



## Peripheral and central mechanisms of chronic pain

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### SEMINAR & VISITING SPEAKER SERIES

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#### DATE

Monday, June 12th, 2023

#### TIME

11:00 AM to 12:00 PM

#### LOCATION

Apotex Lecture Hall 050

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#### SPEAKER

**Arkady Khoutorsky, D.V.M., Ph.D.**

Associate Professor, Department of Anesthesia, Faculty of Dental Medicine and Oral Health Sciences

McGill University

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#### BIO

Arkady Khoutorsky earned his Ph.D. in neurobiology from the Hebrew University of Jerusalem. He then completed a postdoctoral fellowship at McGill University with Dr. Sonenberg, investigating the role of protein synthesis regulation in pain. He joined McGill's Alan Edwards Centre for Research on Pain as faculty in 2016.

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#### ABSTRACT

Chronic pain is one of the leading causes of long-term disability and suffering in humans, affecting ~20% of the population. Chronic pain can be caused by several conditions including nerve injury, inflammation, viral infection, autoimmune diseases, cancer, metabolic disorders, and in some cases appear without any recognizable trigger such as in fibromyalgia. Available treatments have limited efficacy and only 30-40% of chronic pain patients report a satisfactory pain relief. This is the result of an incomplete understanding of chronic pain pathophysiology, leading to the development of therapeutic approaches that target the symptoms of chronic pain and not underlying mechanisms.

Following initial insults to the tissue (e.g. nerve injury, inflammation, viral infection, or metabolic disorders such as diabetes), the somatosensory system undergoes a dramatic reorganization, leading to aberrant maladaptive plasticity at peripheral, spinal, and supraspinal levels, and consequently causing sensitization of the somatosensory system and pain. Understanding the fundamental mechanisms of peripheral and central sensitization is a key for developing more efficient and safe therapeutics.

Plasticity of neuronal circuits is mediated by modification of existing proteins, for example via phosphorylation events, and by new gene expression. These biochemical changes support the sensitization of the pain pathway via numerous mechanisms, including increased activity of channels and receptors, structural changes, alterations in neuroimmune interactions, and functional rewiring of neuronal circuits. In this talk, I will present studies from my lab focusing on mechanisms underlying peripheral and central sensitization and their roles in animal models of chronic pain.

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Zoom Meeting ID: 624 5561 7946

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