

Melacover F4

Natural whitening Complex
2 times better performance than Arbutin
Whitening + Anti-inflammation



프로폴리스



Manufacturing Process



Extraction

Filtration

Vacuum Concentration

Ingredient Blending

Membrane Filtration

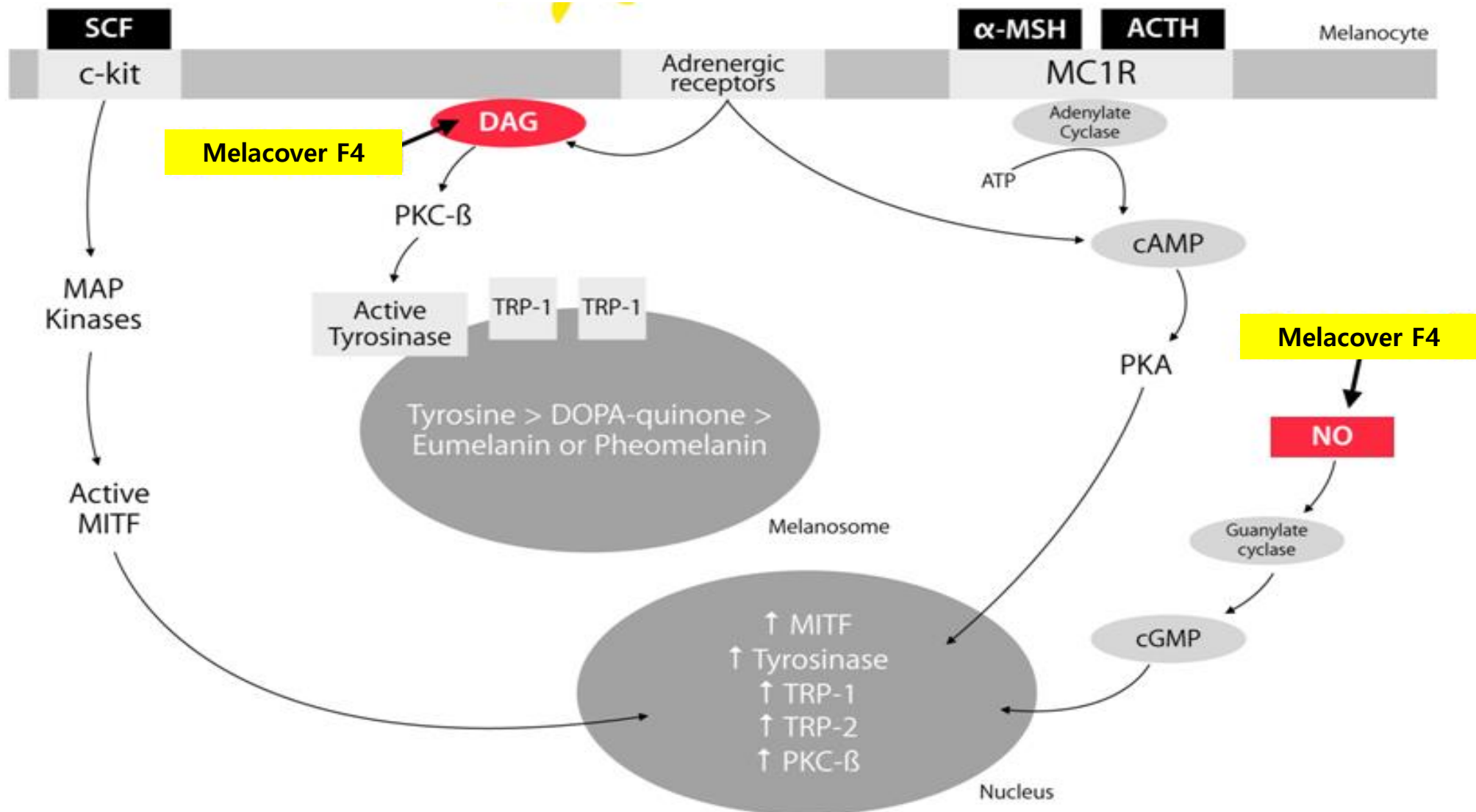


Melacover F4



Whitening Mechanism

Mechanism



Synergic Whitening Effect

