

# DC Provesselin

INCI: Water, Phospholipids, Butylene Glycol, Angelica Polymorpha Sinensis Root Extract

July 5, 2013 rev.

## For the Support of Healthy Microcirculation

**D**ong quai (*Angelica sinensis*), also known as Chinese Angelica, has been used for thousands of years in traditional Chinese, Korean, and Japanese medicine. It remains one of the most popular plants in Chinese medicine, and is used primarily for health conditions in women. Dong quai has been called "female ginseng" based on its use for gynecologic disorders such as pelvic pain and fatigue/low vitality. It is also given for strengthening *xue* (loosely translated as "*the blood*"), and the treatment of cardiovascular conditions, high blood pressure, inflammation, headaches, infections, and neuropathic (nerve) pain.



**G**ood circulation is necessary for proper cell nutrition, oxygenation and the removal of wastes and toxins. **DC Provesselin** is an active ingredient for skin care specifically designed to improve circulation by helping to maintain capillary integrity, resulting in a healthier, more radiant complexion. It is comprised of an isolate derived from Dong quai root extract in a phospholipids-based, multi-layer vesicle. These delivery-enhancing vesicles are concentrated with certain phytochemicals and polysaccharides to provide critical microcirculation support and anti-aging compounds.

### BENEFITS

- ◆ Capillary protection
- ◆ Anti-inflammation
- ◆ Collagen stimulation
- ◆ Tonic
- ◆ Healing
- ◆ Free radical scavenging
- ◆ Anti-stress
- ◆ Anti-Aging
- ◆ Soothing
- ◆ Regenerating

### APPLICATIONS

- ◆ Minimize dark under eye circles
- ◆ Treatment of rosacea
- ◆ Diminish varicose veins
- ◆ Treatment of stretch marks and scars
- ◆ Repairing leaky or swollen blood vessels
- ◆ Anti-aging products
- ◆ Improve delivery of actives
- ◆ Anti-acne

### TYPICAL PROPERTIES

Appearance	Tan to light brown semi-viscous liquid
pH	5-7
Specific gravity	0.995 - 1.100

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## FORMULATION GUIDELINES

Recommended use level  
pH range

2-4%

4-7

Disperse in emulsion or gel at or below 40°C

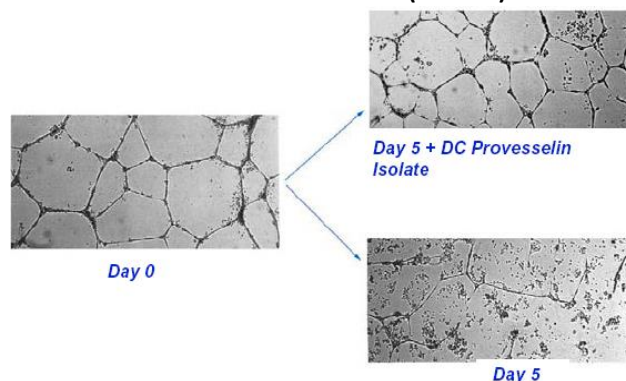
## EFFICACY STUDIES

### TIGHTENING OF BLOOD VESSELS

Test Material	concentration	pg/sample
H2O	0	5
nicotine	10uM	13.5
nicotine	1uM	10
DC Provesselin Isolate	0.1%	47

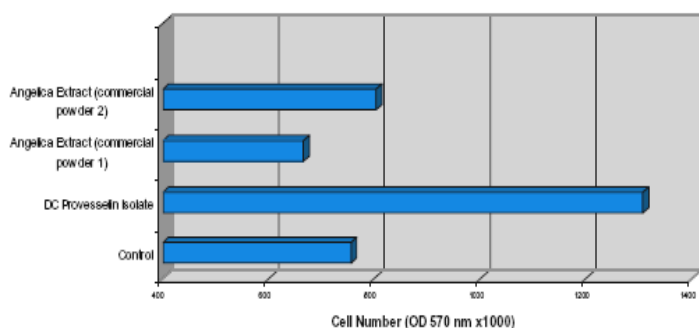
DC Provesselin Isolate has a stimulatory effect on norepinephrine (noradrenaline) having a direct action on tightening of blood vessels.

### PROTECTION OF MICROCIRCULATION (In-vitro)



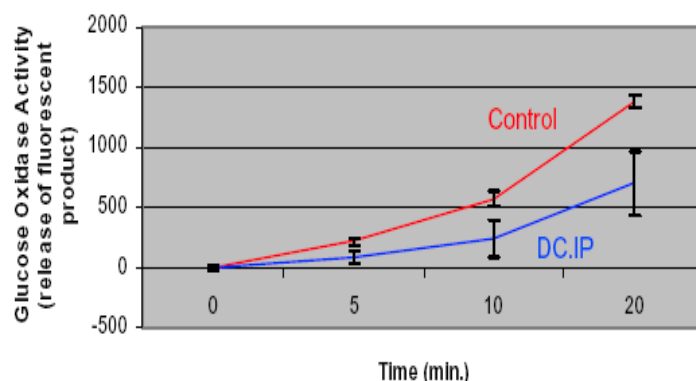
DC Provesselin Isolate is capable of protecting capillary networks from disintegration, indicative of the protective effect on the dermal microcirculation, and on the skin itself.

