

How Does Provant Treat Pain?

Changes in cellular membrane potential kick-off the process, activating the second messengers that mediate inflammation

March 2014 Newsletter

Last month we provided an overview of how Provant treats pain in two ways: anti-nociceptive analgesia and an anti-inflammatory effect. This newsletter focuses on the initial steps of the anti-inflammatory effect. Provant's electromagnetic field alters K^+ , Na^+ , and Ca^{2+} ion movement across the cell membrane, altering the electrical potential of the membrane. This change in membrane potential activates secondary messenger systems within the cell. These second messengers incite a cascade of complex events leading to up-regulation and down-regulation of numerous genes involved in the control of inflammation. This table summarizes the second messenger effect:

Second Messengers	MAP-Kinase, ERK, Protein Kinase C (PKC)	Mitogen-Activated Protein Kinases (MAP-Kinase), Extracellular Signal-Regulated Kinases (ERK), and Protein Kinase C are activated by changes in membrane potential. They produce changes in the expression of genes involved in the inflammatory response.
	Calmodulin	Calmodulin is a messenger protein which is activated by increases in Calcium concentration and mediates inflammation and regulation of Nitric Oxide Synthase.
	Nitric Oxide Synthase (NOS)	Nitric Oxide Synthase (NOS) enzymes catalyze the production of nitric oxide (NO). NO is an important cellular signaling molecule involved in multiple pain pathways and inflammation.

The April newsletter will focus on Provant's effect on cytokine and edema-related genes. To learn more about Provant's mechanism of action, please contact your local Regenesys representative, or visit <http://bit.ly/1nvVhSr>

And remember: FDA has cleared the use of Provant for patients with metallic implants in the area of treatment. This includes metal joints, rods, plates, screws, and pins. Provant is indicated for adjunctive use in the palliative treatment of postoperative pain and edema in superficial soft tissue.



Sincerely,



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