Geranylgeranone

**Function:**
Comprehensive anti-ageing.

**Definition:**
Geranylgeranone (GGA)
in a lipophilic solvent.

**Properties:**
Fights against all signs of ageing:
- functional: dehydration, age spots, ineffective barrier function.
- structural: ptosis, wrinkles, pores, erythrosis.

**Characteristics:**
Anti-ageing and protective effect against stress, by telomere stabilization and DNA maintenance (cell division). Improvement of tissue quality by optimal cell interactions (cell communication). Rebalance of cell functions (metabolism).

**Point of interest:**
By delaying senescence, Renovage™ can extend cell lifespan by 1/3.

**INCI name (proposed):**
(Check CTFA on-line dictionary for latest INCI name)
Caprylic/Capric Triglyceride
Teprenone –

**Applications:**
Anti-ageing creams, gel-creams.

**Formulation:**
Oil soluble. Incorporate to oil phase at 60°C prior to forming the emulsion.

**Recommended use level:**
3%

**Warning:**
Not to be sold or used in a cosmetic product in Japan.
Protocol: Simple blind study including 24 women, 58±6 years old, with wrinkles and not having used anti-age products for at least 1 month. No intentional UV exposure. Twice daily application of a cream formulated with 3% Renovage™, for 6 months. Evaluation of the functional and structural signs of ageing at 1 and 6 months.

**In vivo tests: Efficacy on functional signs of ageing**

- **Skin moisturisation** +30%* up to +58%**, improvement for 100% panellists
  Measurement by corneometry of the remnant skin moisture 24h after the last application. (*significant/T0 p<0.01)

- **Epidermal barrier integrity** +19%* up to +46%**, improvement for 75% panellists
  Measurement by vapometer of the transepidermal water loss. (*significant/T0 p<0.05)

- **UV Sun spots** -42%* up to -56%**, improvement for 100% panellists
  Measurement of invisible UV spots by VISIA® system under UV light. (*significant/T0 p<0.01)

**In vivo tests: Efficacy on structural signs of ageing**

- **Micro depressionary network**
  Measurement of roughness, lines and their homogeneity of the forearm (after 1 month) and the neckline (after 6 months), by skin replicas.

  Renovage™ significantly improves the surface of the skin.
  Skin is smoother, more uniform and looks younger.

- **Firmness / Elasticity / Tone**
  Measurement by cutometry after 1 month

  75% of the panellists had an improvement in skin firmness.

- **Dilated pores**
  Measurement of dilated pores by Visia® system

  More than 90% of the panellists had an improvement in pore size.

**Erythrosis (redness)**
Measurement of skin redness by Doppler ultrasound after 1 month on 23 panellists. (*significant/Placebo p<0.05)

-30.5%*

**In vitro tests: Effect of Renovage™ on the functional and structural ageing markers**

- **Function loss**
  Apoptotic cells after UVB irradiation, skin explants.

- **Cell resistance**
  HSP 27 & 70 reduction after UVB irradiation, skin explants.

- **Self-defence**
  Catalase activity after UVB irradiation, skin explants

- **Wound healing capacity**
  Cell re-colonization after lesion and irradiation, keratinocytes

- **Skin cell senescence (fibroblasts)**

  For a total culture duration of 9.5 months, cell life span is significantly increased by 1/3. With Renovage™, cell senescence is delayed by 3.5 months.

Renovage™ works on the origin of youth and targets the cell actors that ensure lifespan and youth.
Renovage™ creates the optimal conditions in the epidermis and the dermis for visible effects on the skin surface.