



The Princess Margaret
Hospital Foundation
University Health Network

mesothelioma research program



program update 2009

We are pleased to provide you with an update of progress made over the past year in the Mesothelioma Research Program at The Princess Margaret/University Health Network. Here are a number of distinct but inter-related projects encompassed within the Program. Progress in each of these areas will be summarized individually.

the early detection project

This research study is designed to detect mesothelioma and lung cancer at an early stage using low-dose computed tomography. The aim is to screen people who have either a strong history or chest x-ray evidence of asbestos exposure.

We have screened over 900 participants and this study continues to grow under the leadership of Dr. Demetris Patsios and our project coordinator Brenda O'Sullivan.

To date, five cases of malignant pleural mesothelioma, four cases of malignant peritoneal mesothelioma and eight cases of lung cancers have been discovered since the study was launched in March 2005. One case of the malignant pleural mesothelioma was detected at an early stage and has been included in our new clinical trial treatment for early stage mesothelioma, which involves using short course of radiation followed by surgery (see below for a description of the studies). We continue to actively recruit individuals to this study from high-risk occupations.



Dr. Demetris Patsios

identifying risk factors in mesothelioma patients

Many people are exposed to asbestos. Yet, only a small proportion develops mesothelioma. Drs. Geoffrey Liu and Ming Tsao, two physicians and scientists at the Ontario Cancer Institute and Princess Margaret Hospital, are studying the interaction between asbestos exposure (such as the amount of exposure and the type of asbestos) and genetic (inherited) factors that determine how the body responds to asbestos.

Studies are underway to determine the genetic factors associated with a patient's response to drug therapy, while other studies are focused on developing animal models of human mesothelioma to better understand the basic mechanisms of this cancer.



Dr. Geoffrey Liu



Dr. Ming Tsao

This year we have collected over 350 blood samples for analysis, and have begun looking at biomarkers (proteins in the blood) that can predict for either the presence of mesothelioma, or for predicting how well someone does after diagnosis. These samples represent the largest set of samples in Canada and one of the largest set of samples around the world related to mesothelioma from all causes, and will contribute greatly to our understanding of this disease, how to diagnose it, and how to treat it over time.

development of immunomodulation therapy

Drs. Masaki Anraku and Marc de Perrot, previously reported that *cytotoxic* CD8 T-lymphocytes play a critical role in tumor-cell killing in human malignant pleural mesothelioma. We have also shown that the existence of *regulatory* T-lymphocytes (cytotoxic T-lymphocyte suppresser) was associated with poor survival in patients with MPM. We hypothesized that *regulatory* T-lymphocytes blockade or *cytotoxic* tumor-killing T cell transfer can be an immunomodulating therapy that results in better survival. We have started some preliminary work to block *regulatory* T-lymphocytes with specific chemotherapy and to expand *cytotoxic* T cells from fresh human mesothelioma tumors in an *ex vivo* culture system. Our goal is to establish this culture system to expand the *cytotoxic* tumor-killing T cells, and to transfer the expanded T-cells back to patients to help killing residual tumors after surgery and chemotherapy. This type of treatment holds great promise and should be available for clinical trials soon.

blood tests for the early detection of mesothelioma

Dr. Marc de Perrot, a surgeon scientist at Princess Margaret Hospital and the University Health Network, is investigating *mesothelin* and *osteopontin*, two mesothelioma markers, to detect early disease in populations exposed to asbestos. Blood tumour markers, which are proteins associated with tumours are frequently used to help diagnose various cancers, to follow response to treatment and to help diagnose cancer early. Working in collaboration with Drs. Liu and Tsao our hope is that by understanding these factors, we can identify new treatments for this deadly disease. Combining these tumour markers with screening CT scans may provide an even earlier detection of mesothelioma than CT scans alone. Our screening program should therefore lead to more patients being diagnosed at an earlier stage of the disease, which gives them greater hope for a cure. Furthermore, these markers can be used to detect recurrence of the disease as well as measure the effectiveness of treatment.



Drs. Masaki Anraku and Marc de Perrot in the operating Room

viral therapy for peritoneal mesothelioma

While mesothelioma often affects the lining of the chest cavity (pleural mesothelioma), it can also affect the lining of the abdominal cavity, a condition known as peritoneal mesothelioma. Dr. Andrea McCart, a surgeon scientist at Mount Sinai Hospital and University Health Network is developing oncolytic viruses, viruses which specifically infect and kill cancer cells, as a treatment for peritoneal cancers including peritoneal mesothelioma. Because peritoneal mesothelioma is often caught too late, it is impossible to remove it safely by surgery alone. Dr. McCart hopes that after surgery to remove the majority of the cancer, the virus will target the remaining disease and lead to improved outcomes from this devastating problem. Dr. McCart, in collaboration with Dr. de Perrot, is developing laboratory animal models of peritoneal mesothelioma to test this combined surgery and virus treatment. If successful, this could lead to a treatment for patients in the very near future.



Dr. Andrea McCart

ongoing treatment studies for patients with mesothelioma

Mesotheliomas are rare tumours affecting the lining around the lungs, often with poor prognoses. The Princess Margaret Hospital and Toronto General Hospital at the University Health Network are committed to finding a cure and always striving to improve clinical outcomes for this serious disease. Drs. John Cho, Marc de Perrot and Ron Feld are clinical oncologists looking at combining chemotherapy, surgery and radiotherapy in different ways in order to obtain better outcomes and to reduce treatment side effects.



Dr. John Cho



Dr. Ron Feld

announcement from dr. heidi roberts



I am very pleased to announce that Dr. Marc de Perrot recently has become the Head of the Mesothelioma Research Program. Dr. de Perrot oversees almost all areas of the mesothelioma research at UHN, from animal studies to biomarkers and surgical techniques. He is closely collaborating with all of the other research endeavours, including the still growing screening study, which is headed by Dr. Demetris Patsios. Under Marc's leadership we can expect continued and strong advancement in the Mesothelioma Research Program.

Congratulations to Marc!

Dr. Heidi Roberts

dr. marc de perrot

As a member of the mesothelioma research group for the past several years, I have been impressed by the collaborative effort that has been ongoing at all levels in our institution to improve our knowledge in the biology, diagnosis and treatment of this devastating disease. It is with great pleasure that I will take over the leadership of the mesothelioma research group.



Dr. Marc de Perrot

support for the mesothelioma research program provided by:

- Asbestos Workers Local 110
- Building and Construction Trades Council of Ontario
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- and many others

To participate in the Mesothelioma Research Program, please call: 416.340.5686

For further information or details on how to support this program, please contact:

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