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## **CPCN/CPCRI Conference offers hope and optimism for delegates**

By Valerie Lapp

In the tenth anniversary year of the seminal National Prostate Cancer Forum, CPCN joined with CPCRI (Canadian Prostate Cancer Research Initiative) to present the highly successful Prostate Cancer Conference, September 27-30 at the Westin Harbour Castle in Toronto.

More than 275 prostate cancer researchers and survivors from across Canada came together under the banner "A Decade of Progress, A Future of Hope" to share stories of support group successes and challenges and to discuss advances in prostate cancer research over the last decade.



"Response [to the conference] has been unanimously positive," reports CPCN Executive Director Wally Seeley. "The speakers, realizing that they were talking to prostate cancer survivors as well as to cancer researchers, gave accessible and interesting presentations, and the food was excellent!"

Graham Rose, chair of the Peterborough Prostate Cancer Support Group and a conference delegate, agrees. "The conference was outstanding, in large part because it was co-chaired by CPCN and the CPCRI. It injected a lot of reports on research in prostate cancer into the proceedings, and gave much hope to the cancer survivors who were there."

The conference unfolded in two parts. Friday's sessions validated the ongoing importance of local prostate cancer support groups from several different perspectives, while on Saturday and Sunday, the delegates heard about progress and potential in the area of prostate cancer treatment research.

After opening remarks from CPCN President Bob Shiell, Dr. David Bell from Dalhousie University's Urology Department stressed the importance of support groups working closely with urologists all along the treatment path. His points were "well-made and significant," according to Rose, who said that Dr. Bell's words sent a clear message to support groups to work hard at building these ties. Rose's own local group has a strong alignment with local urologists and hospitals. He cites, in particular, one positive result of this strong connection. "When newly diagnosed patients get in touch with us for a lay consultation, we can be of real help."

John Oliffe (PhD), assistant professor at the UBC School of Nursing, delivered fascinating research into the role of prostate cancer support groups in the promotion of men's health, and Dr. Terry Hill, leader of the Thunder Bay and Area Prostate Support and Awareness Group, shared the benefits of using video conferencing to link support groups separated by a large geographical area.

An inspirational speech by The Honourable David C. Onley, Lieutenant Governor of Ontario, and lively and informative group sessions rounded out the day.

For Graham Rose, the second part of the conference, in which presenters divulged research and expectations developed via more than \$12 million dollars in research funds, really set the event apart from earlier conferences.

"I was struck by the youth and optimism of the presenters," reports Rose. "They lent something that was truly uplifting to the conference and offered a lot of hope. It seems there are no boundaries for these young people doing the research."

"Sometimes, it seems that research on prostate cancer is relegated to a lower position because there are less dollars to spend. But, after this conference, I feel there is a lot of slick action going on."

"I also felt, after hearing what's already being done, that if we were able to raise the financial end of prostate cancer research to the levels available to breast cancer research, we would be able to accomplish even more. I see the research expanding quite a bit over the next ten years, when the inequities of research funding are smoothed out."

"Some of the content was beyond me," Rose admits, "but so much of it was structured to be understandable at a lay level. I can't recall being at a conference where I took so many notes. I just couldn't get it down fast enough." (CPCN is producing a DVD of the conference, which will be available from the CPCN website as soon as possible.)

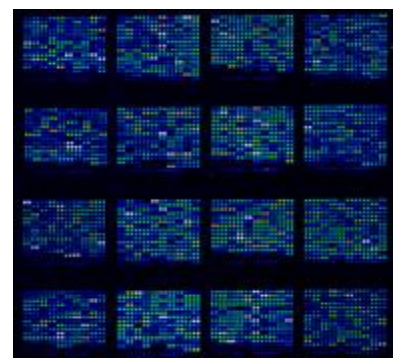
Rose is grateful to the organizations that either subsidized or sponsored prostate cancer support group reps and facilitators to be at the conference. He felt it was beneficial that some of the facilitators at the conference represented other cancer research groups, and he acknowledges the importance of receiving training in group facilitation, training that the Canadian Cancer Society provided to him. Rose was accompanied at the conference by his wife Pat, who has been his constant support throughout his six years as a prostate cancer survivor.

The CPCN placed DVDs about erectile dysfunction and the HIFU laser treatment in each delegate bag; Rose has decided to place his copies in his local group's library of resource material. He also feels that the CD he received about developing group presentations at the local level will be an invaluable tool.

