



Centre for
Heart Lung Innovation
UBC and St. Paul's Hospital

Centre for Heart Lung Innovation Research in Progress (R.I.P.)



Measurement of gene expression changes within the brains of rats following fentanyl self- administration

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Monday Oct 16th, 2023
9:00 – 10:00 a.m.

James Hogg Conference Centre (JHCC) RM 103
Zoom Video Conference
(Meeting ID: 693 1997 7044; Passcode: 030679)

"The opioid crisis continues to impact Canadian communities, with an increase in suspected opioid-related overdoses. Opioid use can cause permanent changes in the brain. However, we still lack complete understanding on how this happens, making it difficult to develop effective therapies for opioid-use disorders. This study aims to uncover the molecular changes in rat brains following fentanyl self-administration (SA). Advanced single cell technology allows us to look at individual brain cells and their genes from the tissue obtained.

We noted various cell types, with many responding to fentanyl exposure by altering gene activity. One significant finding was that mitochondrial genes (genes related to energy production) became more active in immune cells called macrophages after fentanyl exposure. These macrophages interact extensively with other brain cells, suggesting they play a crucial role in the brain's response to opioids. This research is the first to use such advanced techniques to examine how the rat brain reacts to fentanyl."

This event is a Self-Approved Group Learning Activity as defined by the Maintenance Certification Program of the Royal College of Physicians and Surgeons of Canada



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