



# SUPER SERUM™ ADVANCE+ STUDY

comparative antioxidant strength (ORAC)

## ANTIOXIDANT PROTECTION

**STUDY OBJECTIVE** The comparative antioxidant strength of SUPER 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 - SUPER 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.

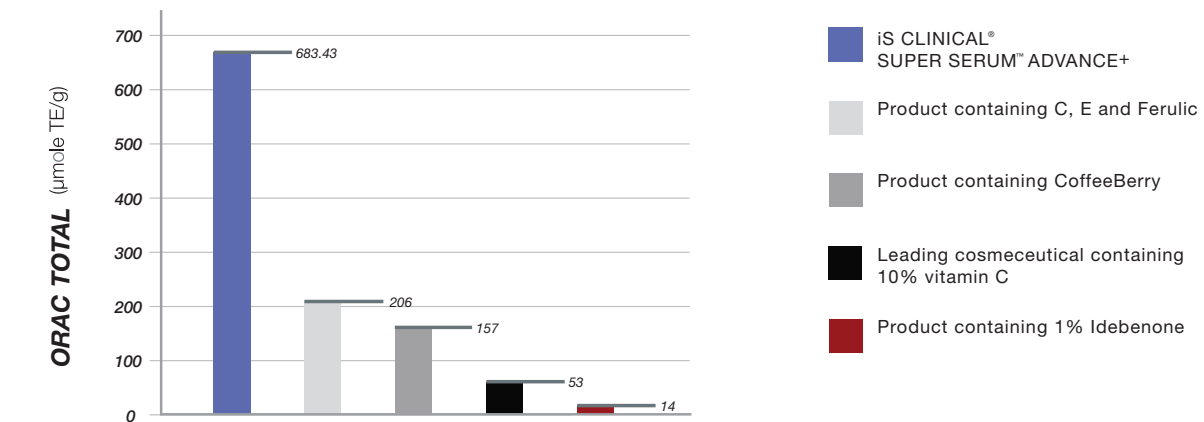
**SIGNIFICANCE OF STUDY** Many products are advertised as having antioxidant ability and protection against free radical damage. This study provided an actual comparison of five products in the marketplace using the same chemical assay.

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** SUPER SERUM™ ADVANCE+ provided superior antioxidant protection when compared to 4 other products in the marketplace.

### COMPARATIVE ANTIOXIDANT STRENGTH



ORAC (Oxygen Radical Absorption Capacity) measures total lipophilic and hydrophilic antioxidant capacity  
Testing independently performed by Brunswick Labs.



# SUPER SERUM™ ADVANCE+ STUDY

scar maturation study

## IMPROVEMENT IN SCAR TISSUE

**STUDY OBJECTIVE** Improvement in healing of a surgical wound was evaluated using SUPER SERUM™ ADVANCE+.

### STUDY DESIGN

**PART A** - Identical surgical wounds were made on the right and left mid-thighs of a subject. A #15 surgical scalpel was used to make 1.5 cm full-thickness linear wounds extending into the adipose tissue. The wounds were sutured with 4 simple interrupted sutures of 5-0 nylon. The wounds were kept dry and plain Vaseline was applied to them 3 times daily for one week. Sutures were then removed. At that time, product application began on one side only with the other side serving as control. Normal daily showering/bathing was permitted but the wounds were not directly washed with soap. No products were applied to the wounds thereafter except for product to the treated side. Product was applied twice daily for 3 months and for another subsequent 3 months was applied once daily. Digital photos were taken at 3 months and 6 months.

**PART B** - Excisional surgical biopsy of both treated and control wounds in Part A occurred at 6 months. The biopsy specimens were sent to a dermatopathologist for microscopic examination. Photos of the histology were made.

**PART C** - Product was applied to one-half of a right mastectomy scar in a patient with multiple prior procedures through the same wound including mastectomy, reconstruction with implants, several revisions and finally implant removal. The remaining half of the same wound served as control. Product application began 10 weeks after the last incision occurred and was continued for 4 weeks. Digital photos were taken when product application began and after 4 weeks of product application.

**SIGNIFICANCE OF STUDY** Improvement in healing of surgical wounds would be useful in all types of skin incisions. Improved cosmetic appearance would have huge implications for cosmetic procedures. Improved physiologic healing is also sought to shorten healing time and possibly improve the strength of the wound.

**RESULTS AND CONCLUSIONS** Digital photos of the scars in both Part A and Part C treated with SUPER SERUM™ ADVANCE+ show improved cosmetic appearance of the surgical wounds treated with SUPER SERUM™ ADVANCE+. The scars appear much less visible with less overall scarred area including length and width. It is particularly significant that the mastectomy scar in Part C began use of product 10 weeks after the surgical procedure. This suggests that use of the product is also beneficial when use may be delayed by a significant number of weeks. Microscopic exams in Part B confirmed what was seen visually. Collagen bundles were more orderly on the treated side. The stratum corneum of the treated side exhibited no histologic indications of wounding. The stratum corneum of the control side was hyperkeratotic. The scar treated with SUPER SERUM™ ADVANCE+ had less chronic inflammation, much more orderly collagen bundles, a flat surface without hyperkeratosis and a fully basket-weaved stratum corneum that appeared like the stratum corneum in the adjacent non-scarred area.

