



[Contact](#) [Maps](#) [WebMail](#)



Search

Search ▶

Find People

Find ▶

NewsCenter All Northwestern

70°F



Northwestern University > NewsCenter > Story

Contact the Editor

- 847-491-5001
- news@northwestern.edu

Bookmark & Share



Past News By Category

- Arts
- Campus
- Community
- Events
- People
- Research



Other Resources

- Emergency Communication
- Media Relations Staff
- Experts Guide
- Northwestern Facts

June 26 | [Research](#)

MEDIA CONTACT: Megan Fellman at 847-491-3115 or fellman@northwestern.edu

NCI Grant Launches Clinical Trials For Colon Cancer Screening

EVANSTON, Ill. --- A Northwestern University biomedical engineer who has developed optical technology shown to be effective for the early detection of colon cancer has received a \$7.5 million grant over five years from the [National Cancer Institute](#) to further study an instrument that potentially could become a routine colon cancer screening test and to launch large-scale clinical trials.

Colon cancer is the second-leading cause of cancer deaths in the United States; more than 50,000 Americans die each year of the disease. Colon cancer, however, can be easily treated if detected early. But no existing population-wide screening test can accurately predict the presence of the disease with adequate sensitivity.

[Vadim Backman](#), principal investigator for the grant and professor of biomedical engineering at Northwestern's [McCormick School of Engineering and Applied Science](#), believes the technology he has developed could lead to the first such test. A major part of the NCI grant is to validate the technology and have it ready for commercialization.

Backman is leading a diverse group of researchers from Northwestern and the four hospitals conducting the clinical trials -- Evanston Northwestern Healthcare, the University of Chicago Medical Center, Stanford University and Indiana University -- to develop an inexpensive, non-invasive test for routine colon cancer screening.

In the future, it is possible that the simple test would be conducted by a primary care physician during an annual exam. Only patients with abnormal results would go on to have the more invasive and expensive colonoscopy.

The clinical trials will include two studies. The first study of 1,000 patients will be to finalize the technology to be used in the test (making sure it can be used clinically and is practical) and to define the technology's prediction rules; the second will be a double-blind study of 3,000 patients.

The screening test, which does not require bowel preparation, will be done in patients about a week before a colonoscopy. Each person will have a colonoscopy even if the results from the screening test are negative in order to correlate the screening results with the colonoscopy results.

"Our hope is that similar to how the routine pap smear drastically reduced deaths from cervical cancer, this new technology could do the same when it comes to colon cancer," said Backman.

Backman's optical technique takes advantage of certain light scattering effects and is minimally invasive. The method can detect abnormal changes in cells lining the colon long before those changes can be seen under a microscope, and even before polyps form.

The extraordinarily sensitive technique involves a simple fiber optic probe roughly the size of a pen being inserted into the rectum. Light shines on the tissue at the base of the colon, scatters and some of that light bounces back to sensors in the probe. A computer analyzes the pattern of light scattering, looking for the "fingerprint" of carcinogenesis in the nanoarchitecture of the cells.

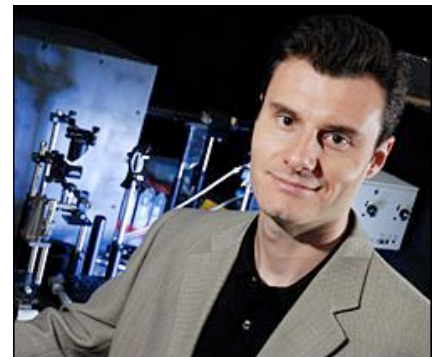
"If you have a precancerous lesion in one part of the colon," said Backman, "even tissue that looks normal and is located far from the lesion or polyp will have molecular and other kinds of changes. It's the biological phenomenon called the 'field effect.' No one can detect these changes earlier than we can."

The grant also is funding basic science research to better understand the mechanisms behind the changes in the nanoarchitecture of the cells.

The method combines two complementary technologies developed by Backman and colleagues in his lab: four-dimensional elastic light-scattering fingerprinting (4D-ELF) and low-coherence enhanced backscattering spectroscopy (LEBS).

The grant to Northwestern is part of the National Cancer Institute's Bioengineering Research Partnership (BRP) program and is the only BRP grant funded by the institute this year. A BRP is a multi-disciplinary research team applying an integrative, systems approach to develop knowledge and methods to prevent, detect, diagnose or treat disease.






The site leaders at the four hospitals are Hemant K. Roy, M.D., Evanston Northwestern Healthcare; David Rubin, M.D., the University of Chicago Medical Center; Jacque Van-Dam, M.D., Stanford University; and Douglas Rex, M.D., Indiana



Vadim Backman
Photo by Sam Levitan

University.

The three other investigators from Northwestern are Borko Jovanovic, associate professor in preventive medicine at the Feinberg School of Medicine; Xu Li, assistant professor of electrical engineering and computer science and of biomedical engineering; and Allen Taflove, professor of electrical engineering and computer science.

The study is seeking and enrolling subjects into these clinical trials. To learn more about the trials and to find out if you might qualify, contact Hemant K. Roy, M.D., at (888) 364-6400.     

[Academics](#) | [Admissions](#) | [Athletics](#) | [Business and Industry](#) | [Computing and Technology](#) | [Diversity](#) | [Giving](#) | [Jobs](#) | [Libraries](#) | [Life at Northwestern](#) | [Offices and Departments](#) | [Research](#) | [Visiting Campus](#) | [Students](#) | [Faculty and Staff](#) | [Alumni Association](#) | [Prospective Students](#) |

Northwestern University 633 Clark Street Evanston, IL 60208

Evanston: 847-491-3741 Chicago: 312-503-8649 E-mail: webmaster@northwestern.edu

Last updated 07/02/2008 [World Wide Web Disclaimer](#) and [Policy Statements](#) © 2008 Northwestern University