

# Et-VC®

Multi-Functional  
Vitamin C Derivative

Powerful Vitamin C that Reduces Dark Spot

Clinical Study

## Et-VC®

### INCI Declaration

3-O-Ethyl Ascorbic Acid

### Benefits

- Anti-oxidation
- Scavenge free radicals
- Protect DNA from UV
- Fight photo-aging
- Stimulate collagen synthesis
- Reduce dark spots
- Even out skin tone
- Inhibit melanogenesis
- Boost natural HA synthesis (patented)
- Anti-pollution

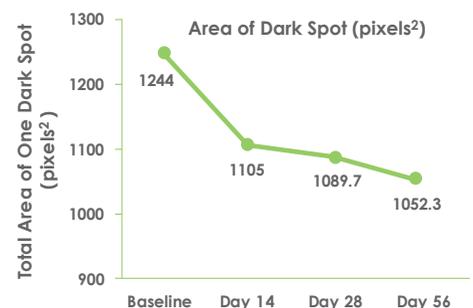
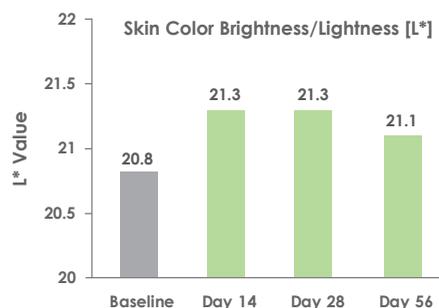
### Applications

- Skin whitening/ lightening
- Anti-aging with correction of dark spots
- Sun care products for outdoor protection
- BB/ CC cream

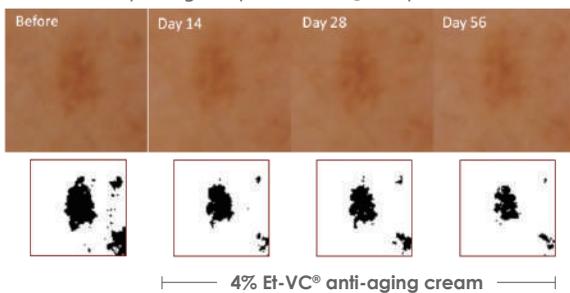
Vitamin C is an essential part of skin health not only as a small molecular weight antioxidant but also as an important factor for boosting collagen synthesis. Studies have shown that Vitamin C also acts to lighten the skin by reducing melanogenesis process. From our previous studies, Et-VC® (INCI: 3-O-Ethyl Ascorbic Acid) exhibits great reducing ability and serves as an excellent lightening agent compared with other Vitamin C derivatives in many aspects. Et-VC® inhibits melanin-generating enzymes tyrosinase (-47.5%) and TRP-2 (-72.6%) not only in the protein activity but also on the functional level. Melanin content in *ex-vivo* reconstructed human skin explants also shows significant decrease (-28.6%) after applying with Et-VC®.

To further investigate the role of Et-VC® in pigmented skin, a 56-day clinical study was carried out with 20 female subjects who show noticeable age spots on their face. Skin brightness (luminance, L\* value) and total area of single dark spot (pixels<sup>2</sup>) were measured on day 0, day 14, day 28 and day 56 of 4% Et-VC® anti-aging cream twice-daily application. Particularly detailed, high resolution digital photographs were documented at every stage of the progression in each time interval, providing both visual and computerized records of Et-VC® efficacy on the subjects' face.

### Age Spot Reducing Test

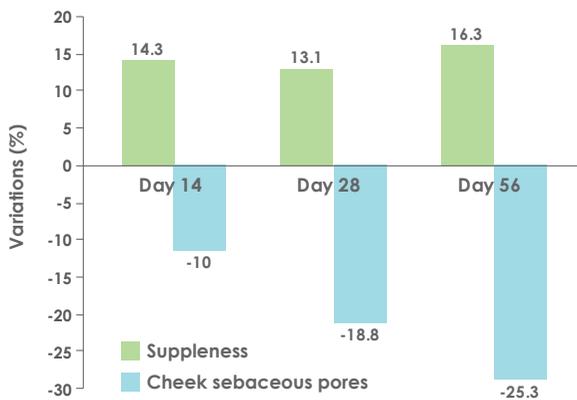


Results show that topical application of 4% Et-VC® anti-aging cream can increase skin brightness and reduce the size of dark spot in just 14 days. Digital imaging also indicates gradual reduction of the spot area when continuously using the product for 56 days.



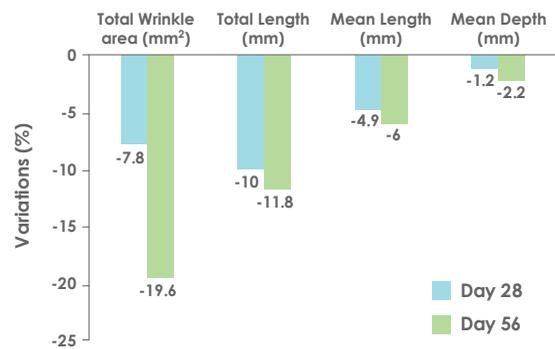
### In-Vivo Suppleness and Cheek Sebaceous Pores Study

In addition to age spot reduction, Et-VC® also demonstrates great efficacy in improving skin suppleness as well as reducing sebaceous pores in the cheek area.

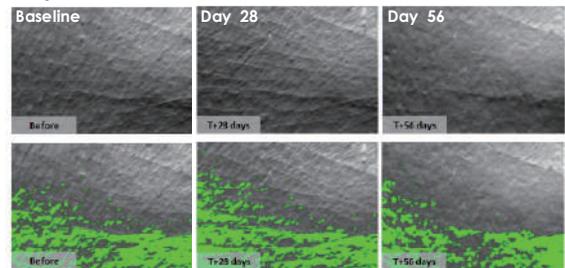


### In-Vivo Anti-Wrinkle Study

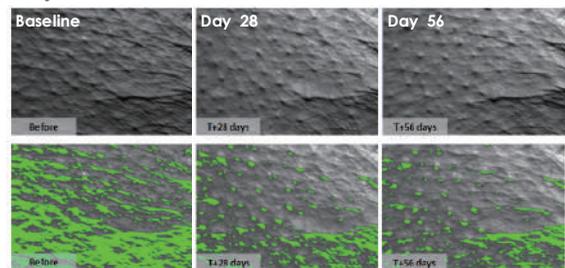
Another *in-vivo* testing using Quantirides® device to analyze wrinkle by digitalizing the shadow produced in skin replica shows a reduction in deeper line or macro wrinkles by 4% Et-VC® anti-aging cream after 28 and 56 days of application.



#### Subject 1



#### Subject 2



*In addition to being a potent antioxidant and collagen booster, a multi-functional Vitamin C derivative Et-VC® can also brighten skin by inhibiting key enzymes in melanogenesis. Clinical data further demonstrates that Et-VC® can reverse the signs of aging through reducing wrinkle formation and sebaceous pores, while improving skin suppleness to achieve a younger looking skin.*