Manitoba researchers set sights on cancer vaccine

Is it possible to develop vaccines to inhibit the growth of cancer? Two Manitoba researchers think it is, and are working to isolate genetic differences between invasive breast cancer and metastasis — the initial step in a process they hope will lead to a treatment to retard the growth of malignant cells in humans.

Drs. Leigh Murphy and Peter Watson of the University of Manitoba have already shown that a genetic difference exists between early stages of breast cancer. They used a new strategy that allows them to identify differentially expressed genes from microdissected regions of in situ and invasive breast cancer isolated from the same patient; the process requires only tiny amounts of RNA (Leygue ER, Watson PH, Murphy LC. Identification of differentially expressed genes using minute amounts of RNA. *BioTechniques* 1996;21:1008-12).

Now, Murphy and Watson will apply this novel technology to isolate genetic differences between invasive breast cancer and metastasis. The scientists say that the identification of differentially expressed genes is critical if scientists are to understand the molecular mechanisms underlying both normal and pathophysiologic events. "If we can fully understand the process by which genes are linked to the progression of breast cancers, then the potential to develop a treatment is increased," says Murphy, a professor in the University of Manitoba's Department of Biochemistry and Molecular Biology. "At this point it's too early to predict what that treatment might be, but a therapeutic vaccine is possible."

Watson, a pathologist and associate professor in the university's Faculty of Medicine, is director of the Manitoba Breast Cancer Tissue Bank. He says samples of cancer tissue gathered from Manitoba women will be used in the research.

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The scientists are the first to receive a grant from the worldwide Pasteur Merieux Connaught Cancer Vaccine Network, which will inject $350 million over 10 years to fund research designed to find and develop therapeutic cancer vaccines; they received a 2-year grant worth $150 800.

Dr. Neil Berinstein, assistant vice-president of clinical oncology for Pasteur Merieux Connaught, says the research offers an insight into the way breast cancer develops. "These discoveries may give us new places to look for therapeutic interventions."

The federal government's Technology Partnerships Canada Program has invested $60 million in the network, while other Canadian agencies and organizations will contribute about $25 million. — © *David Square*

Drs. Peter Watson and Leigh Murphy: identifying differentially expressed genes