

CDR SEMINAR SERIES

Hilton Kaplan, MBBCh, FCSSA, PhD

Rutgers, The State University of New Jersey

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“Platelet-mediated percutaneous collagen induction through microneedling the skin”

BIOGRAPHY:



Hilton Kaplan is a Plastic Surgeon and Biomedical Engineer with research interests in neurosciences (focusing on neural prosthetics and other implantable man-machine interfaces), and tissue engineering (particularly decellularized composite allotransplantation of limbs and faces). He has held various clinical and research positions in industry, including Senior Medical Director at Allergan (a Fortune 500 healthcare company) and Vice President of Clinical Sciences at LifeCell Corporation (the industry-leading pioneer of decellularized dermal tissues for regenerative medicine). Dr Kaplan has been an Adjunct Professor in Regulatory Science at the University of Southern California, and is a founding board member of the Grossman Burn Foundation.

ABSTRACT:

Numerous methods exist today to revise scars, tighten skin and target photoaging, such as laser re-surfacing and deep peeling. Yet these treatments are ablative, injuring the skin and subsequently leading to fibrosis of the papillary dermis. They tighten the skin or improve scars, but generally destroy the epidermis, and very importantly its basement membrane, which is replaced by an epidermis that no longer has dermal papillae and is thinner than before. Even fractional treatments, which attempt to minimize this effect, result in up to a 20% coagulated tissue zone. Necrotic tissue is a stimulus for a cicatricial wound healing response, rather than a regenerative one. The ideal treatment should do exactly the opposite by instead improving the tissue quality and building up scarred tissue to the level of normal skin, in a natural way.

Percutaneous Collagen Induction (PCI) creates thousands of tiny needle-pricks in the superficial dermis with virtually no tissue destruction at all. We demonstrate the associated upregulation of TGF-B3 to stimulate regenerative, as opposed to cicatricial, wound-healing. This process results in a confluent sheet of the patient's own high-quality collagen being laid down in their skin. The procedure effectively breaks down and allows reorganization of scar tissue, similar to subscision or needle trepanation of scars, but is feasible for large areas. As there is no stripping of the stratum corneum (maintaining full photoprotection), nor any deep inflammatory response, this technique is suited to all skin types, all body areas, and without restriction to aesthetic units.

We present the retrospective analysis of 480 patients with fine wrinkles, lax skin, scarring and stretch marks, treated with percutaneous collagen induction therapy using surgical needling, aiming to produce normal collagen formation. The results of histology, biochemical markers, and patient/surgeon satisfaction are presented.

Percutaneous Collagen Induction proves to be a simple and fast method for safely treating wrinkles and scars, and producing smoothness naturally.

LOCATION: Life Sciences Building Rutgers - The State University of New Jersey, 145 Bevier Road, Piscataway, New Jersey 08854, New Jersey Center for Biomaterials Suite - Conference Room 102

TIME: 5:30 PM

HOST: Bozena B. Michniak-Kohn, Ph.D., M.R.Pharm.S. Director, Center for Dermal Research, Professor of Pharmaceutics, Ernest Mario School of Pharmacy