

The Biotechnology Initiative Lectures

Tuesday, April 6, 2010

	Room 206, Accolade West Building, York University (capacity 300)	Room 005, Accolade West Building, York University (capacity 120)
10:00 a.m.	"Stem cell based therapies and technologies for regenerative medicine" Dr. Peter Zandstra, University of Toronto	"Not your Father's Scientist: The Business of Drug Development" Dr. George Nikopoulos, Nucro-Technics Ltd.
11:00 a.m.	"NMR spectroscopy - how big magnets produce discoveries in molecular medicine" Dr. Logan Donaldson, York University	"Crime Science" Speaker from the Centre of Forensic Sciences
Noon	"Between Parasites and Planets: Science in the Muddled Middle" Dr. David Waltner-Toews University of Guelph	"The unconventional gene expression strategies of an RNA virus" Ms Beth Nicholson, York University
1:00 p.m.	"Crime Science" Speaker from the Centre of Forensic Sciences	"Green mining: Harnessing the power of environmental bacteria" Ms. Kelsey Norlund, McMaster University

Wednesday, April 7, 2010

	Conference Room, 5th Floor, Research Tower, York University, (capacity 100)
10:00 a.m.	"Exploiting phage and phage-encoded systems for the design of novel therapeutics" Dr. Roderick Slavcev, University of Waterloo
11:00 a.m.	"Rocket science is for kids. Cancer research is for you." Dr. Michelle Braza, Ontario Cancer Research Institute
Noon	"The key to endurance performance and health: the mitochondrial powerhouse of muscle". Dr. David Hood, York University
1:00 p.m.	"DNA testing and the secret lives of birds" Dr. Bridget Stutchbury, York University

The Merck Frosst "Exploring Minds" Workshops

Tuesday, April 6, 2010		Wednesday, April 7, 2010	
	Room 280, York Lanes, York University (capacity 90)		Room 280, York Lanes, York University (capacity 90)
10:00 a.m.	"A MICROBIAL MYSTERY" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College		"A MICROBIAL MYSTERY" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College
11:00 a.m.	"FRONTIER IN GENOMICS" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College		"FRONTIER IN GENOMICS" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College
Noon			
1:00 p.m.	"CSI AT HOME AND IN THE LAB" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College		"CSI AT HOME AND IN THE LAB" Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College

The Biotechnology Initiative Lecture Outlines

(Program with Ontario Curriculum links)

Tuesday, April 6th, 10:00 a.m. West Accolade Building, Room 206

"STEM CELL BASED THERAPIES AND TECHNOLOGIES FOR REGENERATIVE MEDICINE"
(Dr. Peter Zandstra, Canada Research Chair in Stem Cell Bioengineering, University of Toronto)

Research in Dr. Zandstra's Laboratory is focused on the generation of functional tissue from adult and embryonic stem cells. This presentation explores research to understand the fundamental mechanisms that control stem cell fate so that their might be used to repair damaged heart tissue.

- Genetics (Gr. 11 – SBI3C)
- Cellular Biology (Gr. 11-SBI3C)
- Genetic Processes (Gr. 11-SBI3U)
- Evolution (Gr. 11-SBI3U)
- Diversity of Living Things (Gr. 11-SBI3U)
- Science and Public Health Issues (Gr. 12-SNC4M)
- Medical Technologies (Gr. 12-SNC4M)
- Molecular Genetics (Gr. 12-SBI4U)
- Biotechnology (Gr. 12-SNC)

Tuesday, April 6th, 10:00 a.m. West Accolade Building, Room 005

"NOT YOUR FATHER'S SCIENTIST: THE BUSINESS OF DRUG DEVELOPMENT" (Dr. George Nikopoulos - Nucro-Technics Ltd.)

This lecture will describe how new drugs and therapeutics are developed, from the early scientific idea, to the clinical trial, and finally to the market. The focus of the discussion will be on why a new generation of young minds is needed to lead drug development and what skills and expertise is needed to be successful.

- Cellular Biology (Gr. 11-SBI3C)
- Genetic Processes (Gr. 11-SBI3U)
- Molecular Genetics (Gr. 12-SBI4U)
- Science and Public Health Issues (Gr. 12-SNC4M)
- Medical Technologies (Gr. 12-SNC4M)
- Biotechnology (Gr. 12-SNC4M)

Tuesday, April 6th, 11:00 a.m. West Accolade Building, Room 206

"NMR SPECTROSCOPY - HOW BIG MAGNETS PRODUCE DISCOVERIES IN MOLECULAR MEDICINE" (Dr. Logan Donaldson, Associate Professor, Department of Biology, York University)

Nuclear Magnetic Resonance Spectroscopy allows us to determine the three-dimensional structures of proteins involved in brain cell signalling. This detailed information can be used to discover the subtle changes in the way proteins interact with each other and contribute to the progression of Alzheimer's Disease.

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Tuesday, April 6th, 11:00 a.m. West Accolade Building, Room 005

1:00 p.m. West Accolade Building, Room 206

"CRIME SCIENCE" (Speaker from the Centre of Forensic Sciences)

Discover the latest advances in the field of crime fighting. Join a forensic scientist to investigate how DNA analysis and body-fluid identification methods are used to solve real criminal cases.