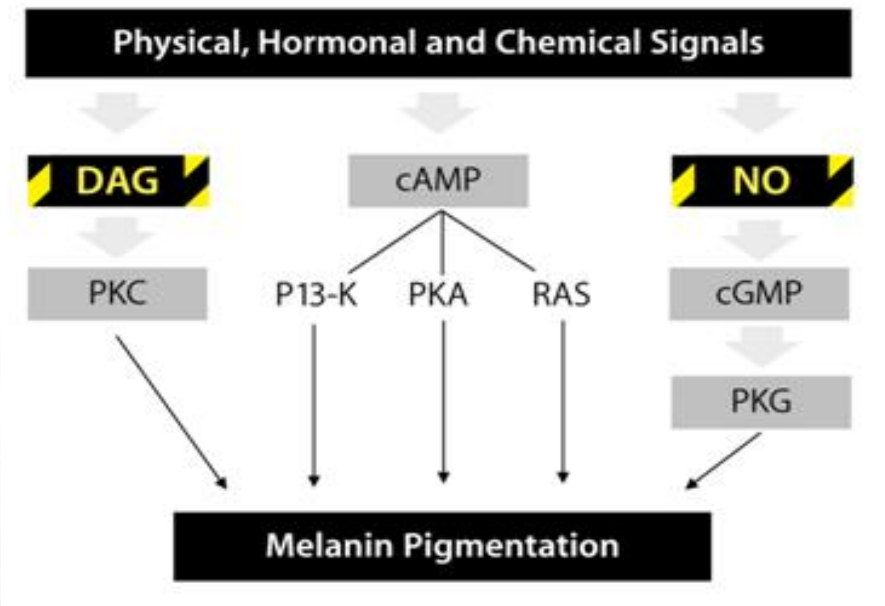
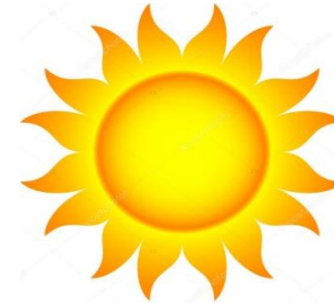
Mechanism

Melacover F4 Stop DAG and NO at once

Suppression of 2 main factor
of melanin pigmentation

DAG is generated when plasma membrane of skin cell is damaged by continuous UV exposure and it stimulates melanogenesis by activation of PKC-beta.

