Victoria Health Hackathon

Kick Off Event

Friday September 7, 2018

5 pm

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Welcome!

- Please get a name tag and a folder with the details of the challenges
- Sign in if you have not already registered
- Prepare to learn about our challenges in health to be addressed!

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Thanks to NSERC and Viatec for their support of the Hackathon!

NSERC
CRSNG

VIATEC

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Thanks to all of our sponsors for making this event possible!

CENTRE FOR BIOMEDICAL RESEARCH

Victoria Hand Project

BCREGMED

University of Victoria | Centre for Advanced Materials & Related Technology

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Thanks to all of our promotional partners for making this event possible!

Vancouver Island Life Sciences

RESEARCH

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Statistics on the challenge submission process

- We received 20 challenges covering a wide range of topics in health ranging from regenerative medicine to devices to applications to large datasets for analysis
- Challenges were scored based on three criteria - 50% quality, 25% feasibility, and 25% support for the project
- These challenges were scored by a blue ribbon panel of judges
- The five top scored challenges were selected

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Thanks to our judging panel!

- **Dr. Dechev** - Department Chair of Mechanical Engineering at the University of Victoria and Executive Director of Victoria Hand Project
- **Dr. Brolo** - Director of the Centre for Advanced Materials and Technology and Professor of Chemistry at the University of Victoria
- **Jerome Etwaroo** - Innovation Centre Associate Director
- **Cindy Trytten** - Director of Research and Capacity Building at Island Health
- **Dr. Jacoby** - Founder of Victoria Makerspace
- **Dr. Willerth** - Hackathon organizer and Director of the Centre for Biomedical Research at the University of Victoria

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Hackathon scoring criteria

- Quality of the solution (25%)
- Originality of the solution (25%)
- User experience (25%)
- Scalability of the solution (25%)

- Cash prizes given for 1st, 2nd, and 3rd place winners ($750, $500, $250)

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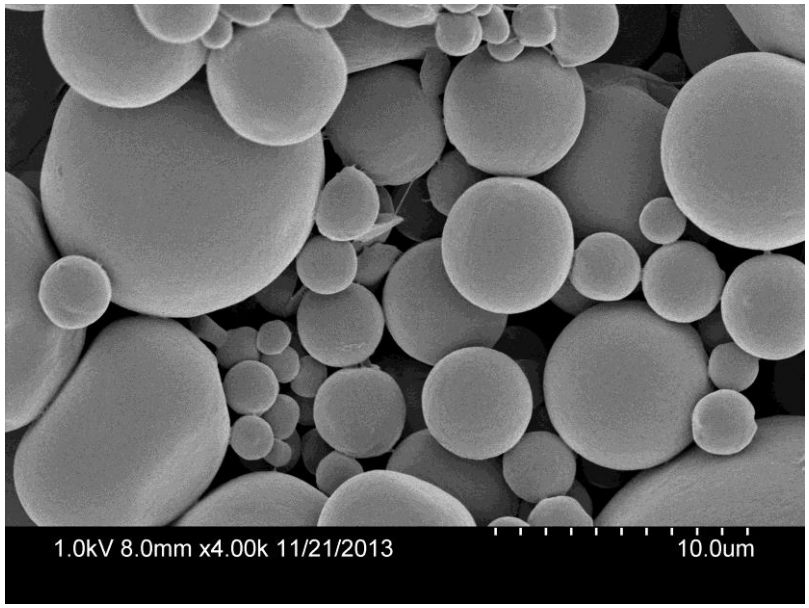
Challenge #1: Developing a novel sieving method for the size sorting of drug releasing microspheres

- Small spherical particles fabricated from biocompatible polymers
- Can provide tunable drug release of small molecules and growth factors
- Fabrication method yields a wide range of particule sizes



Scanning electron microscopy image of drug releasing microspheres

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Develop a novel method for separating these microspheres by size

- Our desired microsphere size is <40μm.
- Currently use a reversible strainer with a 37μm pore size and a diameter of ~1cm to filter ~320mg of microspheres in one batch.
- The filter is rapidly blocked by large particles and constantly needs to be cleared, making the whole process takes upwards of an hour or two depending on the overall quality of the produced microspheres.
- The strainer must also be loaded and cleared manually meaning no other work can be completed during that period.
- The blocked filter also captures smaller particles that get cleared with the larger ones leading to loss in yield.

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Find a more efficient and effective method of size separating drug releasing microspheres

- Mentorship team:
  - Dr. Willerth (willerth@uvic.ca)
  - Dr. Akbari (makbari@uvic.ca)
  - Laura De la vega (laura.dlvr@gmail.com)

- Will provide up to $300 in supplies for this project

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Challenge #2: Non-Agitating Device for Patients Living With dementia

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Challenge #3: Victoria Hand Project

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Challenge #4: A Solution to Reduce Falls from Bed in Hospitals and Care Facilities

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Challenge #5: Improved Paging systems for nurses

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Victoria Makerspace

Contact Derek (derekja@makerspace.ca)

- Located in the Vancouver Island Technology Park, 4476 Markham St.
- Some resources:
  - Electronics test bench, large supply of components
  - Containment level 1 molecular biology lab
  - Metalwork including welders, plasma cutter, cnc, sheet metal, etc.
  - Full woodworking shop
  - Laser cutters, 3-D printers
  - Over 150 members who are collectively skilled at all aspects of manufacturing
- Happy to consider individuals for membership, but can also just meet and make the facilities available during the hackathon as required

Facility for Imaging, Photonics & Spectroscopy

- Located in the basement of the Petch (PCH 071) and Elliott Buildings (ELL 040) in the Department of Chemistry. FIPS is
- Part of the Centre for Advanced Materials and Related Technology (CAMTEC) at the University of Victoria.
- Contains leading-edge technologies in imaging, photonics and spectroscopy for fundamental research and applications
- Contains an extensive assortment of optical and spectroscopic equipment that can be accessed by industrial and academic partners.

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Victoria Health Hackathon Rules

- Teams can consist of up to four members
- Teams will select and register for their challenge today
- The idea is to spend the time in between the hackathon coming up with ideas, collecting resources, and iterating designs with your mentorship team
- The hackathon weekend will enable the implementation of your device by your team
- Presentation guidelines will be send out by Friday Sept. 28th

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Hackathon Weekend Schedule

- Friday September 28th 5 pm - The hackathon launches at Fort Tectoria
- Saturday September 29th and goes until 5 pm the next day
- Sunday September 30th - 10 am - teams present their final designs to our panel of judges followed by a catered brunch followed by the awards ceremony

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