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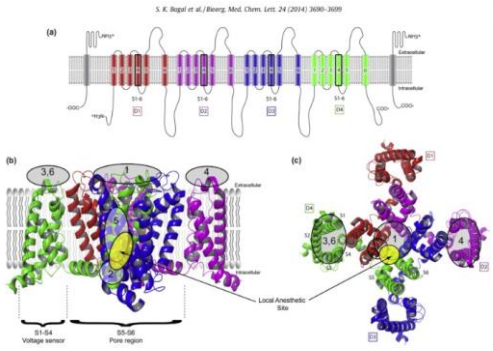
Synopsis of research: Influence of Tuning Element Relief Patches on Pain Through Ion Channels as Predicted by the Resonant Recognition Model (RRM)

Aim

Pain both, acute and chronic, is debilitating medical condition that is a major cause of suffering in the general population and has major impact in the economy. Very often source of pain cannot be cured, but can only be threated symptomatically. Currently pharmaceutical approaches are used, based on channel blockers including neurotoxins, which are costly and cause multiple side effects. "In last decade, a new class health related products have been developed that utilises electromagnetic frequencies imprinted with an energetic message, which is passively transmitted through skin contact. Tuning Element, L.L.C. is pioneering in production of passive ELEMF items, particularly TERP patches which should be applied to painful areas of the body and are supposed to remediate pain. TERP patches have been already tested in initial clinical studies to show nontoxicity and anecdotal data suggests that TERP can offer safe and cost effective pain management."

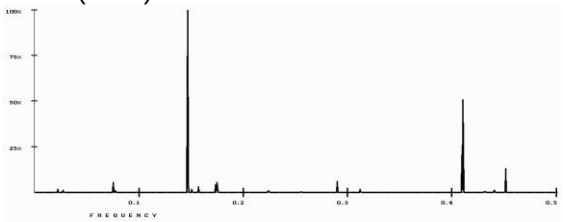
This work is aimed to find out possible mechanisms of Tuning Element Relief Patches (TERP) influence to pain. Here, nerve transmission which is in fact electrical signal along the nerve (axon) is analysed. This electrical signal is formed by complex activation (opening and closing) of pain related ion channels and consequent redistribution of electrically charged ions at nerve cell membrane. Ion channels are made of number of proteins that are involved and control these complex processes of opening and closing ion channels.



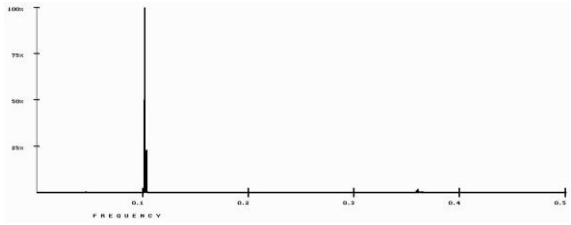
Within this work, we have analysed pain related sodium and calcium ion channels, using the RRM model, with the aim to find the characteristic resonant frequencies for opening and closing of these ion channels and to investigate possibility of these frequencies to resonate with frequencies imprinted within TERP patches and consequently to propose mechanism of pain remediation with TERP patches.

Findings

Characteristic frequency for pain related sodium ion channel opening and closing function is fn1=0.1465. This numerical RRM frequency relates to electromagnetic wavelength λ=1372nm. Thus, Titanium, Gold or any other conductive particles in the TERP patches, that are in diameter of about Dλ=1400nm, Dλ/2=700nm and Dλ/4=350nm, can resonate with pain related sodium ion channels, influence their opening and closing function and consequently influence pain transmission along the nerve (axon).



Characteristic frequency for pain related calcium ion channel opening and closing function is fc2=0.1021. This numerical RRM frequency relates to electromagnetic wavelength λ=1968nm. Thus, Titanium, Gold or any other conductive particles in the TERP patches, that are in diameter of about Dλ=2000nm, Dλ/2=1000nm and Dλ/4=500nm, can resonate with pain related calcium ion channels, influence their opening and closing function and consequently influence pain transmission along the nerve (axon).



When different modalities of charge transfer through protein backbone is introduced, the resonant frequencies for opening and closing function of pain related sodium and calcium ion channels could then be in different frequency ranges including THz, GHz, MHz and KHz. These frequencies could also resonate with frequency imprinted within TERP patches.

All these findings can explain mechanisms of TERP patches remediating pain through resonances with pain related ion channels. This would mean that TERP patches could mimic the similar activity as toxin based pain killers, but without side effects and particularly avoiding negative drug effects on digestive system.

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