### PART A - SCAR MATURATION - DIGITAL PHOTOS



3 months - Control



3 months with SUPER SERUM™ ADVANCE+ applied twice daily



6 months - Control



6 months with SUPER SERUM™ ADVANCE+ applied twice daily for the first 3 months and once daily for the following 3 months



# SUPER SERUM™ ADVANCE+ STUDY

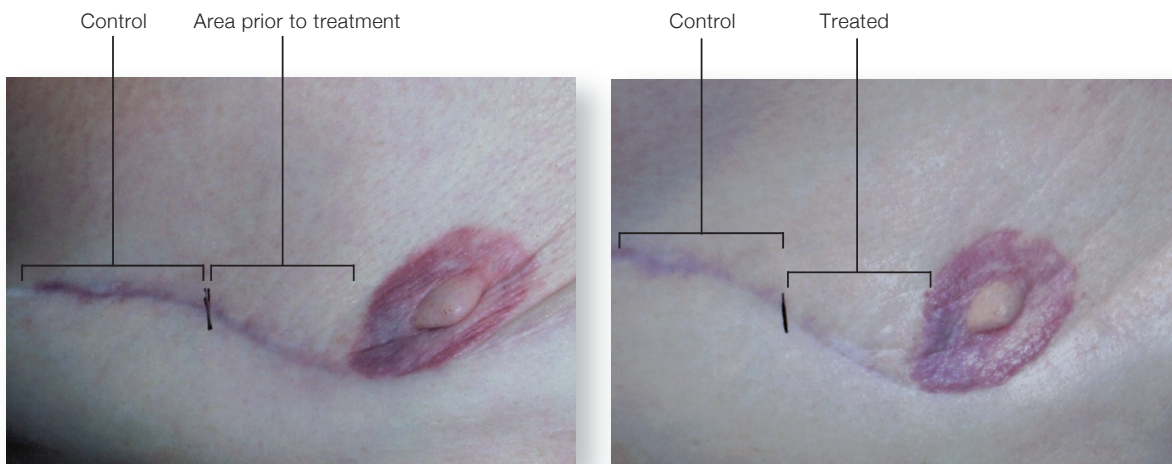
scar maturation study

## PART B - SCAR MATURATION - TABLE OF HISTOLOGIC FINDINGS

The histologic comparison of the control and treated sides of Part A is given below in a table:

	CONTROL	TREATED
<b>INFLAMMATION</b>	55-65 chronic inflammatory cells per perivascular space	Less than 50 chronic inflammatory cells per perivascular space
<b>COLLAGEN</b>	Collagen bundles in disarray, gaps between bundles	Collagen bundles regular and orderly, parallel bundles
<b>SCAR SURFACE</b>	Scar surface more elevated above skin surface, orthohyperkeratosis present	Stratum corneum fully basket-weaved, with same appearance as adjacent non-scarred area

## PART C - SCAR MATURATION - DIGITAL PHOTOS



10 weeks after surgery.  
Before application of SUPER SERUM™ ADVANCE+

14 weeks after surgery.  
Treated side has 4 weeks of  
SUPER SERUM™ ADVANCE+ application



# SUPER SERUM™ ADVANCE+ STUDY

fibroblast induction study

## IMPROVEMENT IN COLLAGEN SYNTHESIS

**STUDY OBJECTIVE** The ability of SUPER SERUM™ ADVANCE+ to induce fibroblasts to synthesize collagen was evaluated.

**STUDY DESIGN** Human donor fibroblasts between the ages of 20 and 40 were cultured. The control samples were run without product treatment. The amount of collagen in both the treated and control samples was quantified using a collagen standard assay.

**SIGNIFICANCE OF STUDY** Production of collagen in fibroblasts is essential for all types of wound healing. With aging, the amount of functional collagen synthesized by fibroblasts decreases. Collagen networks provide resistance against mechanical stress and maintain tensile integrity of the skin.

The product studied, SUPER SERUM™ ADVANCE+, contains 3 substances that impact collagen synthesis. Copper is a cofactor in the enzymatic synthesis of collagen. L-Ascorbic acid is also required for collagen synthesis. HGF is a growth factor necessary for growth and differentiation of epithelial cell types.

Until now, it was impossible to combine copper-containing substances with L-ascorbic acid. These substances have been combined for the first time in SUPER SERUM™ ADVANCE+. The copper in this product is complexed with a tripeptide, a growth factor necessary for growth and development of all epithelial cell types, including skin. The innovative combination of these 3 substances, i.e. ADVANCE+ L-ascorbic acid, copper, and the tripeptide growth factor, has potential for synergistic improvement on the synthesis of collagen by human fibroblasts.

**RESULTS AND CONCLUSIONS** SUPER SERUM™ ADVANCE+ markedly improved synthesis of collagen by human fibroblasts compared to the control. After 24 hours incubation, the amount of collagen in the treated sample was 3.2 mcg/100mcl and in the control sample was 0.1 mcg/100mcl.

### EFFECTS ON COLLAGEN SYNTHESIS USING SUPER SERUM™ ADVANCE+

