

# Research News

umanitoba.ca/research

## Upcoming

### Smartpark Interactive Breakfast Speaker Series

Thursday, October 24  
Smartpark Lobby Boardroom  
*'The Power 30'* with  
**Mr. Arni Thorsteinson**  
President  
Shelter Canadian Properties

Seating is limited. Please email wiebe7@cc.umanitoba.ca or call 480-1434 to reserve your seat today.

### Business of Science Symposium

October 25 & 26  
The Fairmont Winnipeg

*"From Idea to Execution:  
Understanding Critical  
Success Factors and  
Realizing Opportunities"*

The Business of Science Symposium provides a forum to learn new strategies, hear the latest developments and create important industry relationships.

For more information visit their website: [www.businessofscience.org](http://www.businessofscience.org)

### New Faculty Orientation

#### Animal Care and Use

Presented by

**Dr. Nora Lewis**

Director,

Animal Care and Use Program

November 2, 12:00 - 1:00 pm  
S211 Medical Services Bldg.  
Bannatyne Campus

This session will address:

- protocol submissions
- veterinary and facility services
- contact information

All NEW faculty are encouraged to attend. Refreshments will be served. For more information, contact Denise Borowski at 789-3960 or email: [borowski@ms.umanitoba.ca](mailto:borowski@ms.umanitoba.ca)

### Get to know Research at your University Speaker Series

November 15, 7:00 pm  
Smartpark Lobby Boardroom  
with

**Dr. Cyrus Shafai**

Assistant Professor

Electrical and Computer Engineering

*Nanotechnology: Impacting  
Our Day-to-Day Lives*

For more information, please call Kimberley at 474-9020.

## Mechanisms of memory

BY FRANK NOLAN  
Research Promotion

In the last few days, you've probably experienced some kind of memory lapse. Maybe you forgot where you left your keys, or perhaps you couldn't remember a phone number you've known for years. For most of us, these episodes are a minor frustration, and they pale in comparison to the daily hardships faced by people with severe memory deficits.

"Memory deficits are involved in a number of different diseases, including Alzheimer's disease, diabetes, epilepsy and cerebral palsy, as well as things like stroke and head trauma," said Benedict Albensi, pharmacology and therapeutics. "It has a huge impact on society at a number of different ages, including neonatal, middle-aged and aged populations."

Albensi's lab at the St. Boniface General Hospital Research Centre is looking at how memory works at the molecular, cellular and whole-animal levels, and his program is the only comprehensive, multi-disciplinary memory deficits research program in Manitoba.

One aspect of his research is aimed at understanding the "plastic mechanisms" that control memory encoding, including the role of calcium in memory and seizure disorders.

"Calcium plays a very important role in normal memory, but when calcium regulation is disrupted, and there is too much intracellular calcium present for prolonged periods, it can cause serious problems," he said.

Albensi is studying the role of a transcription factor, called NF- $\kappa$ B, which may be involved in memory formation. Like calcium, NF- $\kappa$ B activation might be necessary for normal memory formation, and Albensi's team is investigating whether or not this transcription factor is also abnormally activated in memory impairments like Alzheimer's dementia.

"It's known that when intra-cellular calcium increases, NF- $\kappa$ B increases," he said. "We also know that in the central nervous system and in memory regions of the brain, NF- $\kappa$ B is increased after acute brain injury, and it's also increased

