

# International Congress on Neuroimmunology and Therapeutics

DoubleTree by Hilton Hotel San Francisco Airport, San Francisco, CA, USA



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### Activating the endocannabinoid system to prevent the development of chronic pain

Up to 50% of patients develop persistent or chronic pain following major surgical procedures, but the mechanisms underlying the transition from acute to chronic pain states are not fully understood. The endocannabinoid (ECBs) act through cannabinoid receptors type 1 (CB1) and type 2 (CB2). CB2 receptor activation in the spinal cord results in a reduction of pain-related behaviors in a model of postoperative pain through the modulation of neuroimmune interactions via microglia and astrocytes. We then uncovered that the integrity of the endocannabinoid system is pivotal to restore a homeostatic interaction between glial cells and neurons, which results in a normal resolution of acute postoperative pain. We have demonstrated that a disruption of the endocannabinoid system results in an altered neuroimmune interaction mediated by the MAP kinase p-p38 in glial cells. This lecture will discuss the clinical translation value of potential therapeutics to modulate glial responses in the central nervous system as a novel strategy to prevent or treat chronic pain or other neurological conditions. A review of current clinical scientific evidence on glial modulator drugs will close the lecture.

### Biography

E. Alfonso Romero-Sandoval is originally from Guatemala, and received his MD from Universidad de San Carlos de Guatemala in 1999 and his PhD in Neuroscience from Universidad de Alcalá, Alcalá de Henares, Spain, in 2003. He did a postdoctoral training at Wake Forest University, Winston Salem, NC (2003-2006) and at Geisel Dartmouth Medical School, Lebanon, NH (2006-2007). He was Instructor (2007-2009) and Assistant Professor (2009-2012) at Geisel Dartmouth Medical School, Lebanon, NH. Currently (2012-present) he is Associate Professor and Director of Research at Presbyterian College School of Pharmacy, Clinton, SC. Romero-Sandoval is studying the molecular mechanisms of spinal cannabinoid receptor 2 activation for induction of analgesia, the role of endocannabinoids in postoperative pain, the function of phosphatases and kinases in spinal cord in the transition from acute to chronic pain, the use of nanotechnology to promote surgical wound healing and to prevent the development of chronic postoperative pain.

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