



PRO-HEAL® SERUM ADVANCE+ STUDY

comparative antioxidant strength (ORAC)

ANTIOXIDANT PROTECTION

STUDY OBJECTIVE The comparative antioxidant strength of PRO-HEAL® SERUM ADVANCE+ was evaluated against other products in the market.

STUDY DESIGN The Oxygen Radical Absorption Capacity (ORAC) was used as the measure of antioxidant effectiveness. Five products were compared with this assay - PRO-HEAL® SERUM ADVANCE+, product containing vitamins C and E plus Ferulic acid, product containing CoffeeBerry, product containing 10 percent vitamin C and product containing 1 percent Idebenone.

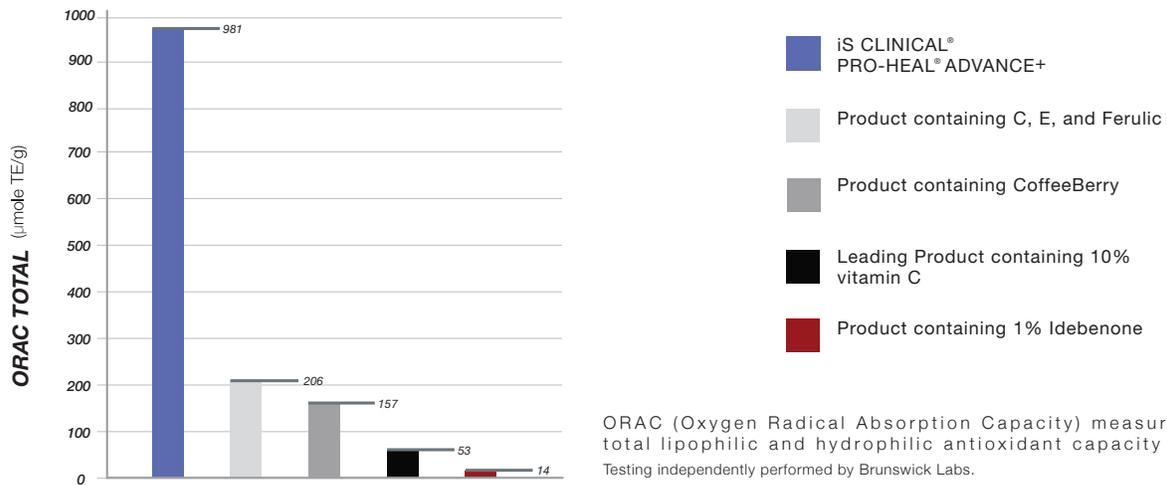
SIGNIFICANCE OF STUDY Many products are advertised as having antioxidant ability and protection against free radical damage. This study provided an actual comparison of five products in the marketplace using the same chemical assay.

The ORAC analysis provides a measure of the scavenging capacity of antioxidants against the reactive oxygen species (ROS) found in the body. ORACHydro reflects water-soluble antioxidant capacity and the ORAClipo is the lipid soluble antioxidant capacity. ORAC TOTAL is the sum of the ORACHydro and the ORAClipo. Trolox, a water-soluble vitamin E analog, is used as a calibration standard and the ORAC result is expressed as micromole Trolox equivalent (TE) per gram or per liter.

The ORAC assay is advantageous over many other methods. The mechanism of the ORAC is based upon sound chemical principles and the uniqueness of the ORAC lies in the quantitation technique. Indeed, many other methods have been developed for antioxidant activity, such as TEAC (Trolox Equivalent Antioxidant Capacity), TOSC (Total Oxyradical Scavenging Capacity), FRAP (Ferric Reducing Antioxidant Power), and DPPH method. However, the fatal drawback of these methods is either lack of oxygen radical or lack of complete quantitation technique. Therefore, only the ORAC provides antioxidant activity mechanistically and physiologically.

RESULTS AND CONCLUSIONS PRO-HEAL® SERUM ADVANCE+ provided superior antioxidant protection when compared to 4 other products in the marketplace.

COMPARATIVE ANTIOXIDANT STRENGTH





PRO-HEAL® SERUM ADVANCE+ STUDY

induced inflammation study

PREVENTION OF INFLAMMATION

STUDY OBJECTIVE The ability of PRO-HEAL® SERUM ADVANCE+ to prevent or decrease skin inflammation was investigated.