"After this conference, I really do feel hopeful and uplifted about the research that is being done," Rose concludes. "I feel that the image of prostate cancer is really shifting: people are no longer considering it as 'just an old man's disease.'"

## **FISH and CHIPs and prostate cancer: Refining prognosis and treatment by analysing unique tissue genetics**

Men diagnosed with prostate cancer learn pretty quickly to decipher terminology such as T-stage, PSA, and Gleason Score. Why? These words relate to prognosis --- to the medical profession's best guess



concerning how a man's prostate cancer will develop and how it should be treated.

Research scientists are discovering, developing, or refining prognostic tools each working day, so now a man may receive information not only about the level of prostate-specific antigen (PSA) in his blood but also about how quickly that level is increasing (PSA doubling time). He may know not only that his biopsy shows that he has cancer of a particular stage and grade but also whether the cells of his cancer test positive for Ki-67, which indicates that his tumour is actively growing.

But senior research scientist Dr. Robert Bristow looks forward to a future in which specific genes or the novel proteins found in "a patient's blood, urine, or within prostate biopsies ... may help a man choose a therapy based on his unique tissue genetics" --- an individually appropriate, tailor-made treatment.

At a presentation to the recent Prostate Cancer Conference 2007, Dr. Bristow, a clinician-scientist at the Princess Margaret Hospital University Health Network, a professor at the University of Toronto, and a senior researcher at the Ontario Cancer Institute, examined some of these up and coming predictive tests, which he suggests "could substantially alter the way that patients and doctors work together to choose the best prostate cancer therapy." His talk, "FISH and CHIPs: Choosing the best prostate cancer therapy for men using individual tissue signatures," discusses some of the new ways that scientists can gather data about genes and their products (i.e., RNA or proteins).

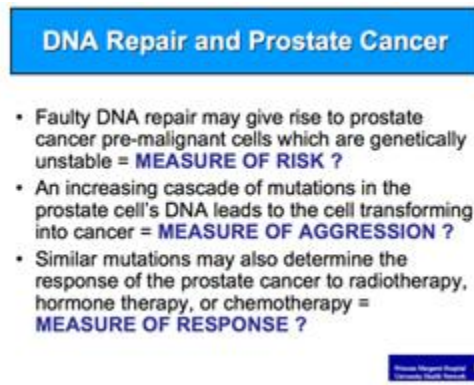
One such method, fluorescent *in situ* hybridization (FISH), uses probes to detect specific features in DNA. "Fluorescent" refers to the technique's use of light to detect these features; "*in situ*," which means "in place," refers to the fact that the technique is done with chromosomes, cells, or tissues from a specific target site; but the hybridization part is a bit trickier to explain. In simple terms, single-strand nucleic acids (modified DNA or RNA strands) labelled with a fluorescent dye are allowed to interact with the sample genetic material, and hybrids (or complexes) are formed by molecules with sufficiently similar, complementary sequences. The process helps researchers and doctors identify chromosomes and parts of chromosomes, discover chromosome rearrangements, and locate genes on chromosomes. Why might this information be important? It can help us predict the aggressiveness of a man's prostate cancer or whether that cancer will respond to particular treatments.

The CHIPs part of Dr. Bristow's presentation informed us about the general usefulness of microarrays (microscopic, ordered sequences of DNA, protein, or tissue), which are presented on a flat surface such as a microchip or a glass slide. These microarrays can give us information about the molecular events involved in prostate cancer, so medical professionals may be able to use them, eventually, to offer a man with prostate cancer a more accurate prognosis and more effective treatments. Bristow lists DNA repair mechanisms, hypoxia, p53, Bax/Bcl-2, EGFR, MDM2, survivin, and p16<sup>INK4a</sup> as among the most promising prognostic indicators under study through the use of FISH and CHIPs technology. Here are a few of these terms and acronyms explained for the non-scientist. (Please note that, although Dr. Bristow's talk inspired this article, he is in no way responsible for developing the following explanations.)

## DNA repair

Tissue microarrays can help clinicians and physicians analyse DNA repair processes and proteins within tumour and normal cells. In fact, a major focus of Dr. Bristow's work is to understand how mammalian cells sense and repair double-strand breaks in DNA.