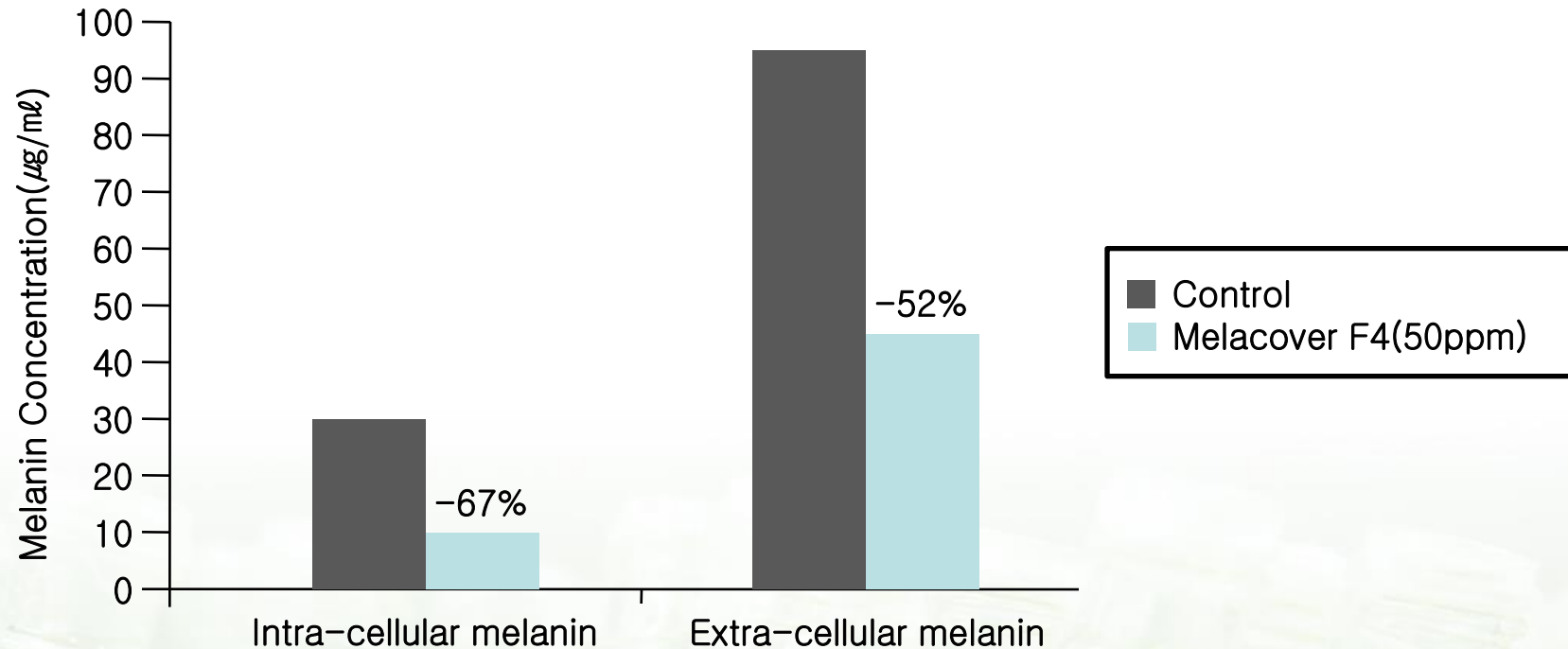
Melacover F4 is working for suppression of DAG action. As Melacover F4 has outstanding anti-inflammation effect, it also restrains formation of NO which is main factor of melanogenesis. As a result, Melacover F4 has powerful whitening effect through blocking of 2 main factors of melanogenesis.



Whitening Effect

In vitro

By inhibiting both pathways, Melacover F4 inhibits melanin synthesis (intra-cellular melanin) and melanin release (extra-cellular melanin)

