

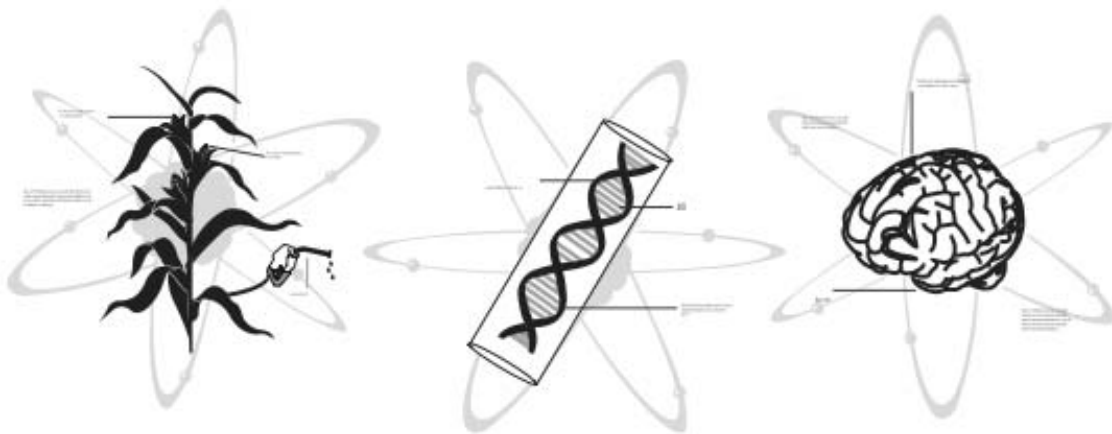
Biotechnology Days

May 4 and 5, 2011

For students in grades 9 to 12

The perfect opportunity for your students to explore potential careers in biotechnology-related fields and to supplement their science curricula.

Please complete and return the enclosed registration form by **May 2, 2011**



**REGISTER EARLY
TO AVOID DISAPPOINTMENT**

For more information and to make a reservation:
TELEPHONE **613 991-3053** / FAX **613 993-7923**

Veillez téléphoner au (613) 991-3053 pour recevoir ce document en français.

**CANADA
SCIENCE
AND
TECHNOLOGY
MUSEUM**



Canada

Biotechnology Days

at the Canada Science and Technology Museum

May 4 and 5, 2011

Choose one, two, or three lectures per day! The perfect opportunity for your students to explore potential careers in biotechnology-related fields and to supplement their science curricula!

English Lectures:

- **Playing with Eggs and Sperm: Wisdom or Folly?**
Barbara Vanderhyden, Ph.D. University of Ottawa, Ottawa Hospital Research Institute.
- **Vaccine Biotechnology - why has it been so hard to develop a vaccine against HIV**
- Elliott Faller, Ph.D. Postdoctoral Fellow, Microbiology and Immunology, University of Ottawa
- **Forensic Science - Past and Present**
- Ron Fourney, Ph.D. Director, National Services and Research, Forensic Science and Identification Services
- **Neurodegeneration and Regeneration in the Depressed Brain**
Alexandra S. Pettit, M.Sc. Neural Regeneration Laboratory, University of Ottawa
- **Green Biotechnology: Harnessing Plant Biomass for Biofuels and Biomaterials**
Owen Rowland, Ph.D. Carleton University
- **Stem Cell Based Treatment Helping Patients Now**
Harry Atkins, M.D. Ottawa Hospital Research Institute; A multiple Sclerosis Patient
- **Environmental Biotechnology: Bioremediation and Biotransformation of Crude Oil**
Kathlyn Kirkwood, Ph.D. Department of Chemical and Biological Engineering, University of Ottawa
- **From the Lab to your Dinner Plate: Genetically Modified Foods**
Gabriel Potvin. Faculty of Engineering, University of Ottawa
- **Tailored Cancer Therapy: Why There Will Never Be One Cure**
Natalie Andrews, M.Sc. University of Ottawa

French Lectures:

- **De la double hélice à la GRC : évolution des techniques de typage d'ADN pour l'identification humaine au fil des ans.**
Chantal Fréreau, Ph.D. Services nationaux et recherche, Gendarmerie Royale du Canada.
- **La biotechnologie dans les pouponnières : la fertilisation in-vitro**
Marie-Claude Léveillé, Ph.D. Centre de Fertilité d'Ottawa
- **La bioéthique, à l'intersection de la morale et de la science**
Karine Morin, Directrice. Programme GE³LS national, Genome Canada

Tour the Museum and take part in our "Biotrail" Challenge

While at the Museum, take the opportunity to explore our exhibits and revisit your favorite Museum artifacts. Get your copy of our "Biotrail" Challenge at the Information Desk and explore the Museum — finding answers to biotechnology-related questions.

SPACE IS LIMITED!

Register now to attend with your students

Telephone: 613 991-3053 Fax: 613 993-7923



Biotechnology Days

Presentations on May 4th

All presentations are described in the language of their delivery.
Les présentations sont décrites dans la langue qu'elles seront offertes.

