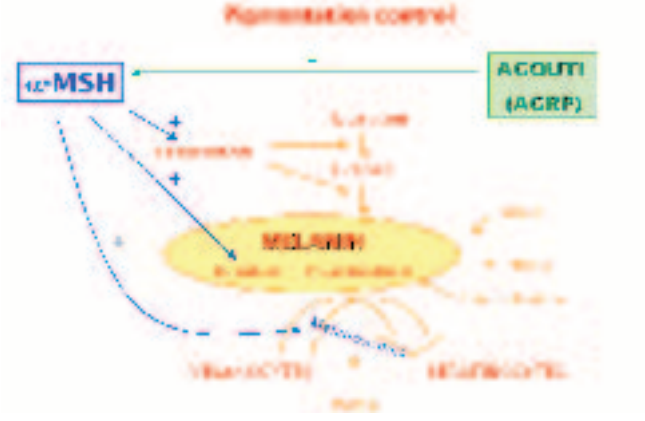
# New biological results obtained in the Fight against Skin Pigmentation Disorders

Corinne Stoltz, Seppic, France

Skin pigmentation is an international preoccupation. Natural or photo-induced ageing, hormonal disorders (contraceptives, pregnancy, menopause, etc.), repeated exposure to the sun and irritation or inflammation reactions lead to the appearance of skin pigment problems. The complexion is not uniform and highly unattractive marks appear on the skin.

Many cosmetic products claiming a "lightening" action in fact have very mediocre effectiveness and non-negligible toxicity, and are difficult to formulate.

SEPPIC has developed a major "lightening" research program, focusing its attention on the effects of a precursor molecule as a major factor in the regulation of skin pigmentation, melanotropin (or alpha-MSH). Melanotropin controls tyrosinase activity, melanin (eumalanin) synthesis and melanosome




## I SEPIWHITE MSH: a new mode of action

Developing a concept based on innovation, effectiveness and tolerance, SEPPIC has developed a new lightening active ingredient, SEPIWHITE MSH. A new molecule, this active ingredient has a complete and innovative mode of action. An alpha-MSH antagonist, SEPIWHITE MSH is our solution for combating pigment problems. Maintaining skin integrity, it acts upstream of melanogenesis on all the steps in the pigment cascade induced by melanotropin. Its depigmenting effectiveness has been proven in vitro and in vivo on healthy volunteers.


## Novel pathway

How does MSH act on melanocytes? By binding to MC1R receptors, MSH stimulates the subunit of the G protein. The G protein activates adenylate cyclase, which increases the intracellular cAMP rate. cAMP activates the protein kinase A which then phosphorylates the tyrosinase. The phosphorylated tyrosinase becomes active and stimulates melanogenesis.

Acting as an antagonist of MSH which means "upstream of melanogenesis", SEPIWHITE MSHT™ will inhibit all the steps of pigmentation cascade induced by the melanotropin.

Its lightening effect reached through an original mode of action has been demonstrated firstly in vitro:

1. Competition with melanotropin for the MCIR receptors of the melanocytes (binding test for MC1R receptor)
2. Inhibition of adenylate cyclase
3. Inhibition of intracellular cAMP contents
4. Inhibition of Protein Kinase A
5. Inhibition of tyrosinase (the effect on tyrosinase appears to be related to SEPIWHITE MSH behaving as a decoy substrate)
6. Inhibition of melanogenesis