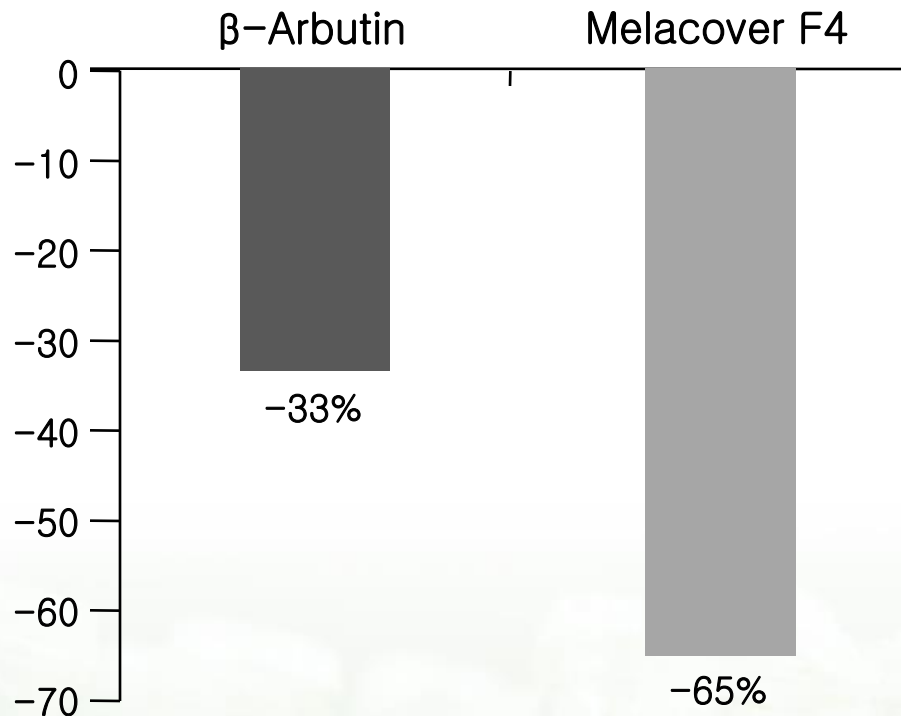


Melanogenesis is stimulated by addition in the culture medium of 60nM alpha-MSH

Whitening Effect

In vitro

Comparison of Melacover F4 with reference molecules on extracellular melanin



β -Arbutin 0.005%

% of β -Arbutin usually
used in in-vitro test:
0.001 to 0.005%

Melacover F4

Equivalent to 0.005%

Each molecule has been tested on B16 melanocytes cultures

Whitening Effect

Clinical Trial

- 임상전문 시험 기관인 HLK Clinical trial Center에서 피부밝기 개선 효능 평가에 대한 인체적용 시험 실시
- 제품 사용전과 비교시 사용 2주 및 4주 후 시점에서 피부밝기(L* value) 측정 값이 유의하게 개선됨

9.3. 피부 밝기 평가

제품 사용 전과 비교 시 제품 사용 2주 및 4주 후 시점에서 L* value 측정 값이 유의하게 개선되었다 ($p < 0.05$, Table 4, Fig. 4, 5).

Table 4. 피부 밝기(L* value) 측정 결과

측정 시점	평균	표준편차	유의확률 (p-value)	개선율(%)
제품 사용 전	65.28	3.39	-	-
제품 사용 2 주 후	65.90	3.45	0.000*	0.95
제품 사용 4 주 후	66.32	3.46	0.000*	1.59

* $p < 0.05$ 이면, 통계적 유의성(significant difference) 의미

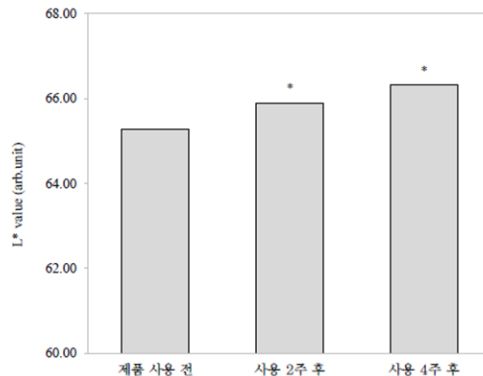


Figure 4. 피부 밝기 결과 그래프 ($p < 0.05$)