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Tuesday, April 6th, 1:00 p.m. West Accolade Building, Room 005

“GREEN MINING: HARNESSING THE POWER OF ENVIRONMENTAL BACTERIA” (Ms. Kelsey Norlund, School of Geography and Earth Sciences, McMaster University)

As pressures on our environmental resources continue to mount, it is increasingly clear we need more sustainable approaches for management. Green Mining targets exploration of novel bacterial-environmental interactions as a new platform for the development of smarter, bio-based approaches to water management.

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Tuesday, April 6th, 12 noon, West Accolade Building, Room 206

“BETWEEN PARASITES AND PLANETS: SCIENCE IN THE MUGGLED MIDDLE” (Dr. David Waltner-Toews, Professor, Department of Population Medicine, University of Guelph)

A scientist's messy journey into "real-world" complexity, through the discovery of interactions between disease, democracy and social-ecological change in Nepal.

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Tuesday, April 6th, 12 noon, West Accolade Building, Room 005

"THE UNCONVENTIONAL GENE EXPRESSION STRATEGIES OF AN RNA VIRUS" (Ms Beth Nicholson, Department of Biology, York University)

Once an RNA virus enters a host cell, it hijacks the cell machinery of the host to produce the viral proteins that it needs to replicate. Having a relatively small genome, the virus must also find ways to pack a lot of protein-coding information into a short RNA sequence. This presentation will explore some interesting ways that one plant virus accomplishes these feats

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Wednesday, April 7th, 10:00 a.m., Conference Room, 5th Floor, Research Tower

"DNA TESTING AND THE SECRET LIVES OF BIRDS"

Dr. Bridget Stutchbury, Canada Research Chair in Ecology and Conservation Biology, Professor of Biology, York University

Our understanding of the social behaviour of birds been revolutionized by the widespread use of DNA paternity tests. Research has found that over 30% of the offspring in a population are the result of females mating outside the pair bond. Which males do females prefer as genetic partners, and how do females benefit from their choices?

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Wednesday, April 7th, 11:00 a.m., Conference Room, 5th Floor, Research Tower

“ROCKET SCIENCE IS FOR KIDS. CANCER RESEARCH IS FOR YOU.”

(Dr. Michelle Brazas, Research Associate, Manager of Bioinformatic Education, Ontario Institute for Cancer Research)

Cancer can be a scary word, but researchers around the world are working hard to change that. This talk will explore the many aspects of cancer research from looking at the genome of a tumour, to using a computer to model mutations in 3D and building a dye to visualize tumours when they are only 1mm big. By working together, cancer researchers are making a difference. Come and be a part of the future in cancer research.

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Wednesday, April 7th, 12 noon, Conference Room, 5th Floor, Research Tower

"THE KEY TO ENDURANCE PERFORMANCE AND HEALTH: THE MITOCHONDRIAL POWERHOUSE OF MUSCLE" (Dr. David Hood, Professor and Canada Research Chair in Cell Physiology, School of Kinesiology and Health Science, Director, Muscle Health Research Centre, York University)

Mitochondria generate the energy for muscle contraction by metabolizing fats and carbohydrates. Since muscle occupies a large portion of body mass, mitochondria play a vital role in whole body health. How mitochondria function in health and disease, and how they adapt to regular physical activity will be discussed.

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Wednesday, April 7th, 1:00 P.M., Conference Room, 5th Floor, Research Tower

“EXPLOITING PHAGE AND PHAGE-ENCODED SYSTEMS FOR THE DESIGN OF NOVEL THERAPEUTICS”, (Dr. Roderick Slavcev, Assistant Professor, Pharmaceutical Science, SDM Professor of Business and Entrepreneurship, School of Pharmacy, University of Waterloo)

Bacteriophages represent the most widely distributed entities on the planet and comprise a phenomenal proportion of the earth’s nucleic acid reservoir. As such, these entities contain a virtually limitless supply of genetic information with application to antibacterial design. Their genetics are easily manipulated, making them suitable for the design of a wide variety of protein and/or gene delivery therapeutics.

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“A MICROBIAL MYSTERY”

Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College

An outbreak occurs! A bacterial contaminant is suspected! How do microbiologists determine the identity of the microscopic culprit? Be a microbial sleuth and track down the world’s smallest living organisms.

Tuesday, April 6, 2010 (11:00 a.m.) and Wednesday, April 7, 2010 (11:00 a.m.)

“FRONTIER IN GENOMICS”

Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College

Students enrolled in this workshop will get hands-on experience in genomic identification of drug targets, new proteins and genetic differences between people.

Tuesday, April 6, 2010 (1:00 p.m.) and Wednesday, April 7, 2010 (1:00 p.m.)

“CSI AT HOME AND IN THE LAB”

Faculty, Department of Biological Sciences and Applied Chemistry, Seneca College

Learn how to isolate DNA using only materials that you can find in your household. Then, using special techniques learn how they can lead to catching the criminal.