10:00 a.m. 10 h	
<p>Playing with Eggs and Sperm: Wisdom or Folly? Barbara Vanderhyden, Ph.D. University of Ottawa, Ottawa Hospital Research Institute.</p> <p>On July 25, 1978 Louise Brown, the first baby to be conceived outside its mother's body, was born. The existence of Louise is possible because of a technique called in-vitro fertilization, one of a growing number of assisted reproductive technologies developed to help infertile people have children who are genetically their own. After more than 30 years, questions about these techniques continue to create ethical controversy, and are the subject of much legal and moral debate. Dr. Vanderhyden will provide an overview of these technologies, as well as explore some of the ethical issues associated with these techniques.</p>	<p>De la double hélice à la GRC : évolution des techniques de typage d'ADN pour l'identification humaine au fil des ans. Chantal Frégeau, Ph.D. Services nationaux et recherche, Gendarmerie Royale du Canada.</p> <p>Tout comme les empreintes digitales, les empreintes génétiques utilisées à des fins d'identification humaine ont révolutionné les procédés d'enquête judiciaire. Les nouvelles stratégies de typage d'ADN permettent de réduire de façon significative le temps requis pour établir des liens entre criminels suspects et le matériel biologique retrouvé sur la scène d'un crime. Ces mêmes procédés facilitent l'identification de victimes de désastres majeurs. L'évolution rapide des techniques de typage d'ADN sera présentée ainsi que l'impact de ces virages technologiques sur le système judiciaire.</p>
11:15 a.m. 11 h 15	
<p>Vaccine Biotechnology - why has it been so hard to develop a vaccine against HIV Elliott Faller, Ph.D. Postdoctoral Fellow, Microbiology and Immunology, University of Ottawa</p> <p>Vaccines have been developed to treat a variety of infectious diseases. In some cases (SARS, Influenza) vaccine development has been rapid and effective. In spite of this, present vaccine production methods are still ineffective at providing lasting immunity against several infectious diseases including the Human immunodeficiency Virus (HIV). This lecture will outline the basics of vaccine development, vaccine immunology, recent advances in HIV vaccine research and why a vaccine against HIV has been so difficult to achieve.</p>	<p>La biotechnologie dans les pouponnières : la fertilisation in-vitro Marie-Claude Léveillé, Ph.D. Centre de Fertilité d'Ottawa</p> <p>Le 25 juillet 1978 naissait Louise Brown, le premier bébé éprouvette du monde. L'existence de Louise a été rendu possible grâce à la fertilisation in-vitro. Cette technique fait partie d'une multitude d'options développés afin d'aider les gens ayant des problèmes de fertilité à avoir des enfants partageant leur bagage génétique. Après plus de 30 ans, les questions sur ces techniques continuent de créer un débat légal et éthique. Dr. Léveillé fera un survol de ces techniques, et explorera certaines problématiques éthiques reliées à celles-ci.</p>
1:00 p.m. 13 h	
<p>Forensic Science - Past and Present Ron Fourney, Ph.D. Director, National Services and Research, Forensic Science and Identification Services</p> <p>Be sure not to miss Dr. Fourney's fascinating presentation on DNA typing research. In the same manner that conventional fingerprinting analysis changed the course of human identification more than 100 years ago, "DNA Typing" has revolutionized forensic science and our quest for human identification. Learn about the history of this technology from the past to the present and how it has played a key role in the administration of justice.</p>	<p>La bioéthique, à l'intersection de la morale et de la science Karine Morin, Directrice. Programme GE³LS national, Genome Canada</p> <p>Devrait-on tester un nouveau né pour une maladie génétique s'il n'existe aucun traitement? Une personne atteinte du SIDA devrait-elle recevoir un don d'organe? Ces questions nous préoccupent depuis que la science et la technologie rendent ces interventions possibles. C'est à la bioéthique que revient la tâche de se pencher sur ces questions morales, afin de proposer des réponses acceptables pour la majorité, tout en tenant compte des préoccupations des plus vulnérables.</p>

