

MURC 2019

Presentation ID: 127

Presentation Format: Poster Presentation

Presentation Title: Investigation of the OPRM1 promoter DNA methylation profile in rats with opioid use disorder

Canada is currently in the midst of a dire opioid crisis. According to a National report released September of 2018 by the Special Advisory Committee on the Epidemic of Opioid Overdoses, there have been over 8000 opioid-related deaths in Canada between January 2016 and March 2018, with 1473 of these deaths occurring in BC in 2017 alone. It has been proposed that epigenetic modifications can underlie substance use disorder predisposition, dependence, tolerance, and relapse. Mu-opioid receptor 1 (OPRM1) functions in pain and mood responses, as well as in reward-seeking and addictive behaviours. Hypermethylation at the -18, +18 and +126 CpG sites within the OPRM1 gene promoter has been observed in rodents and humans with opioid use disorder. Despite this evidence, there has been no previous investigation of whether chronic opioid use is sufficient to induce hypermethylation within the OPRM1 promoter region. This experiment proposes to bridge this gap in the knowledge by inducing heroin use disorder in rats using an intravenous self-administration protocol. Once addiction has been established, brain tissue DNA extracted from heroin dependent and drug-naïve rats will be subjected to bisulfite sequencing to assess the OPRM1 DNA methylation profile. I hypothesize that heroin use disorder in rats is sufficient to induce DNA hypermethylation at the -18, +84, and +126 CpG sites within the OPRM1 promoter. The results of the proposed experiment will advance understanding within the field on the effects of DNA methylation on addiction, and potentially provide further insight into the complexities and mechanisms underlying opioid use disorders.

Commented [C1]: Can you explain what this is?

Commented [C2]: This may not be understood by all audiences

Themes:

Check (highlight) the most applicable theme according to the abstract.

<input type="checkbox"/> Innovation and Technology	<input checked="" type="checkbox"/> Health and Wellness	<input type="checkbox"/> Culture and Society	<input type="checkbox"/> Sustainability and Conservation
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Comments: The background, significance, and implications of this study is clear. Since MURC is a generalist conference, perhaps further explaining or simplifying the methods portion of your abstract will help all audiences better understand your study.