

## **A DOUBLE BLIND VEHICLE-CONTROLLED STUDY OF KINETIN LOTIONS FOR IMPROVING THE APPEARANCE OF AGING PHOTODAMAGED FACIAL SKIN WITH 24 WEEKS OF TWICE DAILY TOPICAL APPLICATION**

Gerald D. Weinstein, M.D., Jerry L. McCullough, Ph.D., Nili N. Ali, M.D., Toni F. Shull, R.N., Dianne Moudy, J.D.  
Department of Dermatology, University of California, Irvine, Irvine, CA

**Background:** Kinetin (N<sup>6</sup>-furfuryladenine) is an essential plant growth factor which retards senescence of plants, delays age-related changes in cultured human skin cells, and prolongs the life-span of the fruit fly. Kinetin is an ingredient in the proprietary AgeDefiant™ Skin Preservation System (Senetek PLC). The present double-blind clinical study was conducted to investigate the clinical effectiveness of and patient tolerance of two different lotions containing 0% and 0.005% kinetin in the treatment of aging photodamaged facial skin.

**Methods:** Sixty-four subjects were randomly assigned to receive 0% or 0.005% kinetin in two different test lotions. Each treatment group comprised 16 subjects with mild-to-moderate photodamaged facial skin. Subjects applied the lotions twice daily for 24 weeks. All subjects used a standardized skin care regimen consisting of a mild facial cleanser and daily application of sunscreen (SPF 15). Subjects were evaluated at baseline and at monthly intervals for overall severity, clinical signs of photodamaged skin (fine wrinkling, coarse wrinkling, roughness, laxity, sallowness, actinic lentigines, mottled hyperpigmentation, telangiectasia), global assessment of improvement, and signs and subjective symptoms of skin irritation. At each visit subjects were asked to assess improvement in fine wrinkles, skin texture and color, and overall improvement. Standardized clinical photography was used to document response. Transepidermal water loss (TEWL) was measured using a Servo-Med evaporimeter to assess skin barrier function. The protocol was approved by an IRB and informed consent obtained from all subjects.

**Results:** All treatments showed consistent clinical global improvement over the 24-week period compared to baseline, with 33-36% of subjects treated with kinetin showing a good-to-excellent response versus 12-21% treated with vehicle. The clinical signs showing the greatest % improvement with 24 weeks of kinetin treatment were fine wrinkles (21%), actinic lentigines (20%), mottled (blotchy) hyperpigmentation (34%), telangiectasia (39%) and tactile skin roughness (41%). The time course of the response was characterized by a progressively greater reduction in overall severity between weeks 12 and 24. In the subjects self-assessment at 24 weeks, 60% of the subjects found a good-to-excellent overall response with one of the kinetin lotions (L1) versus 36% with vehicle alone; 80% had a good-to-excellent response in improving skin texture versus 42% with vehicle, and 47% in improving fine wrinkle versus 36% with vehicle. TEWL tends to be higher in photodamaged skin, reflecting an abnormal stratum corneum. All treatments produced a significant decrease in TEWL, indicating an improvement in skin barrier function. The treatments were well tolerated by subjects with no side effects. A clear majority of subjects indicated they liked and would buy the products.

**Conclusion:** Topical kinetin lotions are effective in partially reversing the clinical signs of photodamaged facial skin and in restoring normal stratum corneum barrier function. In contrast to other anti-aging products (retinoids, AHAs) the kinetin lotions did not produce and clinical signs or subjective symptoms of irritation. The high response rate noted in the control groups is attributed to the emollient properties of the vehicles and/or greater attention to skin care and the regular use of sunscreen by participants.

**Comment:** The subjects in the present study are continuing treatment on kinetin lotion for and additional 6 months to determine if these effects are maintained or improve with continued Treatment. Studies are also in progress to determine if enhanced effectiveness is obtained using higher kinetin concentrations (0.01%-0.1%) for 24 weeks.

Presented at IBC Conference "PHOTOAGING: Latest Advances in Understanding, Treatment and Prevention", August 21-22, 1997, Short Hills, NJ