



MIT Lincoln Laboratory Seminar Series at Northeastern University 2008



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"To promote strong collaboration and inspire new ideas"

22 January
3:00 PM

Dana Research Center 442
100 Forsyth Street

CANARY Sensor for Rapid, Sensitive Identification of Pathogens



**Dr. Todd
Rider**

**Biosensor and
Molecular Technologies
Group**

Abstract

We have developed a new type of sensor, dubbed CANARY (Cellular Analysis and Notification of Antigen Risks and Yields), that is able to identify pathogens in a very rapid, sensitive, and specific manner. The sensor uses genetically engineered white blood cells that emit light within seconds after being exposed to particular pathogens of interest. We have produced cells to identify a variety of bacteria and viruses, including anthrax, smallpox, plague, E. coli, and foot-and-mouth virus, and we have shown that the cells can detect fewer than 50 pathogen particles. Because of its speed and sensitivity, CANARY has the potential to revolutionize biodefense, medical diagnostics, food- and water-quality monitoring, and other applications.

About the Speaker

Todd H. Rider is the senior staff scientist in MIT Lincoln Laboratory's Biosensor and Molecular Technologies group, where he has worked since 1997 to invent novel biotechnology projects by combining molecular and cellular biology tools with a systems engineering approach. He studied both biology and engineering at MIT, including coursework at the Harvard Medical School, and received his Ph.D. in 1995. After joining Lincoln Laboratory, he invented the CANARY B-cell sensor and genetically engineered and demonstrated the first cells for the sensor. In addition to designing subsequent improvements to the CANARY cells, he has been developing novel antimicrobial therapeutics and working on genetic techniques for improving the efficiency of biofuel cells.

30 October



**Dr. Mark
Weber**

Weather Sensing
Group

13 November



**Dr. Steve
Spector**

Submicrometer
Technology Group

4 December



**Dr. Brian
Aull**

Advanced Imaging
Technology
Group

11 December



**Dr. Nancy
List**

Advanced Satcom
Systems and Operations
Group

18 December



**Dr. Jeff
Wysocarski**

Advanced Satcom
Systems and Operations
Group

8 January



**Dr. J. Scott
Stuart**

Space Control
Systems
Group

15 January



**Lawrence
Bush**

Intelligence and
Decision Technologies
Group