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CLENS[™]: A novel coincident light/ultrasound therapy to treat acne

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B acteria preferentially grow as colonies surrounded by a complex matrix, together called a biofilm. When bacteria form biofilms, B they become extremely difficult to treat because they have a physical barrier and exist in a low metabolic state. Recent data demonstrates that P. acnes, which causes chronic acne, forms biofilms which may contribute to the limited efficacy of existing treatments. PhotoSonix Medical, Inc. has developed CLENS[™] (Coincident Light Energy and Non-focused ultrasound), a patented energy-based therapy which synergistically combines light and ultrasound energy to treat chronic acne. Ultrasound energy mechanically stresses P. acnes bacteria, causing them to boost their metabolism and become susceptible to treatment. Therapeutic light targets porphyrin, creating reactive oxygen products which are toxic to bacteria. The combined treatment may also enhance healing because ultrasound increases blood flow and tissue remodeling, and light reduces chronic inflammation. To date, both laboratory and in-vivo studies have been conducted. Laboratory testing on P. acnes biofilms demonstrated that the CLENS combination of light and ultrasound caused 90% and 99.94% cell death following 5 min, and 30 minutes of CLENS exposure respectively. Under the same conditions, erythromycin had minimal bactericidal effect. In-vivo data has shown over 90% reduction in skin surface bacteria in as little as 10 minutes. A reduction in skin bacteria of greater than 90% is a validated surrogate for clinical efficacy. Importantly, efficacy required the simultaneous application of both energies. CLENS may offer a new therapeutic option to chronic acne patients without use of antibiotics.

Biography

Mark Schafer is President of Photosonix Medical, and has served in senior roles for several ultrasonic device companies. He has over 20 peer-reviewed publications, 21 patents, and is a Fellow of the AIUM and the ASA. Mark holds a BSEE from MIT and a PhD from Drexel University. Tessie McNeely is an expert in infectious disease and biofilms. She served in senior scientific roles at Merck, where she earned multiple awards for scientific contributions, and was Principal Scientist for the development of an acne vaccine. She holds a BA from Berea College and a PhD from UNC at Chapel Hill.

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