NU SKIN

THE DIFFERENCE. DEMONSTRATED.™

ageLOC™

Time will never tell.

¿Te has preguntado por qué algunas personas Lucen Más Jóvenes de lo que Son en Realidad?

La Tecnología ageLOC™ de Nu Skin Tiene la Respuesta

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El Descubrimiento de ageLOC™

Nuevas investigaciones en la Universidad Purdue revelaron recientemente una fuente de envejecimiento importante previamente oculta dentro de nosotros: un generador interno de radicales libres en la epidermis.

Presente en la superficie de nuestra células, este enemigo invisible es capaz de generar los radicales libres que dañan la piel e incrementan al envejecer.

A diferencia de otros radicales libres que surgen por la exposición al sol o a los contaminantes, nuestros genes controlan su actividad.

El Descubrimiento de ageLOC™

Este generador interno de radicales libres puede producirlos tan rápidamente que incluso los antioxidantes necesitan ayuda extra para retrasarlos.

La única solución: retrasar la producción de radicales libres dañinos para la piel *desde su origen* y detener los signos visibles antes de que comiencen.

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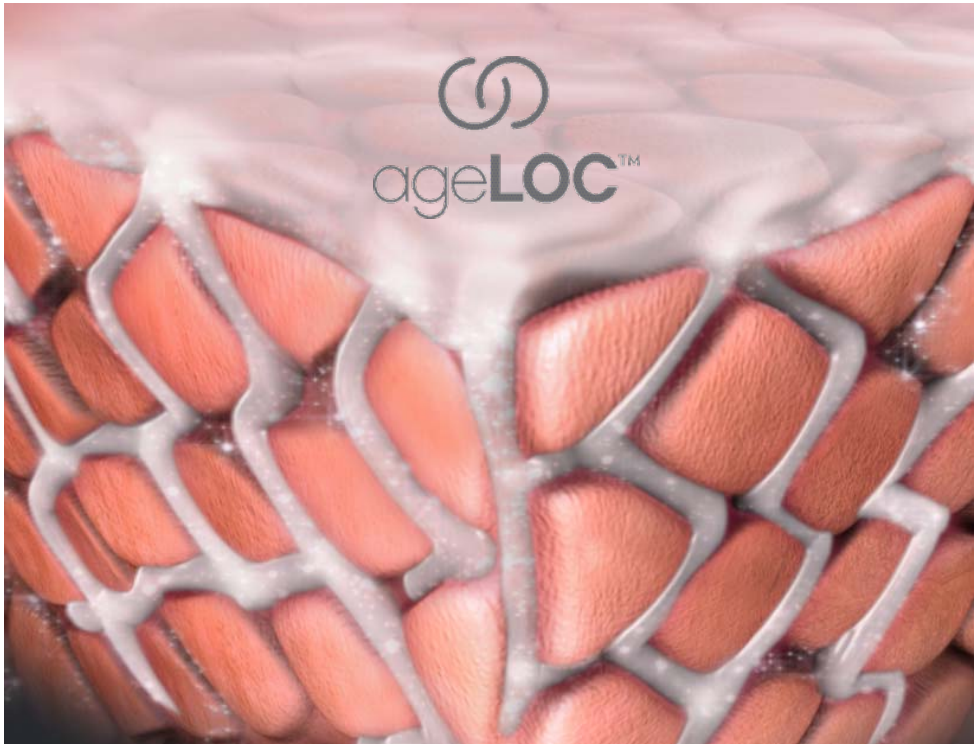
The Radiating Effects of Aging

We TARGET the Source and the Symptoms

El Descubrimiento de ageLOC™



En un gran avance, los científicos de Nu Skin identificaron una mezcla exclusiva de ingredientes que retrasan la producción de radicales libres en la epidermis.

Introduciendo **ageLOC—tecnología diseñada para reducir los signos visibles del envejecimiento al dirigir una fuente invisible** de tu apariencia de envejecimiento.

Geles Faciales Nu Skin® Galvanic Spa™ con la NUEVA Tecnología ageLOC™

Restaura y Protege el Resplandor Juvenil de la Piel

Los Geles Faciales Nu Skin Galvanic Spa ahora con la nueva tecnología ageLOC —una mezcla de ingredientes registrada que ayuda a reducir los signos del envejecimiento *desde su origen.*

Kyoto Scientific Presentation

Age-related NADH oxidase (arNOX) activity of epidermal punch biopsies correlate with subject age and arNOX activities of serum and saliva

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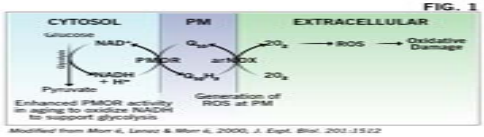
[1]NuSkin Enterprises, Provo, Utah, [2]Dermatology Consulting Services, High Point, NC and [3]Purdue University, West Lafayette, IN

