



SUBJECT ACADEMIC PRESENTATION

MEETING DATE SEPTEMBER 27, 2018

Forwarded on the Recommendation of the President

APPROVED FOR SUBMISSION

Santa J. Ono, President and Vice-Chancellor

FOR INFORMATION

Report Date August 17, 2018

Presented By Deborah Buszard, Deputy Vice-Chancellor and Principal
Rehan Sadiq, Associate Dean, School of Engineering
Sepideh Pakpour, Assistant Professor, School of Engineering

EXECUTIVE SUMMARY

Sepideh Pakpour, Assistant Professor with the School of Engineering will present on her interdisciplinary research involving nano-technology and opioid abuse, specifically human microbiome-based diagnostics and therapeutics at the frontier of personalized medicine.

For background: <https://news.ok.ubc.ca/2018/07/18/ubc-researchers-uncover-new-ways-to-reduce-opioid-abuse/>

Attachments

- 1. Pakpour Abstract and Bio

INSTITUTIONAL STRATEGIC PRIORITIES SUPPORTED

Learning Research Innovation Engagement (Internal / External) International

or Operational



Human Microbiome-Based Diagnostics and Therapeutics at the Frontier of Personalized Medicine

Humans have evolved in close relationship with diverse microbial consortia, referred to as the human microbiome. Our microbiome is vertically passed from our parents to us, but it is also shaped by our lifestyle and physical environment. The relationships between the human microbiome, human health, and environmental quality, both outdoor and indoor, are poorly understood and likely to be vast in their implications. This seminar will provide an overview of my recent efforts to capture longitudinal dynamics of human microbiome and model their interactions with environmental variables, be those variables disease onset or human health performance indicators. This seminar will also highlight the importance role of the microbiome as diagnostic and therapeutic biomarkers by using omic technologies in both precise microbial identification of infectious diseases as well as characterization of microbial communities and their functions. Taken together, the microbiome is emerging as an integral part of precision medicine approach as it not only contributes to interindividual variability in all aspects of a disease but also can be employed as diagnostics tools and represent a potentially modifiable factor, unlike host genes, that can then be targeted by probiotics, prebiotics, diet, as well as community replacement approaches such as fecal microbiota transplant.



Sepideh Pakpour

School of Engineering

University of British Columbia, Kelowna, BC, Canada

Dr. Sepideh Pakpour is an Assistant Professor at the School of Engineering, Okanagan campus. She is an accomplished researcher with a track record of academic excellence during her PhD at UBC, followed by her Postdoctoral studies at Massachusetts Institute of Technology (MIT) and Harvard University. Her fundamental research interest is to better comprehend forces and factors influencing the human microbiome, and how microorganisms interact with their environment, with each other, and with their host. She has also continuously focused on translating basic microbiome discoveries into applications ranging from bioengineering and biomaterials to medicine. Beside her core independent research, Dr. Pakpour has initiated and led a number of joint international projects. Currently, she is the microbiome research lead in the Nurse Engagement and Wellness Study (NEWS) as part of the Hoffman Program on Chemicals at Harvard T.H. Chan School of Public Health as well as the lead of Human Virus Project at MIT Center for Microbiome Informatics and Therapeutics. Her background and broad expertise in microbiome science, omic technologies and advanced bioinformatics have allowed her to establish the Biomedical Microbiome Research (BMR) laboratory at UBC focusing on advancing microbiome science in health and disease.