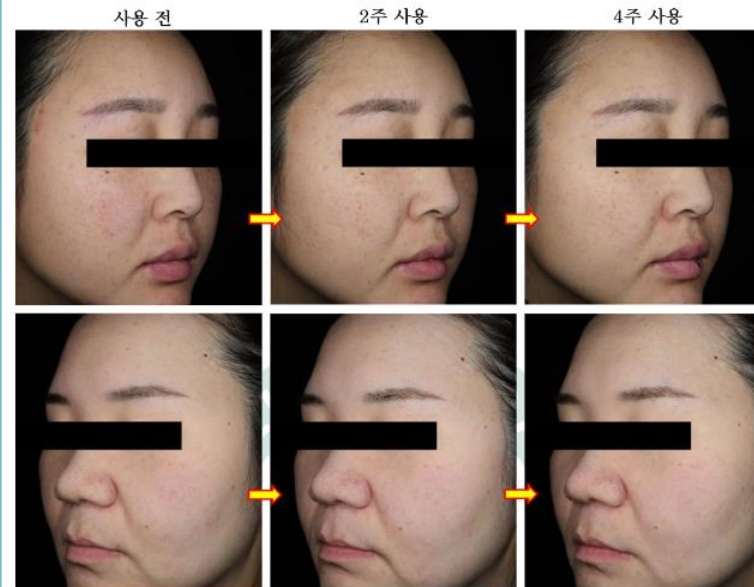


Fig. 5. Cross-Polarized mode 안면부 이미지
(시험대상자 식별번호: #24152-P11, #24152-P12)



Melacover F4

Whitening

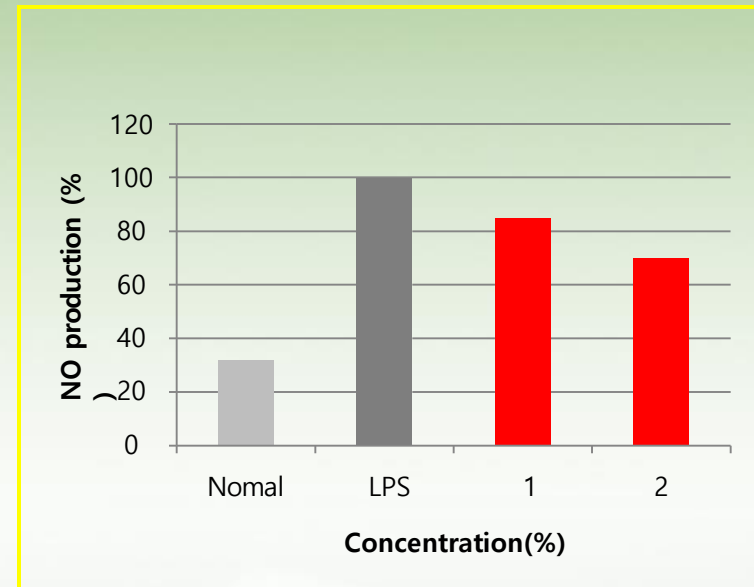


Anti
Inflammation

NO production Inhibition assay

Effects of lipopolysaccharide (LPS)-induced Nitrite(NO) production.

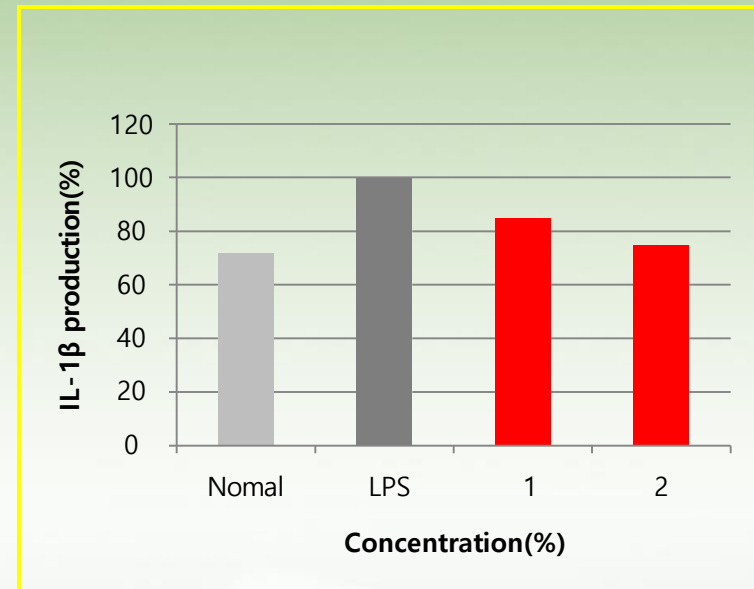
- Cells treated with 1-10 $\mu\text{g/ml}$ of each sample in the presence of 1 $\mu\text{g/ml}$ LPS or with LPS alone for 24hr.
- The results are expressed as mean $\pm$ SD from three independent experiments.



