

Publications of the Week

Uncovering Pseudotemporal Trajectories with Covariates from Single Cell and Bulk Expression Data

 First Author: Kieran Campbell (*pictured*) | Senior Author: Christopher Yau
 Nature Communications | UBC


Computational techniques have arisen from single-cell 'omics and cancer modelling where pseudotime algorithms can be used to learn about cellular differentiation or tumour progression. However, methods to date typically implicitly assume homogeneous genetic, phenotypic or environmental backgrounds, which becomes limiting as data sets grow in size and complexity. The authors describe a novel statistical framework that learns how pseudotime trajectories can be modulated through covariates that encode such factors. [Abstract](#)

Mechanics-Guided Developmental Fate Patterning

 First Author: Makul Tewary | Senior Author: Peter Zandstra (*pictured*)
 Nature Materials | The Michael Smith Laboratories and UBC


The authors utilized a micropatterned human pluripotent stem cell-based developmental model to demonstrate the role of biophysical cues such as cell size and cytoskeletal contractile forces in directing patterning of neuroepithelial and neural plate border cells. These contributions can inform future materials engineering approaches to develop new strategies to guide tissue development from human pluripotent stem cells. [Abstract](#)

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Awards

CHÉOS Scientists Awarded CIHR Project Grants

Centre for Health Outcome and Evaluation Sciences (CHÉOS)



The results of the most recent CIHR Project Grant Competition have been announced. A total of 369 grants were funded with a success rate of 14 per cent. Of those grants, 4 are led by CHÉOS Scientists with 16 Scientists serving as co-investigators on 9 individual projects. One of the successful candidates is Dr. Anne Gademann (*pictured*), whose research is focused on mental health.

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Local News

A Pretty Plant of Summer Produces a Promising Anti-Diabetes Compound

Michael Smith Laboratories



Montbretin A (Mba), a natural compound with great potential for the treatment of type-2 diabetes, was discovered in the ornamental plant montbretia ten years ago, but it cannot be produced on a large scale until its biosynthesis is understood. Scientists have now discovered genes and enzymes responsible for Mba biosynthesis and demonstrated the potential for metabolic engineering of wild tobacco to produce this promising drug candidate. [Read More](#)

Bacteria-Powered Solar Cell Converts Light to Energy, Even under Overcast Skies

UBC News



UBC researchers have found a cheap, sustainable way to build a solar cell using bacteria that convert light to energy. Their cell generated a current stronger than any previously recorded from such a device, and worked as efficiently in dim light as in bright light. This innovation could be a step toward wider adoption of solar power in places like British Columbia and parts of northern Europe where overcast skies are common. [Read More](#)

New Research Shows Many Women with Breast Cancer Don't Need Chemotherapy

BC Cancer



A new international study involving BC Cancer patients indicates that many women with early-stage hormone sensitive breast cancer do not necessarily need chemotherapy. The study used a gene test on tumour samples to identify women who can safely avoid chemotherapy and instead take only a drug that blocks the hormone estrogen or stops the body from making it. [Read More](#)

Untangling the Brain's "Wires" in the Virtual Space

Djavad Mowafaghian Centre for Brain Health



Researchers in Dr. Brian MacVicar's and Dr. Fidel Vila-Rodriguez' labs at the Djavad Mowafaghian Centre for Brain Health have partnered with Dr. Claudia Krebs to build on her successful Holographic Brain Project. The project brings neuroanatomy to life in virtual reality, giving students the ability to visualize the brain as a three-dimensional image, enabling them to explore, highlight, isolate, and rotate the structures within the brain. [Read More](#)

Women's Health Research Institute Becomes UBC Faculty of Medicine Centre

UBC Faculty of Medicine



The UBC Faculty of Medicine is pleased to recognize the Women's Health Research Institute (WHRI) as a Faculty of Medicine Research Centre, in recognition of its scientific contributions and its significance to the Faculty of Medicine's mission and to the public's health. By coming within the Faculty's organizational structure as the Women's Health Research Centre, WHRI will now have a voice in strategic discussions about research at UBC. [Read More](#)

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Interesting Articles

Canada Could Come to the Fore in Cannabis Research

The Scientist



On October 20, marijuana will no longer be an illegal drug in Canada—a move that could make it much easier to study how cannabis affects the body and the brain. Currently in Canada, to study the physiological effects of cannabis in humans, researchers have to apply for an exemption from the Controlled Drugs and Substances Act, which has been difficult to get regardless of the political affiliation of government leaders. [Read More](#)

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Upcoming Events in Vancouver

July 19 5:00 PM	Beaty Nocturnal Beaty Biodiversity Museum
July 19 7:30 PM	Science World After Dark Telus World of Science
July 20 4:00 PM	D.R.I.N.K.S. (Discussions Relevant to Inspiring New Knowledge and Science) Mahony and Sons, Stamps Landing
August 5 1:00 PM	Albatross Are Way Cool because . . . Beaty Biodiversity Museum
August 16 12:00 PM	Centre for Blood Research Research Day 2018 Life Sciences Institute

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