



GLOBAL SKIN HEALTH

## CHALLENGE DERMATOLOGICAL NOCICEPTIVE PATHWAY IN VITRO BY A PHYTOCHEMICAL COMPOUND

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**Background:** The cutaneous discomfort until a painful skin sensation has already been felt by everyone and at any age. Not only dermatological pathologies but also everyday life can be responsible of these perceptions. To target the nociceptive pathway, the transduction signal in sensory neuron can be blocked or modulated at the epidermal level. This modulation could be effective also in non-neuronal cells as keratinocytes.

**Objective:** The aim of this work is to evaluate a phytochemical compound from the vine of Peru to demonstrate its capability to act on both population of cells.

**Materials and Methods:** In first way, we performed a screening of pharmacological activities on a panel of receptors and channel involved in nociceptive pathway using in-vitro recombinant cellular assays. In a second way, we used a SP-induced ex-vivo human skin model of neuro-inflammation.

**Results:** Regarding its pharmacological activities, our phytochemical compound from the vine of Peru showed agonist activity on  $\mu$  and  $\delta$ -opioid receptors. These activities at peripheral level could modulate transduction of nociceptive pathway in C-Fibers. In the same way, it showed agonist activity on CB2 receptor that could induce locally the production of endorphin by keratinocytes. Also, it showed an agonist activity on TRPM8 channel that may bring cold effect and counter-stimuli to alleviate nociceptive pathway. In the other hand, an antagonist activity on PAR-2 receptor was found and could block neuro-inflammation induced pain. Finally, in the ex-vivo experiment our compound decreased IL-8 cytokine release and modulated vascular component.

**Conclusions:** Altogether these data suggest that a topical Dermo-Cosmetic product containing a such phytochemical compound for its nociceptive transduction pathway modulation could be useful to protect against painful skin sensation.