BACKGROUND

The ECTO-NOX (external NADH oxidase) or ENOX proteins are cell-surface located, terminal oxidases involved in the plasma membrane oxido-reductase (PMOR) system. Aging leads to the accumulation of mitochondrial DNA lesions and a shift towards energy production via glycolysis, resulting in a hyperactive PMOR system. ENOX1 (CNOX) and ENOX2 (tNOX) carry out 4 electron transfers to molecular oxygen to form water. However, ENOX3 (arNOX) is unique in that it generates superoxide at the cell surface (Fig. 1) and its activity is elevated in individuals of 50-70 years of age compared to those of 20-40 years of age (1,2) Generated superoxide can then form H_2O_2 and other reactive oxygen species (ROS) capable of damaging adjacent cells, circulating lipoproteins (3) and components of the skin's extracellular matrix (ECM).

FIG. 1



OBJECTIVE

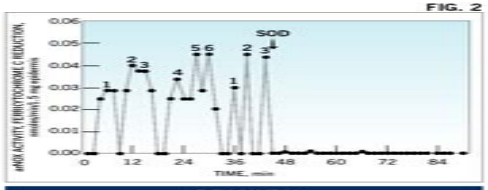
To demonstrate the presence of arNOX (ENOX3) in human epidermis and dermis and examine possible correlations with age and sun exposure.

METHODS & MATERIALS

This was a single center study designed to obtain human skin, serum, and saliva samples from a variety of age groups for arNOX level determination and further laboratory study. From both sun-exposed and non sun-exposed sites, three mm full-thickness skin punch biopsies were taken from sixteen healthy women age 25-73 of Fitzpatrick skin type I & II. The epidermis and dermis of each biopsy were carefully separated and frozen in PBS. Serum and saliva samples were also collected from each of the 16 subjects. All epidermal, dermal, serum and saliva samples were sent to Purdue University for arNOX activity measurement.

arNOX activity was measured as the production of superoxide based on the standard method where reduction of ferricytochrome c by superoxide was monitored from the increase in absorbance at 550 nm with reference at 540 nm (4). The oscillatory pattern of arNOX activity with a 26 min period and inhibition by superoxide dismutase (Fig. 2) served as the basis for the activity assay. Rates were determined using a SLM Aminco DW-2000 spectrophotometer in the dual wavelength mode with continuous measurements (over 1 min every 1.5 min). After 45 min, 60 µl (containing 60 units) SOD were added and the assay was continued for an additional 45 min as a further check for the specificity of the arNOX activity.

FIG. 2



RESULTS

For all six tissue samples arNOX activity and subject age were positively correlated, with arNOX activity exceeding background (blank) rates beginning at about age 30 (extrapolation) and reaching a maximum between ages 55 and 65 (Fig. 3-8). For sun-exposed epidermis and both sun-exposed dermis and sun-protected dermis, arNOX activity values reached a plateau or declined between ages 55 and 72. However, for serum and saliva, activity increased with increasing age beginning at about age 30.

FIG. 3

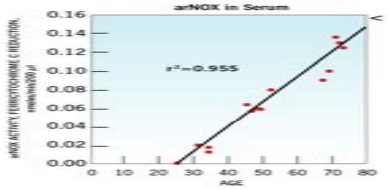


FIG. 4

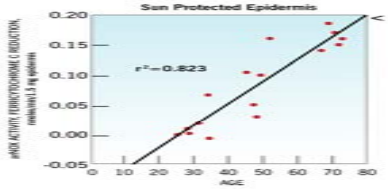


FIG. 5

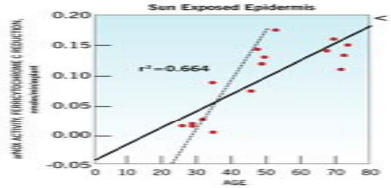


FIG. 6

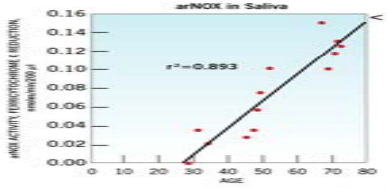


FIG. 7

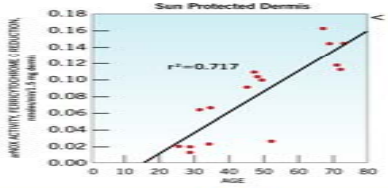
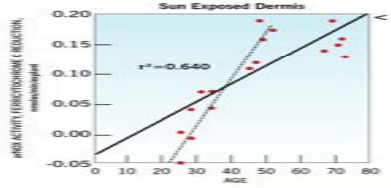


FIG. 8



CONCLUSION

We have demonstrated that arNOX (ENOX3) is found in both the epidermis and dermis at both sun-exposed and non-sun exposed sites. arNOX levels correlate with chronological age. Because of decreasing arNOX levels in the oldest subjects, the data suggest that arNOX inhibitors may be of cutaneous value in persons between ages 45 and 65.

