Phenbiox s.r.l.

# G-Cell

activated stem cells
from grape fruit

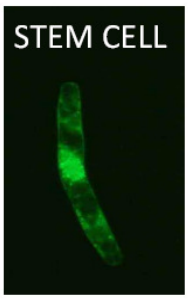
## 1) fruit selection

Unripened grape fruit cells from specific cultivar were selected and recovered. In these tissues the cell viability is very high so it is possible to obtain cultures with an higher growth potential compared with cells derived by full-grown grape.

## 2) cell regression

During the in vitro growing, vegetal tissues are induced to relapse to meristematic cells also said stem or totipotent cells. This process is called callus induction.

Vegetal Cell → Meristematic (Stem) Cell


## 3) cell growth

After obtaining the Callus in a solid growing medium, stem cells has to be inoculated in a liquid growing medium to develop properly. The fermentation has to be strictly controlled in terms of light, oxygen, temperature and nutrients to allow the growth of stem cell avoiding differentiation

## 4) active principle induction

During the liquid fermentation stem cells can be induced to overproduce interesting active principles such as polyphenols and stilbenes both in a free form and in glycosylated forms. These latest glycosylated molecules are both more stable and bio-available. Depending on special inductions performed the meristematic cells are able to develop different active principles.


## 5) analytical monitoring

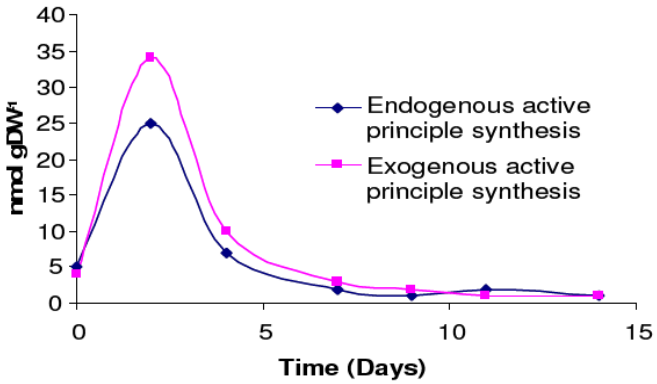
Through analytical monitoring it is possible to determine the cells growth peak and maximize the active principles content synthesized by meristematic cells.

Also the choice of selected grape cultivar allow to optimize the synthesis of specific active principles from meristematic cells.

## 6) controlled interruption of cell growth

In order to optimize the active principles content during the meristematic cells fermentation it has to be checked the concentration of these molecules stopping the cell growth when the synthesis peak is reached.

Stopping cell growth is possible to avoid the decreases of concentration of the active principle produced after the induction



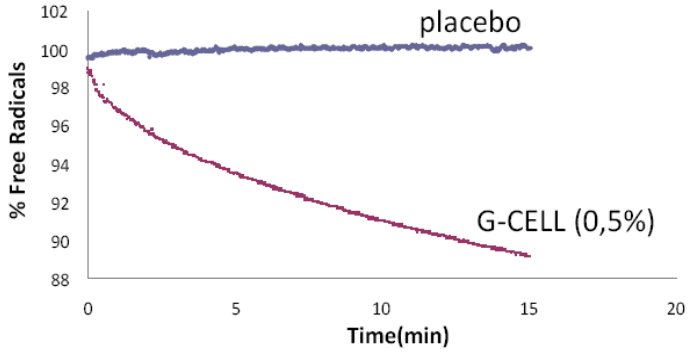

Exogenous and endogenous polyphenolic synthesis in grape meristematic cell culture medium


Blackwell Publishing, Ltd. Jasmonates and Na-orthovanadate promote resveratrol production in *Vitis vinifera* cv. Barbera cell cultures *New Phytologist* (2005) 166 : 895–905

Resveratrol production in Vitis vinifera cell suspensions treated with several elicitors CARYOLOGIA Vol. 60, no. 1: 169-171, 2007

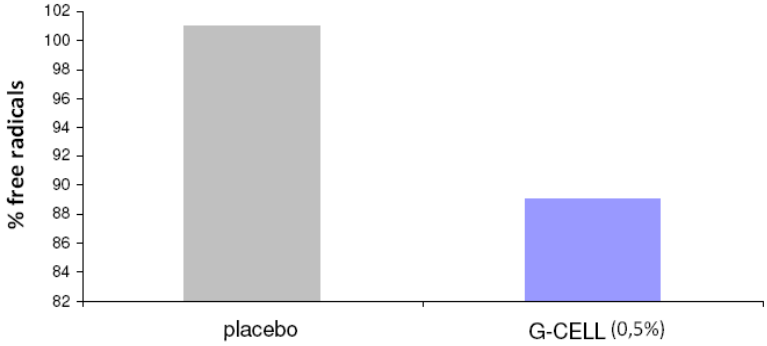

## 7) quick against free radicals

G-CELL quickly acts on free radicals thanks to the highly bio-available polyphenols synthesized by meristematic cells. Laboratory tests showed that G-CELL reduces radical species rapidly and effectively.



