen the activity of thousands of genes (Hampton. *JAMA*. 2004;292:2073). The collection integrates 132 gene expression data sets representing 10 486 microarray experiments.

By surveying Oncomine for genes that are overactive in prostate tumors, Arul Chinnaiyan, MD, PhD, of the University of Michigan in Ann Arbor, and his team found two candidate genes—*ERG* and *ETV1*—that encode transcription factors, which are proteins that regulate other genes' activity. In addition, they found that either gene was frequently fused to the regulatory region of a third gene (*TMPRSS2*), which encodes an enzyme turned on by the male hormone androgen. The translocation of *ERG* and *ETV1* may be redundant because only one or the other was found fused to the *TMPRSS2* regulatory region in any given tumor.

While the actions of these gene fusions are not known, they may play an important role in prostate cancer development or progression because one or the other fusion was present in cultured lines of prostate cancer cells and in 23 of the 29 primary prostate cancers examined in the study.

A recent study reported that *ERG* was the most commonly overexpressed oncogene in prostate cancer (Petrovics et al. *Oncogene*. 2005;24:3847-3852), and this study suggests that fusion of *ERG* to *TMPRSS2* may be the cause of this overexpression. The investigators found that androgen treatment greatly increased *ERG* protein production in cell lines carrying the *TMPRSS2:ERG* gene fusion, a finding that has relevance because many prostate cancers are androgen-dependent, at least in their early stages.

Chinnaiyan and his colleagues now plan to characterize the proteins resulting from these gene fusions, identify the targets of these proteins, and determine their potential roles in prostate cancer development. They also note that their findings suggest that similar gene rearrangements may exist in other solid cancers but may be masked by the many other genetic abnormalities that arise during tumor progression. □