REFERENCES

1. Morré DM, Guo F, Morré DJ. An age-related cell surface NADH oxidase (arNOX) generates superoxide and is inhibited by [illegible]. Mol. Cell. Biochem. 2000;204:101-109.
2. Morré DM and Morré DJ. Specificity of Green 2001-18 inhibition of an aging-related cell surface NADH oxidase (ECTO-NOX). Exp. Gerontol. 2003;38:313-319.
3. Morré DJ and Morré DM. Aging-related cell surface ECTO-NOX protein, arNOX, a preventative target to reduce [illegible] risk in the elderly. Rejuvenation Res. 2006;9(2):231-236.
4. Butler J, Koppenol WH, Margoliash E. Kinetics and mechanism of the reduction of ferricytochrome c by the superoxide anion. J. Biol. Chem. 1982;257:10747-10750.

NU SKIN ENTERPRISES

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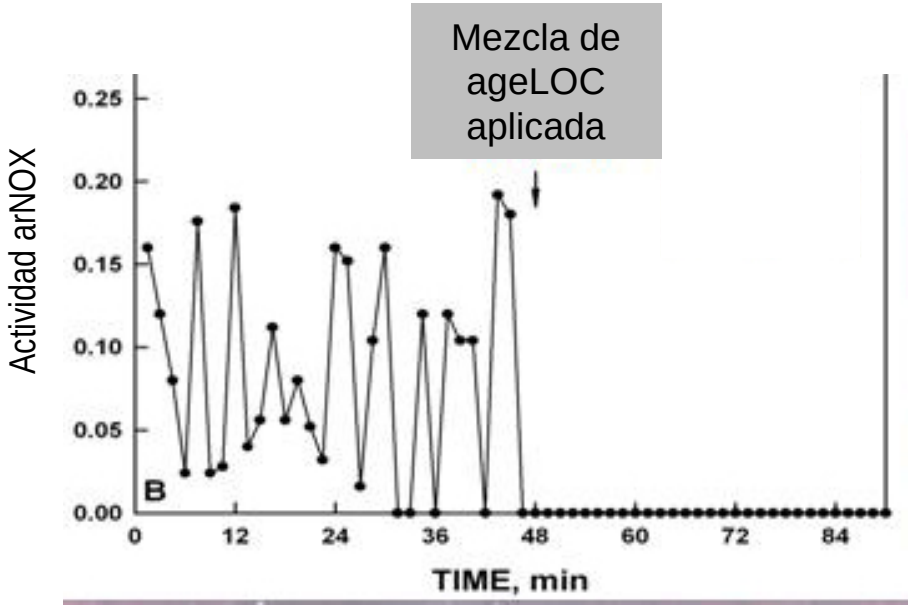
Gel de Tratamiento con ageLOC™ Descripción de los Beneficios



Se ha demostrado que los ingredientes de ageLOC evitan la expresión de los radicales libres relacionados con la enzima arNOX. Esta prevención podría ayudar a retrasar los signos del envejecimiento que podrían ser causados por la producción de radicales libres.

Gel de Tratamiento con ageLOC™
Descripción de los Beneficios

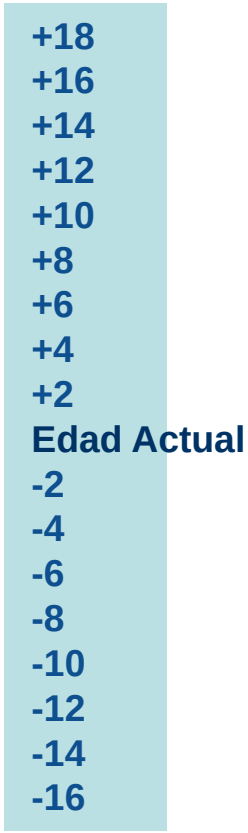
Un estudio reciente de la Universidad Stanford mostró que los individuos con **bajos niveles de arNOX** están calificados clínicamente para lucir un promedio de **siete años más jóvenes** que su edad cronológica actual. Las personas con **altos niveles de arNOX** parecen ser un promedio de **siete años más grandes** que su edad actual.

arNOX alto

Promedio 7 años más grande

arNOX Bajo=

Promedio 7 años más joven



es la respuesta.

Pre-lanzamiento Convención Octubre 2008

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