As he indicated at Prostate Cancer Conference 2007, understanding the relation between DNA repair, or lack of it, and prostate cancer progression may help determine who is at risk of developing prostate cancer, how aggressive a diagnosed prostate cancer is (and how aggressively it should be treated), and which treatments are uniquely appropriate for a particular cancer, given its genetic profile. (The slide is provided courtesy of Dr. Robert Bristow and is from his presentation.)



**DNA Repair and Prostate Cancer**

- Faulty DNA repair may give rise to prostate cancer pre-malignant cells which are genetically unstable = **MEASURE OF RISK ?**
- An increasing cascade of mutations in the prostate cell's DNA leads to the cell transforming into cancer = **MEASURE OF AGGRESSION ?**
- Similar mutations may also determine the response of the prostate cancer to radiotherapy, hormone therapy, or chemotherapy = **MEASURE OF RESPONSE ?**

Prostate Cancer Research

## Hypoxia

In general terms, hypoxia is a condition in which cells are deprived of an adequate oxygen supply. Cancer cells not only adapt to hypoxia, so tumours can survive and grow in oxygen-deprived environments, they also thrive because hypoxia encourages angiogenesis (the formation of new blood vessels), which is so essential for the growth of tumours. According to Bristow, "cancer hypoxia is linked to increased metastatic spread, chromosomal instability, and resistance to chemo- and radiotherapy." So, by using microarrays to analyse cellular responses to hypoxia and to determine the environment in which prostate cancer cells are growing, researchers may one day be able to improve treatments as well as better predict which treatments are necessary and optimal.

## p53

The protein p53, a tumour suppressor, helps regulate the cell cycle, and it plays a key role in ensuring that damaged cells are destroyed by apoptosis (cell death). But if p53 has itself mutated and is no longer working as it should, malignant cells can grow unchecked, and the damaged or mutant p53 accumulates. Consequently, mutant p53 may be useful as a biomarker --- a biological indicator --- that a particular prostate cancer is apt to recur or spread. On the flip side, researchers think that, if they can maintain a higher level of properly functioning p53 in prostate cancer cells, they may be able to induce cell death and stabilize a man's prostate cancer.

## Bcl-2

This protein functions as a blocker of apoptosis (programmed cell death). Research indicates that strong "overexpression of Bcl-2" (meaning finding significantly more than normal amounts of the protein) is associated with high stage, high grade, and metastatic prostate cancer. Bcl-2 has also been associated with the development of androgen-independent prostate cancer, prostate cancer that grows in spite of anti-androgen hormone therapy. Currently, researchers are trying to use Bcl-2 to predict which prostate cancers may be most at risk of progressing to the hormone refractory or androgen-independent stage after treatment. Just to make things even more confusing for the layperson, while Bcl-2 proper is a blocker of cell death, some members of the Bcl-2 family (e.g., Bax, Bak, and Bok) actually encourage cell death. Bax, or Bcl-2-associated X protein, is now being considered in relation to Bcl-2 to determine whether the ratio of Bax to Bcl-2 expression can predict prostate cancer outcomes.

## EGFR

This acronym stands for epidermal growth factor receptor. EGFR is a protein found on the surface of cells, and it binds to EGF (epidermal growth factor). When EGF binds to EGFR, it triggers reactions that cause cells to grow. So it comes as no surprise that EGFR is found at abnormally high levels on the surfaces of many types of cancer cells. EGFR, then, is not only a prognostic marker in prostate cancer but also a potential target for therapy.

### **MDM2**

This acronym stands for a gene and for a protein encoded by that gene. MDM2 acts as a negative regulator of p53; in other words, it inhibits the action of p53. So, because p53 is a tumour suppressor and MDM2 inhibits its activity, MDM2 encourages tumour growth and is bad news for men with prostate cancer. In fact, a study by Dr. Alan Pollack found that detectable MDM2 was associated with a doubling of distant cancer spread and a nearly 10 per cent reduction in five-year survival among the 469 men he studied, men who had been treated with radiation and drugs for prostate cancer. Currently, researchers are investigating the value of MDM2 as a target for prostate cancer therapy.

### **Survivin**

Survivin is also genetic material that inhibits programmed cell death. Although present in the normally developing foetus, it is only detectable in the rapidly growing cells of adults. Consequently, it is frequently seen in cancer cells but almost absent from normal adult cells. High levels of survivin expression in cancer cells seem to indicate aggressive, quickly growing tumours. Again, therapies targeting the effects of survivin may provide novel approaches for the treatment of prostate cancer.

