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Antinociceptive activity of Transient Receptor Potential channel TRPV1, TRPA1 and TRPM8 antagonists in neurogenic and neuropathic pain models in mice

Key words: Allyl isothiocyanate, Capsaicin, Formalin, Neurogenic pain, Transient Receptor Potential channels, Paclitaxel-induced sensory neuropathy

TRP channels detect nociceptive stimuli of various origin

TRPV1

- Sensitive to heat and capsaicin

TRPA1

- Activated by cold and some chemical stimuli (reactive oxygen species, formalin)

TRPM8

- Activated by cold

Aim

The aim of this research was to assess the antinociceptive activity of TRPV1, TRPM8 and TRPA1 channel antagonists in neurogenic, tonic and neuropathic pain models in mice

Methods

Induction of nociceptive response in mice using:

capsaicin,

allyl isothiocyanate, formalin, paclitaxel

Intraplantar or intraperitoneal injection of algogens

Assessment of the ability of selected TRP antagonists:

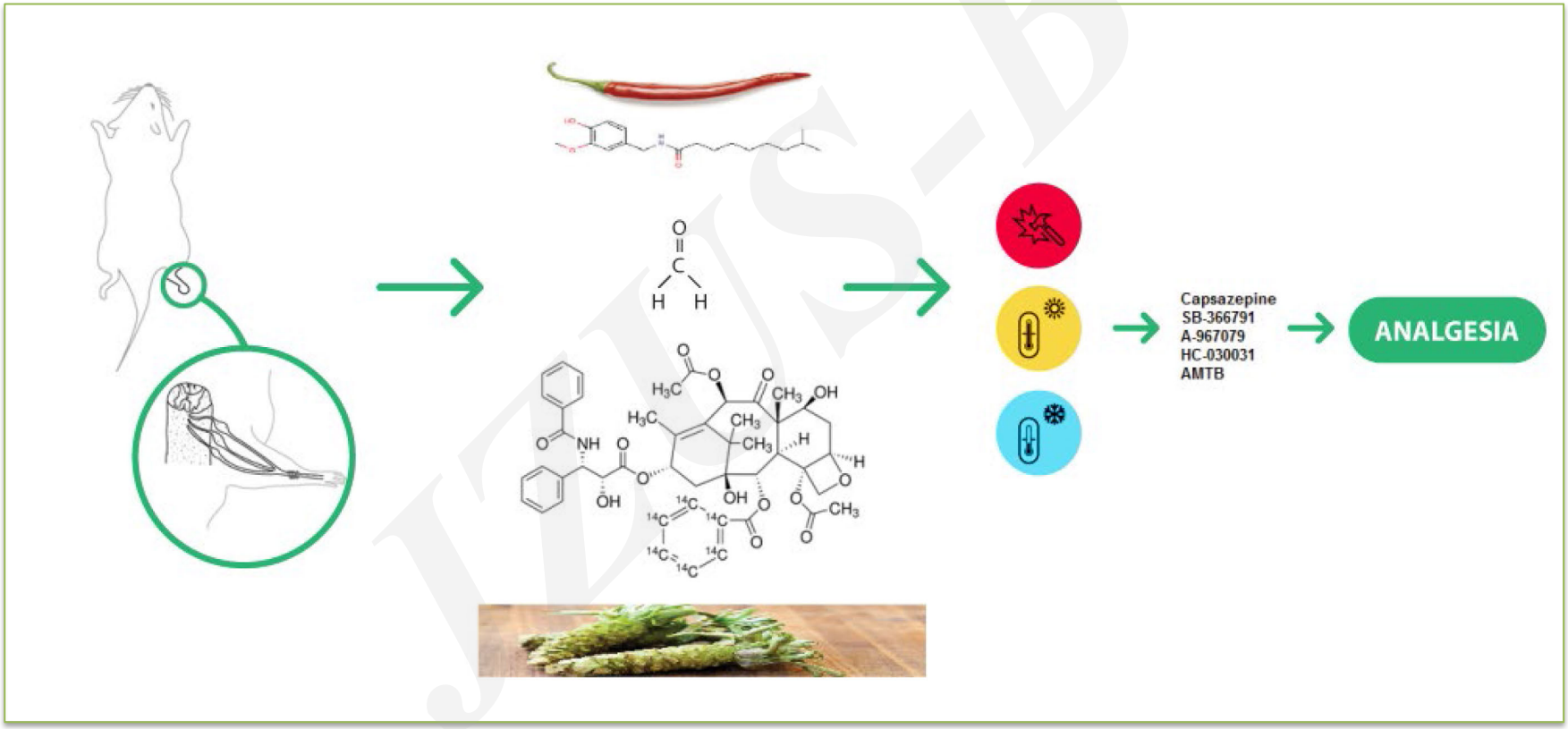
Capsazepin, SB-366791

A-967079, HC-030031

AMTB

to attenuate nociception evoked by chemical, thermal (temperature 4° C and 55° C) and mechanical stimuli

Results



Conclusions

Distinct members of TRP channel family are involved in different pain models in mice

Antagonists of TRP channels attenuate nocifensive responses in neurogenic, tonic and neuropathic pain, but their efficacy strongly depends on the pain model used