Biotechnology Days

Presentations on May 5th

All presentations are described in the language of their delivery.
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10:00 a.m. 10 h	
<p>Green Biotechnology: Harnessing Plant Biomass for Biofuels and Biomaterials Owen Rowland, Ph.D. Carleton University</p> <p>Plants are our greatest source of renewable resources providing food, medicines, building materials, industrial chemicals, and biofuels. However, in the past 100 years or so, our society has become heavily dependent on non-renewable fossil fuels as sources of energy and chemical feedstocks. This is not sustainable. Plant biologists and biochemists are at the forefront of developing strategies to sustainably harness plant biomass to meet our energy and industrial needs. Dr. Rowland will discuss the opportunities and challenges in this fascinating area of biotechnology.</p>	<p>Neurodegeneration and Regeneration in the Depressed Brain Alexandra S. Pettit, M.Sc. Neural Regeneration Laboratory, University of Ottawa</p> <p>Depression is known to affect as many as 20% of the worlds population. While the underlying causal factors are poorly understood, a correlation between decreased volume of certain brain structures and depression has been noted. This is of particular concern as the human adult brain is extremely vulnerable as the majority of its cells cannot regenerate. The recent discovery that the adult human brain contains stem and progenitor cells heralds a new era in neurodegenerative treatment. Ms. Pettit will discuss factors that may regulate these cells in order to harness their regenerative potential for therapeutic purposes.</p>
11:15 a.m. 11 h 15	
<p>Stem Cell Based Treatment Helping Patients Now Harry Atkins, M.D. Ottawa Hospital Research Institute; A Multiple Sclerosis Patient</p> <p>Join a physician and a person who received a stem cell therapy for a presentation and discussion on the promises offered by stem cell research, and making them into a reality. Dr. Harry Atkins, Ottawa Hospital physician and scientist, will describe some of the new ways that stem cells can be used to treat patients with different illnesses. A patient, who has had his Multiple Sclerosis treated with a novel stem cell therapy, will provide their perspective on stem cell science and hopes for the future. This presentation promises to open minds and spark the interest of anyone who is interested in this new and exciting frontier of medical research.</p>	<p>Environmental Biotechnology: Bioremediation and Biotransformation of crude oil Kathlyn Kirkwood, Ph.D. Department of Chemical and Biological Engineering, University of Ottawa</p> <p>Contamination of the environment with crude oil is unfortunately a common occurrence. Spills can occur during production, processing and transportation of oil, for example last year's devastating explosion and spill in the Gulf of Mexico. One of the most important technologies we have for cleaning up these sites is bioremediation, or the use of bacteria and fungi to consume the crude oil and transform it to non-toxic products. This talk will introduce the remarkable abilities of bacteria to break down chemicals we would consider wastes or pollutants, and discuss how we can apply this activity not only for clean-up but also to develop new industrial processes.</p>
1:00 p.m. 13 h	
<p>Tailored Cancer Therapy: Why There Will Never Be One Cure Natalie Andrews, M.Sc. University of Ottawa</p> <p>Scientific researchers have long studied cancer in an effort to eradicate the illness. Through these studies, they have also learned many of the disease's intricacies. Did you know that everyone's cancer is genetically distinct? This makes finding a one-size-fits-all cure nearly impossible. Cancer research is increasingly looking to take advantage of the common mutations, or genetic defects, in cancer cells to make current therapies more effective, essentially customizing the treatment to the patient. Natalie Andrews will explore the molecular causes of cancer, the challenges in treating the disease and some cutting edge treatments.</p>	<p>From the Lab to your Dinner Plate: Genetically Modified Foods Gabriel Potvin. Faculty of Engineering, University of Ottawa</p> <p>Benefits resulting from genetically modifying organisms include crops requiring less pesticides, increased nutrient contents of certain foods, and higher crop yields at lower production costs, all of which help us meet a growing global food demand while limiting our environmental impact. However, as is the case with most new technologies, these new products have led to the rise of vociferous opposition to their development by certain parties. Are these misgivings justified or misguided? How are these GM foods made and for what purpose?</p>

Biotechnology Days — Registration Form

School Name: _____ School Address: _____

City: _____ Province: _____ Postal Code: _____

Phone Number: () _____ Fax Number: () _____

Teacher's Name: _____ Grade: _____ Number of Students: _____

E-mail Address: _____

Estimated Arrival Time: _____ Estimated Departure Time: _____

Please check the box next to the lectures you wish to attend, and submit one form per attending class.

Each presentation is approximately 40 minutes in length, plus 10 minutes for questions. The titles (below) indicate the official language in which the presentation will be offered. Please note that the Museum reserves the right to substitute guest-lecturers.

	May 4th	May 5th
10:00 a.m.	<input type="checkbox"/> Playing with Eggs and Sperm: Wisdom of Folly? OR <input type="checkbox"/> De la double hélice à la GRC : évolution des techniques de typage d'ADN pour l'identification humaine au fil des ans.	<input type="checkbox"/> Neurodegeneration and Regeneration in the Depressed Brain OR <input type="checkbox"/> Green Biotechnology: Harnessing Plant Biomass for Biofuels and Biomaterials
11:15 a.m.	<input type="checkbox"/> Vaccine Biotechnology – Why has it been so hard to develop a vaccine against HIV OR <input type="checkbox"/> La biotechnologie dans les pouponnières : la fertilisation in-vitro	<input type="checkbox"/> Stem Cell Based Treatment Helping Patients Now OR <input type="checkbox"/> Environmental Biotechnology: Bioremediation and Biotransformation of Crude Oil
1:00 p.m.	<input type="checkbox"/> Forensic Science - Past and Present OR <input type="checkbox"/> La bioéthique, à l'intersection de la morale et de la science	<input type="checkbox"/> Tailored Cancer Therapy: Why There Will Never Be One Cure OR <input type="checkbox"/> From the Lab to your Dinner Plate: Genetically Modified Foods

Cost: \$6 per student for the full day

In order to speed your entry into the Museum, prepayment is preferred. Payment is due upon arrival. Please make cheques payable to the Canada Science and Technology Museum.

PLEASE SEND YOUR REQUEST BY MAIL or FAX:

Canada Science and Technology Museum

Reservation Office

P.O. Box 9724, Station T

Ottawa, Ontario. K1G 5A3

Fax: (613) 993-7923