### **p16**

In simple terms, p16 is a tumour suppressor, which is frequently deleted or mutated in a wide range of cancers. A recent study on the prognostic value of p16 in locally advanced prostate cancer determined that "low levels of p16 on image analysis appear to be associated with a significantly higher risk of distant metastases among all study patients" and that "p16 expression levels also appear to identify patients with locally advanced prostate cancer with distinct patterns of failure after LTAD [long-term androgen deprivation]." Just to confuse things, the expression of the related p16<sup>INK4a</sup> appears to increase during prostate cancer progression. According to one study, "because p16<sup>INK4a</sup>-positive cells were detected only in pre-malignant lesions and carcinomas but not in normal or benign tissues, p16<sup>INK4a</sup> may aid in the diagnosis of PIN [prostate intraepithelial neoplasia] and prostate cancer in difficult cases."

It is hard to imagine what prognostic tests, what treatments, and what terms may become commonplace over the next ten years. Many thanks to Dr. Bristow for alerting prostate cancer survivors to the possibility that the names of specific genes and biomarkers may be as well known in the future as the PSA test is today.

## **Surviving prostate cancer: New evidence on how exercise can help**

At the recent prostate cancer conference held in Toronto, Professor Kerry S. Courneya (PhD), Canada Research Chair in Physical Activity and Cancer at the University of Alberta, presented a fascinating and



useful overview of research on physical activity in prostate cancer survivors. What were his conclusions? There is growing evidence that exercise enhances physical functioning, combats fatigue, and improves the quality of life in prostate cancer survivors receiving hormone therapy or radiation therapy.

One Canadian randomized controlled trial examined the effects of resistance training on the quality of life, fatigue, and muscular strength of prostate cancer survivors who were receiving hormone therapy (androgen deprivation therapy). This trial, funded by the National Cancer Institute of Canada and the Canadian Prostate Cancer Research Initiative, found that those who exercised showed significant gains in upper and lower body muscular strength and on measurements of their quality of life. Those who exercised also lowered their levels of fatigue. One piece of perhaps surprising good news: these improvements also held true for men in the exercise group who were receiving palliative hormone therapy. (Access the article "Resistance exercise in men receiving androgen deprivation therapy for prostate cancer.")

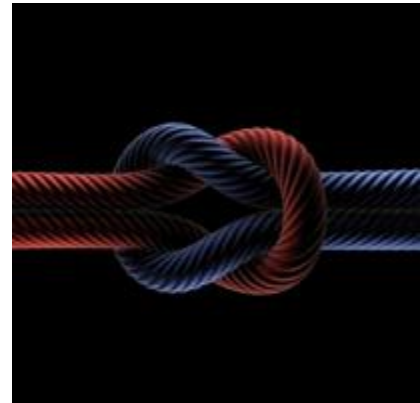
Another randomized controlled trial, this time from Scotland, looked at the effects of aerobic exercise on treatment-related fatigue in men receiving radiotherapy for localized prostate cancer. What did researchers discover? "Men who followed advice to rest and take things easy if they became fatigued demonstrated a slight deterioration in physical functioning and a significant increase in fatigue at the end of radiotherapy. Home-based, moderate-intensity walking produced a significant improvement in physical functioning with no significant increase in fatigue." (Consult the article "A randomized, controlled trial of aerobic exercise for treatment-related fatigue in men receiving radical external beam radiotherapy for localized prostate carcinoma.")

Another, even more recent randomized trial, one led by Roanne Segal of the Ottawa Regional Cancer Centre, compared prostate cancer survivors who received resistance or aerobic exercise training while undergoing radiation therapy with those who did not. Again, results were positive for the men who exercised. Resistance exercise improved men's physical fitness and decreased symptoms of fatigue. Aerobic exercise had the beneficial effect of decreasing the men's body fat, and it exhibited trends toward reducing levels of fatigue. The conclusion: "Depending on patient needs, either form of exercise training could be an important part of supportive care for these patients." (Click here for more information about ["Resistance or aerobic exercise in men receiving radiation therapy for prostate cancer: A randomized trial."](#))

