



# actigym™

marine ingredient



## A secret personal trainer



### Endurance training-like effect



#### Description

Active ingredient obtained by biotechnology from a microorganism inhabiting Bermuda. **actigym™ marine ingredient** mimics the effect of endurance exercise training by increasing adiponectin release and enhancing mitochondrial activity. It improves body definition that can be further complemented with exercise.

#### Appearance

Transparent solution containing 0.07% Plankton Extract.



#### INCI

Glycerin, Water (Aqua), Plankton Extract.

Preservative free.

#### Properties

**actigym™ marine ingredient** improves body tone and defines the silhouette by reducing abdomen and thigh contour, arm sagginess, and decreasing body weight. It mimics the effect of endurance training with great results that are increased when combined with physical activity.

#### Applications

**actigym™ marine ingredient** can be incorporated into daily cosmetic formulations for body care to provide a more toned and defined silhouette.

### Increase of adiponectin release

### Great results improved when combined with physical activity

#### Science

It is unquestionable that exercise improves quality of life. Endurance training involves low intensity effort for extended periods of time. It enhances general cardiovascular condition, lowers fat and improves muscle tonicity. Type I muscle fibers (tonic fibers) sustain body structures in place and are increased by endurance training, which promotes adiponectin release.

Aging and insufficient levels of physical activity cause a decline in muscle resistance, with the consequent loss of body firmness. By promoting the integrity of type I fibers and their mitochondrial metabolism, muscle tone is improved and provides extra support to arms, legs and abdomen.

Bermuda, a small but gorgeous subtropical island is a habitat for *Bacillus sp.* It produces structurally diverse compounds with some expected effect on various metabolic pathways in different biologic systems.

**actigym™ marine ingredient** induces adiponectin release from adipose tissue that signals the skeletal muscle to enhance metabolism of type I muscle fibers. As demonstrated in a complete and unique *in vivo* study, it helps to achieve a more toned and defined body silhouette.

**Dosage** 5%

#### Solubility

Water soluble.



# In vitro efficacy

## 1. ADIPONECTIN RELEASE BY ADIPOCYTES

Primary human preadipocytes were induced to differentiation while treated with 5 µg/mL **actigym™ marine ingredient concentrate**. Non-treated cells were used as negative control. Levels of adiponectin secreted by the adipocytes were quantified by an ELISA



**68% increase of adiponectin release by adipocytes**

## 2. MITOCHONDRIAL ACTIVITY IN MUSCLE FIBERS

Citrate synthase activity was used as a quantitative marker of mitochondrial activity induced in human skeletal muscle cells. Such cells were incubated either with supernatants from non-treated adipocytes (control) or with supernatants from adipocytes previously incubated with 5 µg/mL **actigym™ marine ingredient concentrate**.



**actigym™ marine ingredient mediates a higher mitochondrial activity**

By inducing adiponectin release in adipocytes, mitochondrial activity was enhanced in muscle cells by 48%.

# In vivo efficacy

## SCULPTING BODY SHAPE

60 female volunteers (35-50 years old) with sedentary life styles were split into three different groups. The first one applied a cream containing 5% **actigym™ marine ingredient** twice a day for 56 days, with no physical activity. The second group performed a standardized exercise with a personal trainer in a gym, twice a week, and applied a placebo cream. The third one complied with the same training and used the active cream containing 5% **actigym™ marine ingredient** twice a day as well.

To evaluate the improvement of body tone, several parameters were analyzed and a self-evaluated questionnaire was completed by the volunteers.

### • ABDOMEN

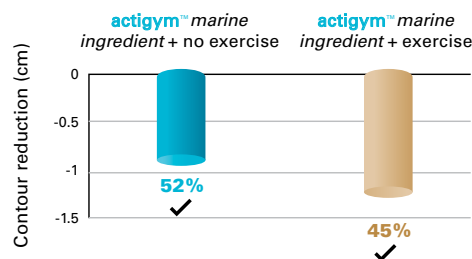


**actigym™ marine ingredient visible reduced abdomen contour, with impressive results when combined with exercise**

After 56 days, 52% of the volunteers treated with **actigym™ marine ingredient** decreased their abdomen contour on average by 1.6 cm.

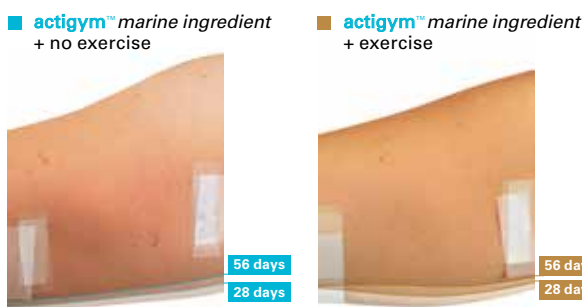
### • THIGHS

✓ Reactive subjects measurements after 56 days (with a minimum reduction of 0.3 cm with respect to initial time).



**Thigh contour was reduced up to 2.1 cm with actigym™ marine ingredient, and up to 2.9 cm when combined with exercise**

### • ARMS



**actigym™ marine ingredient decreased arm contour on average by 0.4 cm in 55% of volunteers after 28 days**  
When using the active ingredient in addition to exercising, a mean reduction of 0.7 cm was seen in 40% of volunteers.

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