



## Immune system research wins national award

by Steve Lillebuen

May 2, 2005 - If slow and steady wins the race, then Dr. Chris Bleackley is well on his way to establishing revolutionary new treatments for cancer.

Bleackley and his research team were recently awarded the 2005 Roche Diagnostics Award, which recognizes their record for outstanding discoveries in cellular biology over a number of years and is considered Canada's top achievement in molecular research.

More than 15 years ago, Bleackley discovered granzyme B, an immune system molecule that kills diseased cells. The killer immune system cells inject granzyme B into diseased cells, and this triggers a suicide switch within them. Bleackley and his team later proved that diseased cells hold fewer receptors for granzyme B and therefore elude the molecule's deadly effects. This explains how diseases outrun the immune system and continue to grow.

"The whole approach to this research is to understand disease processes so that we can then correct them," Bleackley said. "We believe that if we can understand how these cells function we can either increase immunity, in the case of a cancer patient, or we can decrease it, in the case of autoimmune disease. So, we've got to understand how it all connects together at a molecular level."

Their recent discoveries have shown that a class of molecules is involved in blocking cell death and this has led to a refinement of their granzyme B model.

"To use a car analogy," he said, "if the granzyme B is like putting your foot on the accelerator, we've then discovered that there's a handbrake aspect to this model. If the granzyme puts the foot on the accelerator and the handbrake is still on, you won't go anywhere — you have to remove that handbrake first."

Bleackley's discoveries have wide applications, including treatments for cancer, AIDS and organ transplant rejection. He said that as you dig deeper into understanding the molecular structure of cells, you can start to create treatments that target disease with far fewer side effects.

"Right now I think a lot of the treatments for cancer are very traumatic for the patient because there are so many side effects. Our approach at a molecular level will be much more specific. You'll be able to target the destruction of tumour cells, and you won't have the terrible effects that you have with radio- and chemotherapy."

His research has recently left the model phase and is directly looking at tumour cells in human cases. This signals the end of the beginning of a long journey that will eventually create new forms of disease treatment based on refining immunity. Bleackley says that receiving these prestigious awards are therefore reminders that the slow research process is valuable in order to make these significant breakthroughs.

"It's fantastic to be recognized by your peers because they're often your worst critics," he said. "But I really believe a lot of the success I have today is due to the support I got in the early days from the U of A, the Alberta Heritage Foundation and a team of really talented colleagues and students. To continue to win awards is validation that our work over a number of years is actually worthwhile."

Bleackley is no stranger to national attention. As a Canada Research Chair, he was awarded the Robert L. Noble Prize, Canada's top award for cancer research, and in 2002 he was made a Fellow of the Royal Society of Canada.

Address of this ExpressNews article:

<http://www.expressnews.ualberta.ca/article.cfm?id=6593>



Dr. Chris Bleackley

### Related ExpressNews Articles

[Bleackley named Canada's top cancer researcher](http://www.expressnews.ualberta.ca/expressnews/article.cfm?id=318)

<http://www.expressnews.ualberta.ca/expressnews/article.cfm?id=318>

[Immune cell breakthrough built over many years](http://www.expressnews.ualberta.ca/expressnews/article.cfm?id=505)

<http://www.expressnews.ualberta.ca/expressnews/article.cfm?id=505>

#### **Related Internal Links**

[The U of A Department of Biochemistry:](http://www.biochem.ualberta.ca/)

<http://www.biochem.ualberta.ca/>

[Dr. Chris Bleackley's U of A homepage:](http://www.biochem.ualberta.ca/content.php?id=2&faculty=2)

<http://www.biochem.ualberta.ca/content.php?id=2&faculty=2>

#### **Related External Links**

[The Canadian Society of Biochemistry, Molecular and Cell Biology:](http://www.csbmcb.ca)

<http://www.csbmcb.ca>



Copyright © 2002-2007

[University of Alberta](#)

[UofA Web Project](#)

[Privacy Policy](#)