STUDY DESIGN Inflammation was induced by a detergent applied to human skin. On the control side, only the detergent was applied. On the treated side, PRO-HEAL® SERUM ADVANCE+ was applied before the detergent.

Both sides were visually evaluated using the following parameters — erythema, roughness, scaling, edema and fissures. Both the control side and treated side were biopsied. A full-thickness biopsy was performed and sent to a dermatopathologist for histologic examination. Photomicrographs were taken.

SIGNIFICANCE OF STUDY Many pathologic processes (such as sunburn, insect bites, rosacea, acne, etc.) involve inflammation. A certain amount of inflammation is necessary for healing and normal immune processes. However, excess inflammation is associated with increased oxidative stress and free radical damage. Excess inflammation causes negative effects on skin and is associated with photoaging, intrinsic aging, scarring, thickening and other chronic inflammatory events. Products that control excess inflammation have potential wide application.

RESULTS AND CONCLUSIONS The side treated with PRO-HEAL® SERUM ADVANCE+ exhibited minimal visual changes due to induced inflammation compared to the control. Histology demonstrated preservation of normal skin architecture on the treated side. The control side demonstrated marked cellular edema, influx of inflammatory cells and destruction of normal skin architecture.

A cumulative inflammation score was given by an examiner and included the parameters of erythema, roughness, scaling, edema and fissure formation. The highest possible score of inflammation was +20. On the side treated with PRO-HEAL® SERUM ADVANCE+, the cumulative inflammation score was +1 after 48 hours. On the untreated control side, the cumulative inflammation score after 48 hours was +11. Application of PRO-HEAL® SERUM ADVANCE+ provided near-complete protection against inflammatory damage caused by an applied strong detergent. A table of the cumulative inflammation score is shown below:

PRO-HEAL® ADVANCE+ CLINICIAN’S INFLAMMATION SCORE TABLE

PARAMETER	CONTROL (no PRO-HEAL® SERUM ADVANCE+)	TREATED (with PRO-HEAL® SERUM ADVANCE+)
Erythema (0 - +4)	+3	+1
Roughness (0 - +4)	+2	0
Scaling (0 - +4)	+3	0
Edema (0 - +4)	+1	0
Fissure Formation (0 - +4)	+2	0
Cumulative Score (0 - +20)	+11	+1

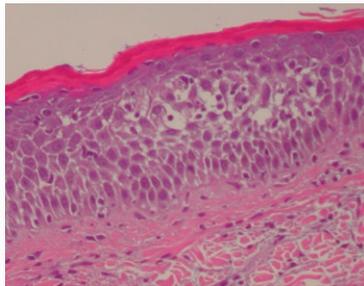


PRO-HEAL® SERUM ADVANCE+ STUDY

induced inflammation study

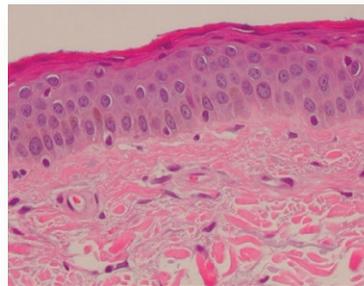
Biopsies were performed on the same subject in the experiment above. Photomicrographs of the control side and side pretreated with PRO-HEAL® SERUM ADVANCE+ are shown below. These are both H and E stains of full-thickness skin biopsies. The control side shows marked inflammation with migration of lymphocytes and Langerhans cells into the area, edema and destruction of normal skin architecture. On the side treated with PRO-HEAL® SERUM ADVANCE+, inflammatory cells are conspicuously absent and normal skin architecture is preserved.

EFFECTS ON INFLAMMATION



High power: Time: 48hrs - H & E stain control

Note the marked inflammation with migration of lymphocytes and Langerhans cells into the area. Edema occurs and normal skin architecture is lost.



High power: Time: 48hrs - H & E stain with PRO-HEAL® SERUM ADVANCE+

Note the absence of inflammatory cells and preservation of normal skin architecture.

Dermatopathology independently performed by PAML/InCyte