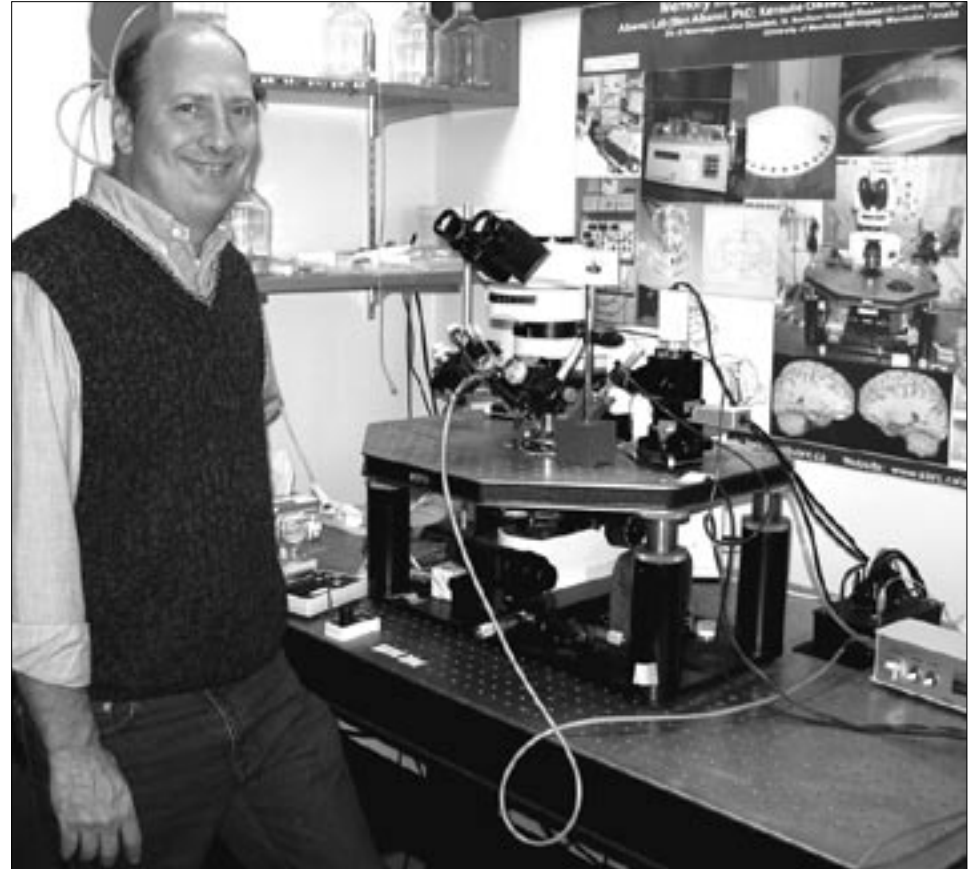


Photo by Frank Nolan

**Benedict Albensi, pharmacology and therapeutics, is leading a number of research collaborations focused on understanding memory deficits.**

in chronic conditions like Alzheimer's disease. Our goal is to pin down whether or not NF- $\kappa$ B is as involved in memory as we hypothesize it might be."

Ultimately, this line of Albensi's research is aimed at developing new therapeutic strategies for combating memory deficits.

"We want to figure out which targets would be best for pharmacological intervention, and if we can identify a good target in the next five or ten years, then we'll really have accomplished something."

Over the last 18 months, Albensi has been awarded a number of significant research grants, including \$100,000 from the Scottish Rite Charitable Foundation of Canada awarded in October 2006. He has also received a \$100,000 operating grant and a \$100,000 establishment grant from the Manitoba Health Research Council.

One of the things that makes Albensi's program unique is the

high level of collaboration involved. For example, he has developed an innovative collaboration focused on the use of electrical stimulation to alleviate seizures. This project includes researchers from the department of electrical and computer engineering, as well as those with expertise in MRI physics, neuropathology and neurosurgery.

"We're also doing behavioural research to see how memory is affected in the living animal, and in the next couple of years we're planning to look at neonatal stroke and its effect on memory," he said. "In this day and age, you really have to have a wide range of collaborators and consultants. We're building a program aimed at understanding memory from every angle, and that requires a lot of different technical and clinical expertise. We've been very fortunate to develop such good, collaborative relationships in a relatively short time."

## New studies on pulse crops

BY FRANK NOLAN  
Research Promotion

On October 12, Pulse Canada announced \$1.25 million in new funding for human clinical trials studying the health benefits of eating pulse crops, including peas, beans and lentils. Part of the Pulse Innovation Project, the funding supports five major studies, including two at the University of Manitoba that have been awarded a total of close to \$500,000.

Peter Jones, director of the Richardson Centre for Functional Foods and Nutraceuticals, and Canada Research Chair in nutrition and functional foods, leads one study

that has been awarded \$250,000. This clinical trial will examine the effects of consuming pulse crops on blood cholesterol levels and other parameters related to diabetes, obesity and cancer.

The project also involves Trust Beta, food science, Curtis Rempel from the Richardson Centre for Functional Foods and Nutraceuticals, and Linda Malcolmson from the Canadian International Grains Institute.

The second clinical trial is led by Peter Zahradka, physiology, director of the Canadian Centre for Agri-Food Research in Health and Medicine at the St. Boniface General Hospital Research

Centre. This study has received \$246,000 to look at the effects of daily pulse consumption on cardiovascular health, with a particular focus on blood vessel function and the prevention of atherosclerosis, or hardening of the arteries.

This study includes collaborators Carla Taylor, human nutritional sciences, and Randy Guzman, surgery.

Pulse Canada is a national industry association that represents provincial pulse grower groups from Alberta, Saskatchewan, Manitoba and Ontario, and members of the pulse trade from across Canada.

# Bringing Research To Life

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