### CELL PROLIFERATION



Compared to other commercial Dong quai (*Angelica sinensis*) extracts, DC Provesselin Isolate stimulates significantly more cell growth.

### EFFECT ON FREE RADICALS



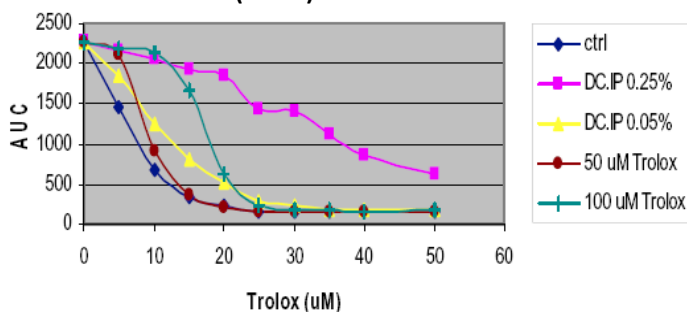
DC Provesselin Isolate partially inhibits activity of Glucose Oxidase (in vitro). Inhibiting GOx can be useful for reducing formation of peroxide free radicals

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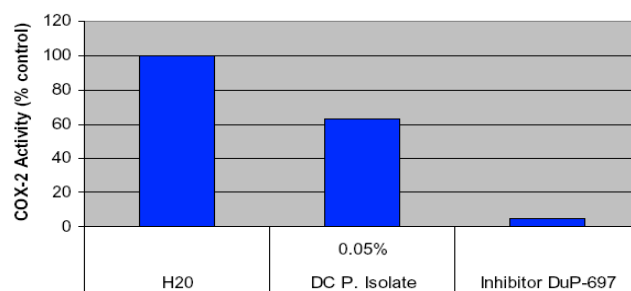
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## ANTIOXIDANT EFFECT (ORAC)



DC Provesselin Isolate has excellent antioxidant activity, as measured by Oxygen Radical Absorbance Capacity (ORAC) test. Results indicate that every gram of Provesselin Isolate has antioxidant activity comparable to 64 umoles of Trolox, the water-soluble form of tocopherol (vitamin E).

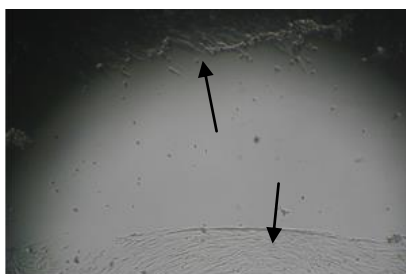
## ANTI-INFLAMMATION EFFECT



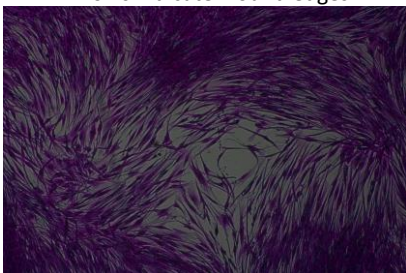
Cyclooxygenase-2 (COX-2) is a pro-inflammatory enzyme, whose increased activity may compromise health and integrity of the skin. Materials inhibiting COX-2 may have beneficial effect on skin homeostasis. DC Provesselin Isolate demonstrates potential for inhibition COX-2 enzyme activity and conditioning inflamed skin.

## WOUND HEALING (In-vitro)

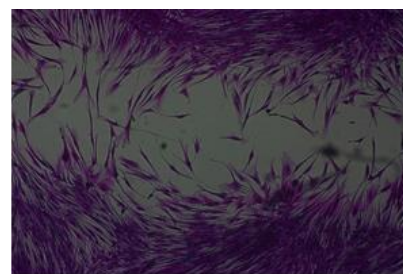
DC Provesselin stimulates fibroblast migration in the scratch wound model



Appearance of the scratch wound on Day 0  
Arrows indicate wound edges



Cell monolayer treated with 200μg/ml SBD.4A on Day 2 [note increased numbers of fibroblasts populating the wound as compared with (B)]



Cell monolayer treated with water on Day 2



Cell monolayer treated with 10% serum on Day 2, showing increased coverage as compared with (B) but inferior to (C)

B-D: Sulforhodamine B stain, original mag. X40

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