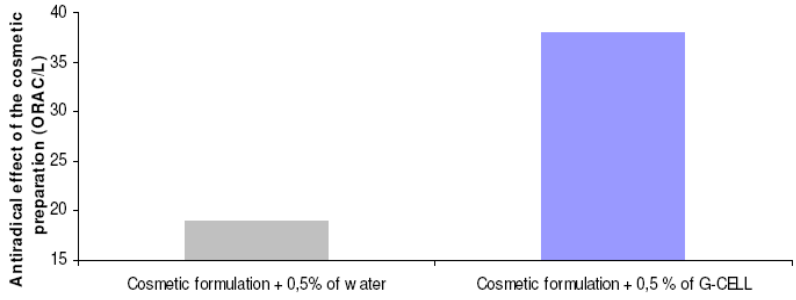

## 8) effective against free radicals

G-CELL is an effective support to neutralize the dangerous radical species caused by internal (stress, smoke, unbalanced nutrition etc.) and external (pollution, UV radiation etc.) factors.




## 9) effective in cosmetic formulations

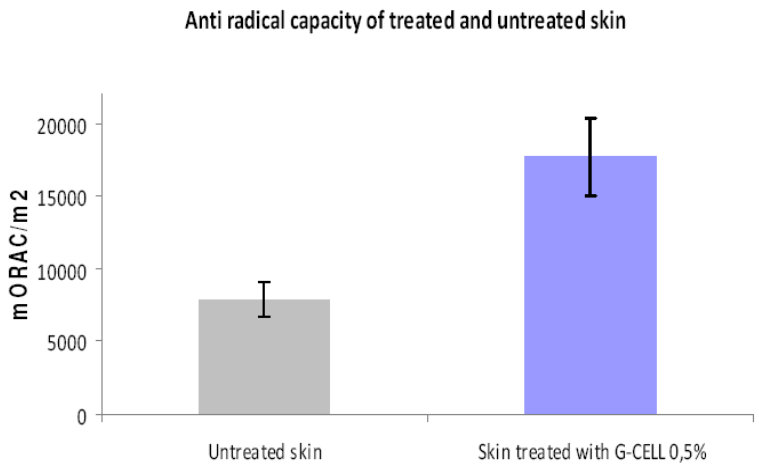
G-CELL retain its antioxidant effectiveness in cosmetics formulation conferring anti-age properties to it.



## 10) effective on skin

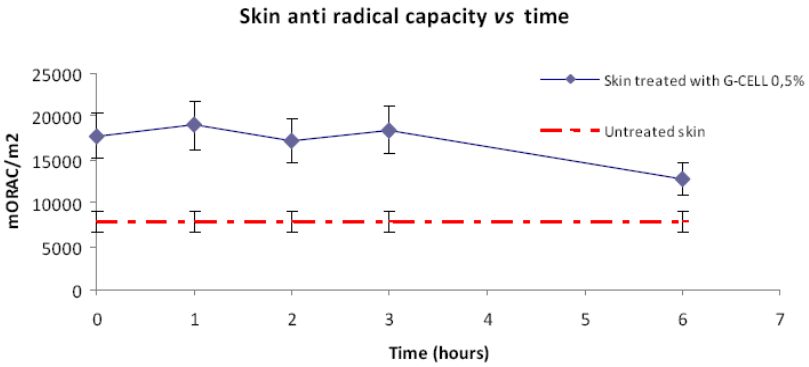
### Anti-radical capacity of the skin + 124 %

In-vivo tests* performed applying G-CELL diluted in water on skin showed a relevant effectiveness in enhancing the antiradical capacity of the skin. The mORAC/m² values were increased of more than the 120% indicating a very effective protection provided by G-Cell against free radical aggressions.




### Active up to 6 hours after uses

Tests* were repeated at different time showing that the G-Cell protection of the skin it lasts up to 6 hours after application.




* Tests were performed on 12 healthy volunteers of both sexes. A 0.5 % w/w G-Cell solution in water was applied on forearm and results are expressed as mORAC/m² of skin ± SD (%) compared with the untreated skin values. Statistical significance Student t test p<0,01.

## 11) technical specifications

**CTFA NAME**: Water (and) *Vitis Vinifera* Fruit Meristem Cell Culture

**INGREDIENTS**: Acqua, *Vitis vinifera*, citric acid , sodium benzoate, potassium sorbate

**SUGGESTED CONCENTRETION OF USE**: 0,5% w/w

**USE:** shake before using, add to cold formulations

REFERENCES

Blackwell Publishing, Ltd. Jasmonates and Na-orthovanadate promote resveratrol production in *Vitis vinifera* cv. Barbera cell cultures *New Phytologist* (2005) 166 : 895–905

Resveratrol production in Vitis vinifera cell suspensions treated with several elicitors CARYOLOGIA Vol. 60, no. 1: 169-171, 2007

Phenbiox s.r.l. Via d'Azeglio, 51
40123 Bologna (BO) Italy
Tel. +39 328.6014923
e-mail: info@phenbiox.it