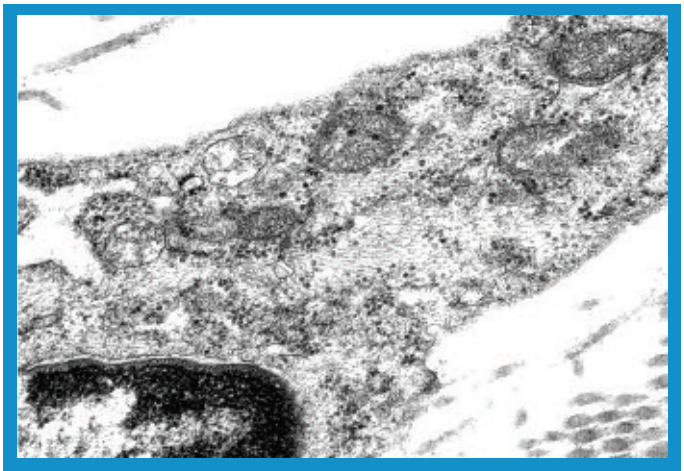
New Clinical Data Supports Wound Healing Indications for Omnilux

BY KEVIN WILSON, CONTRIBUTING EDITOR

The future looks bright for the Omnilux revive (Photo Therapeutics Ltd., Fazeley, Staffordshire, U.K.). The novel 633 nm light emitting diode (LED) therapy unit enjoys growing clinical support in a number of publications for indications ranging from acne therapy and skin rejuvenation to wound healing.

A recently published investigation by Shinichiro Takezaki, M.D. of the Nippon Medical School, Tokyo, Japan, and Tokuya Omi, M.D. of Queen's Square Medical Center, Yokohama, Japan, has revealed the stimulatory effect of Omnilux revive light therapy on cellular components of the skin's supportive matrix. Their conclusions were supported by clinical data from David Goldberg, M.D. of Mt. Sinai School of Medicine, New York, U.S.



TEM demonstrating fibroblast in a high metabolic state. (After second Omnilux revive therapy session). Chromatin is now localized at the nuclear membrane, suggesting enhanced communication with the cytoplasm/organelles. There is a marked increase in mitochondria and vimentin fibrils.

The 633 nm wavelength has already been proven to increase the action potentials of fibroblasts and endotheliocytes, which stimulates fibroblastic growth factor synthesis from photoactivated macrophages and accelerates mast cell degeneration. The study examined the ultrastructural changes to the skin induced by irradiation with visible red light using the Omnilux revive.

Adult males (35-48 years old) received visible red light (105 mW/cm^2, 15 min/session, 94 J/cm^2) to the fibula area once per week for eight weeks. Biopsies were taken from both legs of each subject after the second and eighth treatment sessions, with the untreated leg acting as a control. Transmission Electron Microscopy (TEM) demonstrated a marked increase in fibroblasts and lymphocytes in the irradiated area, increased metabolic activity of both endothelial cells and fibroblasts, and a dramatic increase in vimentin and intracellular mitochondria, indicating greater energy demands by photoactivated cells. The combination of these factors leads to enhanced collagen synthesis and remodelling, which is a major goal of tissue regeneration.

"This data is a major breakthrough in LED development and provides a real correlation between the wealth of *in vitro* data and the emerging *in vivo* data," commented Sue D'Arcy, CEO of PhotoTherapeutics Ltd. "We know that 633 nm light from the Omnilux revive not only has the ability to improve fine lines and wrinkles, having a direct effect on the cells involved in the skin's supportive matrices, but has the ability to accelerate tissue or wound repair through improved synthesis of collagen, elastin and ground substance."

Mario A. Trelles, M.D., Ph.D.
President and Medical Director
Medical Institute of Vilafortuny
Cambrils, Spain

Dr. Takezaki's results are further supported by recent *in vivo* work by Mario Trelles, M.D., Instituto Medico Vilafortuny, Cambrils, Spain. Dr. Trelles demonstrated a statistically significant reduction in healing time after blepheroplasty and laser resurfacing when comparing 633 nm irradiated tissue to an untreated control. "This earlier resolution of sequelae on the LED irradiated side suggests that patients will be able to return to their normal social or working life much faster following Omnilux therapy after combined blepharoplasty and laser ablative resurfacing," said Dr. Trelles, who will present his data at the 64th meeting of the *Anti-aging World Congress* (AAWC) in Paris, March 23 to 25.

"Using Omnilux after surgery to stimulate cells key to the regenerative pathways decreases the chance of inflammation, reduces edema and quickens healing time," Dr. Trelles added. "I believe that several specialties of medicine can benefit by utilizing the healing capability of Omnilux revive and hence offer better treatment outcomes for their patients," Dr. Trelles concluded. ■