Obviously, exercise appears to be an important aspect of controlling fatigue and contributing to the overall well-being and quality of life of prostate cancer survivors, especially when men are undergoing radiation and hormone therapy. But how much exercise is enough (and how much is too much)? Anna Schwartz, a frequent presenter of cancer nursing research who has an interest in cancer and exercise, offers this insight: "Patients tell me all the time the most important time for them to exercise is when they feel their worst, but it's a balancing act. If people feel worse when they exercise, they should rest. But if you keep saying I'm too tired to exercise today, and tomorrow, over time you start to get the debilitating effects of not using your body." Professor Courneya also recommends that men engage in what exercise is possible for them while, at the same time, listening to their bodies. For more concrete advice, he suggests that men consult a report that he helped to write: ["Nutrition and physical activity during and after cancer treatment: An American Cancer Society guide for informed choices."](#) For a condensed version of this report, visit the American Cancer Society website and go to "The complete guide: Nutrition and physical activity."

## Reef Knot Award Winners 2007

Three men were honoured at the CPCN reception held Thursday evening during the 2007 prostate cancer conference. D. H. Curtis LeGrow, Steve Smith (a.k.a. Red Green), and Dr. Paul Whelan were each presented with a Canadian Prostate Cancer Reef Knot Award acknowledging their excellent service in the fight against prostate cancer.



D.H. Curtis LeGrow has been active for many years in building support networks for men with prostate cancer and in raising public awareness of the disease. He has served these causes both at the provincial and national level from positions of leadership, having been, at various times, the chair, co-chair, or director of support groups, committees, and networks in his own province and beyond. D.H. Curtis LeGrow's Reef Knot Award citation acknowledges his "untiring efforts in furthering the awareness and support of prostate cancer in Newfoundland and Labrador" and "his dedicated service as both a Director and Chairman of the Canadian Prostate Cancer Network." But the Reef Knot Award is not the only recognition of the excellence of Curtis LeGrow's work. In 2001, he was awarded the prestigious Canadian Cancer Society Citation of Merit, in part, for his service as co-chair of the Walk A Mile In His Shoes Committee. This initiative, which sees prostate cancer survivors, their friends and family, and community members collect pledges and participate in a walk, is still going strong. According to a recent article, Walk A Mile In His Shoes continues to be the most successful prostate cancer awareness program in Newfoundland/Labrador. In 2006, walkers at 30 separate sites raised more than \$90,000.

Steve Smith (a.k.a. Red Green) has lent his name and his fame to one of the most successful Canadian Prostate Cancer Network campaigns ever. Two very effective television public service announcements featured the king of duct tape. In the announcements, and very much in character, Red Green directs men to talk to their doctors and "get tested" for prostate cancer. The main message: "Remember, you're never too old to do something smart!" CPCN also produced and distributed brochures, posters, bookmarks, and rack cards sporting Red Green's picture and versions of the same message. As CPCN President Bob Shiell remarked at the time, "This is some of the best exposure we could ever hope for." And Red Green and his team were active participants in developing this campaign. Shocked by information on the prevalence of prostate cancer and with his awareness of the disease raised because of the experiences of a friend, Steve Smith was determined to help. "I began to get the sense that I could help to raise awareness on a national level," says Smith. "I get correspondence from this age group all the time, and I thought that there might be something I could do to help reach these men and get them to think about prostate health." Mission accomplished!

Dr. Paul Whelan, founding director of the McMaster Institute of Urology and the Braley-Gordon chair of Urology at McMaster University, was also instrumental in developing the public awareness campaign featuring friend and occasional golf partner Steve Smith. The story goes that Dr. Whelan invited Smith to a special men-only evening entitled "It's A Man's Thing." The evening, which was hosted by the McMaster Institute of Urology, included a dinner and various presentations on prostate health. Not long after, Whelan and Smith began talking about what Red Green might do to raise prostate cancer awareness.

But Dr. Paul Whelan is a Reef Knot Award winner for many other reasons. He is a tireless advocate for the improvement of surgical and urological care. His vision for the McMaster Institute of Urology is to create an integrated academic and clinical centre that will "provide the best clinical care, education, and research in Canada," as well as "leading edge technology and sensitive, compassionate care." And his efforts have turned St. Joseph's Healthcare Hamilton into one of the busiest laparoscopic prostate surgery centres in Canada. The Reef Knot Award also recognizes Dr. Whelan's "distinguished career in research and surgical innovation relating to prostate cancer" and "his advocacy in stressing the importance of early detection and lay support in the treatment of the disease."

The Canadian Prostate Cancer Network is very grateful to these three men.