Inhibition of IL-1 β production

Effects of lipopolysaccharide (LPS)-induced IL-1 β production.

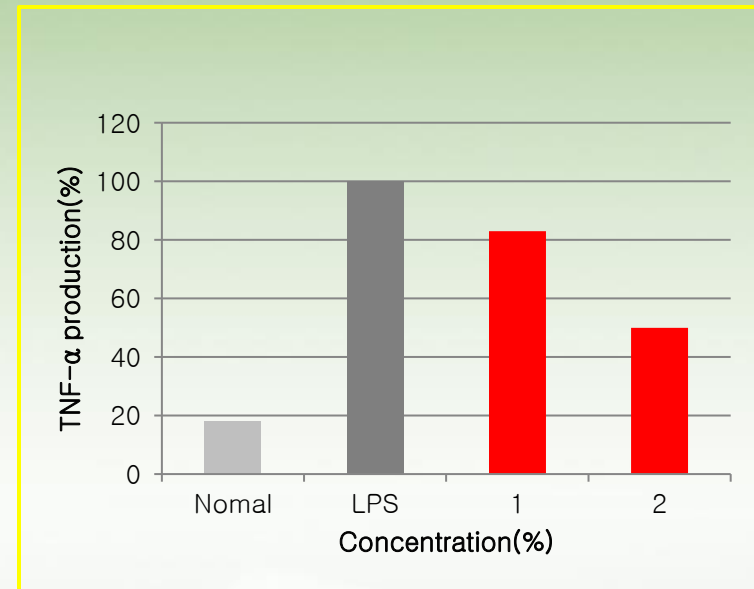
- Cells treated with 1-10 $\mu\text{g/ml}$ of each sample in the presence of 1 $\mu\text{g/ml}$ LPS or with LPS alone for 24hr.
- The results are expressed as mean $\pm$ SD from three independent experiments.



Inhibition of TNF- α production

Effects of lipopolysaccharide (LPS)-induced TNF- α production.

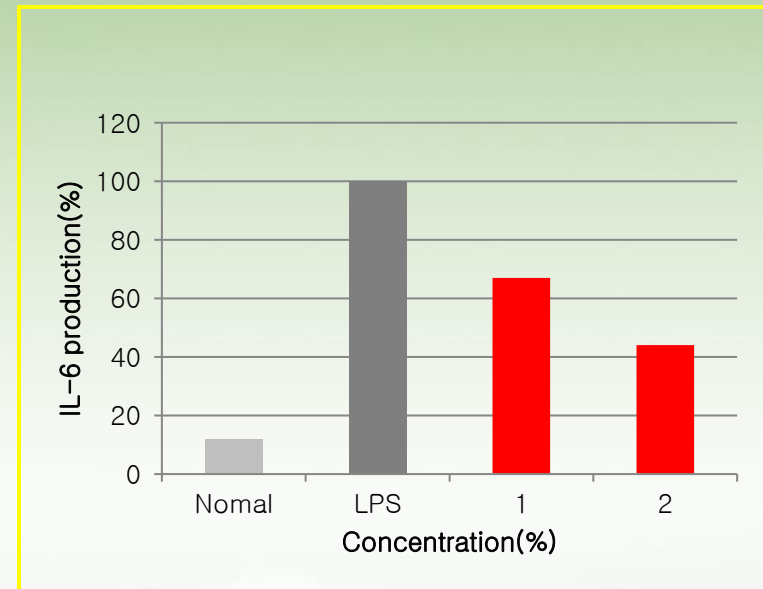
- Cells treated with 1-10 $\mu\text{g/ml}$ of each sample in the presence of 1 $\mu\text{g/ml}$ LPS or with LPS alone for 24hr.
- The results are expressed as mean $\pm$ SD from three independent experiments.



Inhibition of IL-6 production

Effects of lipopolysaccharide (LPS)-induced IL-6 production.

