



## A breath of hope at the INRS for lung cancer research

Last January, Quebec's scientific research institute, the INRS, received a grant of \$697,950 from the Quebec Ministry of Economic Development, Innovation and Export Trade under the technology development support program, a component of the 2010-2013 Quebec Research and Innovation Strategy. This aid will fund a clinical trial on a drug combination to combat lung cancer discovered by research professor Michel Charbonneau's team at the INRS–Institut Armand-Frappier university centre. The cost of this important project is estimated at more than \$1.7 million.

Already, the laboratory results are very promising. In fact, researchers have observed that the combination of two molecules, genistein and decitabine (5-AZA-CdR), have a synergistic effect, reducing the proliferation of cancer cells in the lung, breast and colon, as well as leukemic cells. They have also demonstrated that this new combination is effective in attacking cells that are resistant to chemotherapy, which are numerous in patients with lung cancer.

Accordingly, in Phase I, Dr. Charbonneau will need to demonstrate the harmlessness of the combination and determine the ideal dose to administer to patients. He will then need to demonstrate its effectiveness, on a small scale, in lung cancer patients. But why target this type of cancer exclusively when fundamental research suggests that the combination could also combat other cancers? "In clinical trials, we need to target one pathology," explains Dr. Charbonneau. "We've chosen lung cancer, because the survival rate is very low. Every year in Canada, 24,000 people are diagnosed with lung cancer and more than 20,000 die from it. In the advanced stages of lung cancer—and that's in the majority of cases—there are no other therapeutic options apart from chemotherapy, as opposed to breast or colon cancer, for example. Of course, if we obtain interesting results, we will then do studies on other cancers."

Dr. Charbonneau's team intends to complete Phase IIa of the clinical trial in September 2012. If the results are convincing, Phase III will be launched. This would be a large-scale multicentric study that would run for two to five years. It is not until these trials are completed, and only if the health benefits outweigh any potential side effects, that the product will be marketed. "If the Phase IIa trial results are as outstanding as the lab results, patients will be able to benefit from the drug under a compassionate program, in other words, before it becomes commercially available," adds Dr. Charbonneau.



Left to right: Dr. Alain Richard (Gestion Valeo), Dr. Patrick Colin (Uman Pharma and INRS), Dr. Luc Daigneault (SciMega Recherche), François Le Barbenchon (SciMega Recherche), Sabin Boily (Gestion Valeo), Dr. Daniel Coderre (INRS), Guy Ouellette (Government of Quebec), Dr. Michel Charbonneau (INRS), Dr. Richard Momparler (Université de Montréal), Dr. Dale Meisner (Uman Pharma).  
– Photographer: Denis Bernier.

In the meantime, the professor's team and his partners are keeping busy. Uman Pharma, a Quebec pharmaceutical company specializing in manufacturing injectable cytotoxic products and the only company in Canada certified to do so, is preparing batches of drugs for use in the trial. The Dutch multinational DSM is supplying genistein as well as all medical documentation on the molecule. Together, the two partners will inject over a million dollars into the project.

"This partnership between academia, the pharmaceutical world and the government definitely speeds up the drug development process, which will ultimately help save lives while creating value for our society," concludes Dr. Charbonneau.

Source: [www.communiqes.gouv.qc.ca](http://www.communiqes.gouv.qc.ca)

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