Computer Controlled Laser System For Auricular Stimulation

Tech ID: 27200 / UC Case 2015-330-0

BRIEF DESCRIPTION

Photonic physiological and neurological stimulation is the application of therapeutic lasers to classical acupuncture points on the body for therapeutic purposes. The lack of physical puncturing mitigates side-effects associated with classical acupuncture and makes the therapy more accessible. Working together, inventors at UCI and Samueli Institute have developed a computer-controlled photonic stimulation system that is capable of using complex therapy protocols and integrated bio-feedback to provide more effective, personalized treatment using multiple laser sources.

FULL DESCRIPTION

Classical acupuncture involves inserting fine gauge needles into the body at selected sites. The stimulation of specific acupuncture points has indirect effects in other areas of the body that can be used as treatment for pain, nausea, and stress. However, classical acupuncture is inaccessible to many who dislike needles, including children. There are also inherent drawbacks such as soreness, bleeding, and infection that can result from the invasive nature of the needles.

Lasers have been shown to produce physiological and neurological affects similar to classical needle acupuncture. The lasers are typically range from ultraviolet (~390nm) to near-infrared (~900nm) in wavelength. Other parameters, such as penetration angle and power density are adjusted to achieve the correct skin penetration depth. The laser sources currently require manual positioning and manipulation, which can be unsteady and reduce effectiveness. Therapists are also limited to only a single laser source at a time, making it impossible to stimulate multiple acupuncture sites concurrently.

The inventors have developed a method and apparatus for simultaneous control of multiple light sources for laser stimulation therapy. The apparatus includes laser mounting and positional elements that can control and direct multiple laser sources. A software interface allows for pre-programmed treatment protocols that can be more complex than those performed manually by a specialist. The parameters, such as positioning and intensity, of the lasers are also subject to feedback from measured neurological and physiological feedback in real time. The program can measure the effectiveness of the treatment and adjust the laser parameters to the needs of individual patients. The result is a dynamic treatment method that can be personalized for effectiveness during a single treatment protocol or over the course of multiple treatments.

ADVANTAGES

Prototype device has been built and demonstrated

STATE OF DEVELOPMENT

§ Control system can operate multiple lasers simultaneously and independently

§ Allows for complex protocols without a specialist

§ Integrates bio-feedback in protocol and laser control

CONTACT

Alvin Viray
aviray@uci.edu
tel: 949-824-3104.

OTHER INFORMATION

CATEGORIZED AS

» **Biotechnology**
» Health
» **Medical**
» Devices

RELATED CASES

2015-330-0

§ Non-invasive nature prevents soreness, bleeding, and infection

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,471,276	11/12/2019	2015-330

UCI Beall
Applied Innovation

5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683