- Cells treated with 1-10 $\mu\text{g/ml}$ of each sample in the presence of 1 $\mu\text{g/ml}$ LPS or with LPS alone for 24hr.
- The results are expressed as mean $\pm$ SD from three independent experiments.



Skin Irritation Patch Test

- Cream containing 3% Melacover F4 is safe in the human skin patch test.
- Tested to healthy 15 male and female(23~45 years old)
- ICDRG(International Dermatitis Group) Standard

Irritation test result	
Melacover F4	Non-irritation



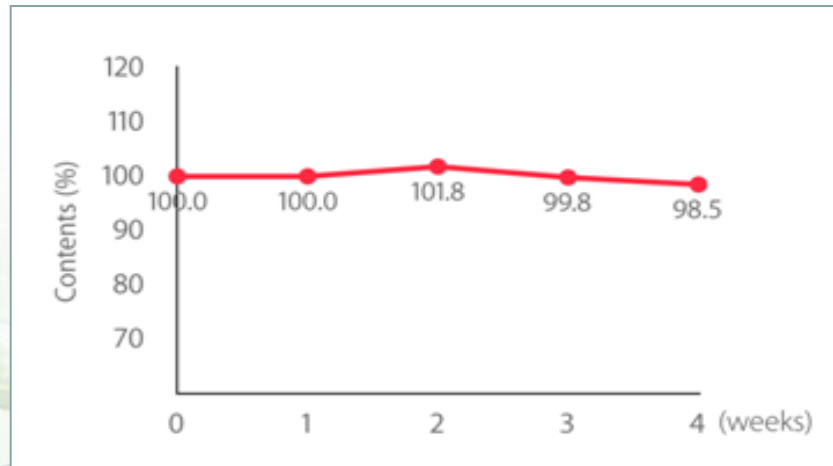
Thermal & Light Stability

According to the result of stability test, Melacover F4 is stable to heat and light

Thermal stability

50°C, 4weeks

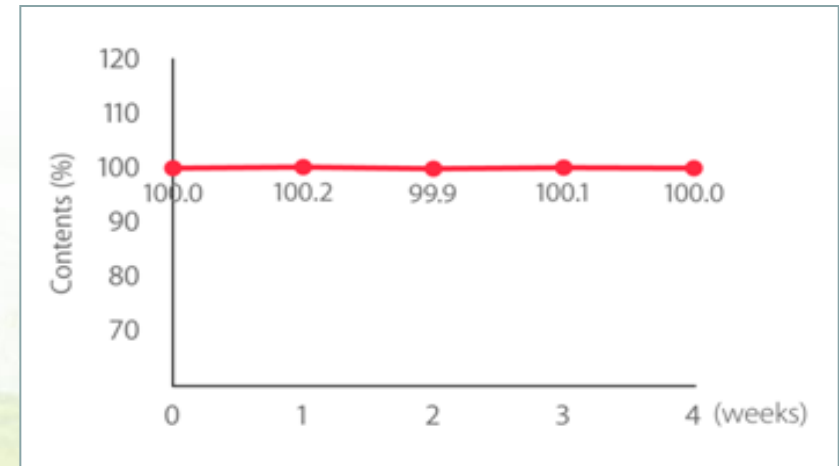
3% Melacover



Light stability

Outdoor, 4weeks

3% Melacover



Melacover F4

INCI	Dipropylene Glycol & Rubus Fruticosus (Blackberry) Fruit Extract & Rubus Idaeus (Raspberry) Fruit Extract & Passiflora Incarnata Flower Extract & Propolis Extract
Physical Form	Water soluble transparent yellow liquid
Benefits & Uses	• Natural whitening complex 4 • 2 times better performance than Arbutin In in-vitro assay • Whitening + Anti-inflammation Effect
Recommended Dosage	1.0 ~ 3.0%
Applications	Various type of Skin, Body and Sun care