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March 27, 2026

CONTACT:
Matt Niner
+1.703.299.8084
media@iadr.org

Pain Resolution Biology: How Inflammation Shapes the Transition from Acute to Chronic Pain

Alexandria, VA, USA – A Distinguished Lecture Series presentation presenting the framework of pain resolution biology was presented at the 104th General Session of the IADR, which was held in conjunction with the 55th Annual Meeting of the American Association for Dental, Oral, and Craniofacial Research and the 50th Annual Meeting of the Canadian Association for Dental Research on March 25-28, 2026 in San Diego, CA, USA.

The second 2026 IADR/AADOCR/CADR General Session Distinguished Lecture Series session, “Pain Resolution Biology: How Inflammation Shapes the Transition from Acute to Chronic Pain,” was presented by Luda Diatchenko, McGill University, Montreal, Canada.

Diatchenko is a Canada Research Chair in Human Pain Genetics, Fellow of the Royal Society of Canada, and a Professor at the Faculty of Dentistry and Medicine at McGill University. She earned her MD and PhD in the field of Molecular Biology from the Russian State Medical University. Her research since then is focused on determining the genetic mechanisms that impact and shape human pain perception and risk of development of chronic pain conditions, enabling new approaches to identify drug targets, treatment responses to analgesics, and diagnostics.

Chronic pain is frequently associated with persistent low-grade inflammation, leading to the prevailing assumption that ongoing inflammation drives pain chronification. However, emerging evidence from human and animal studies challenges this linear view. Rather than inflammation itself, failure to properly initiate and complete the resolution phase of the inflammatory response appears central to the transition from acute to chronic pain. Acute inflammation is not only defensive but also a necessary trigger for endogenous pain-resolving pathways. When this resolution process is disrupted—by genetic variation, aging, environmental factors, or therapeutic interventions—pain may persist beyond tissue healing.

In her presentation, Diatchenko presented the framework of pain resolution biology, emphasizing the active and time-dependent mechanisms that resolve pain. Viewing chronic pain as a deficit in resolution shifts the therapeutic focus from suppressing inflammation to re-engaging pro-resolution pathways, offering new opportunities for mechanism-based and precision pain therapeutics.

T +1.703.548.0066
F +1.703.548.1883
1619 Duke Street
Alexandria, VA 22314-3406, USA
www.iadr.org • www.aadocr.org



The Distinguished Lectures Series presentation, “Pain Resolution Biology: How Inflammation Shapes the Transition from Acute to Chronic Pain,” took place on Friday, March 27 at 9:45 a.m. PDT (UTC-7).

About IADR/AADOCR

The International Association for Dental, Oral, and Craniofacial Research (IADR) is a nonprofit organization with a mission to drive dental, oral, and craniofacial research for health and well-being worldwide. IADR represents the individual scientists, clinician-scientists, dental professionals, and students based in academic, government, non-profit, and private-sector institutions who share our mission. The American Association for Dental, Oral, and Craniofacial Research (AADOCR) is the largest division of IADR. Learn more at www.iadr.org.