

A new transdermal delivery approach for melasma treatment using P.L.E.A.S.E.[®] SMART PORATION[™]

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Introduction

Melasma is a common pigmentary disorder characterized by the development of enlarging hyperpigmented patches. The distribution of hyperpigmented macules is limited to the areas of the face (centrofacial, malar or mandibular) and can have severe adverse psychoemotional effects on affected individuals. Conventional treatment for melasma includes elimination of any possible causative factors coupled with use of a sunscreen and hypopigmenting agents, often in combination with other therapies, such as tretinoin, kojic acid, azelaic acid or superficial peeling. More recently, several lasers including non-ablative fractional lasers and Q-Switched lasers had shown some controversial results due to the high frequency of PIH. Today lasers are remaining as a possible treatment option in resistant and very dark melasma

Common problem

One of the common problem in the treatment of the melasma, is to deliver bio-active ingredients precise and homogeneously at tissue layer depths where they interact best without irritation.

SMART PORATION[™]

P.L.E.A.S.E.[®] Professional was developed and launched as a high precision transdermal delivery device utilizing the SMART PORATION[™] process. The system is based on advanced micro-poration technology with proof of concept (in vitro) with different drugs or bio-active agents of large molecular sizes.

Vitamin C is a soluble ingredient known to penetrate the skin and to keep its activity in the epidermis. Our objective was to observe the positive effects of enhanced penetration of an epidermal lightening agent, Vitamin C, which were homogeneously delivered at precise tissue layer depth as a result of the SMART PORATION[™] process.

Case report

Melasma appeared during the pregnancy in a female 10 years ago. After a first treatment with triple combination within the first year results were 20 % improvement according to the subjective evaluation of patient. No other treatment options were performed in this melasma case during this time interval.

Protocol

The P.L.E.A.S.E.[®] SMART PORATION[™] protocol was performed to create micro-poration channels on the total face, followed by a 2 minutes massage with Vitamin C in a concentration of 20% (2 ml for the face), (Mesoesthetic, Viladecans, E). A crystal fiber mask was applied after for several minutes.

Parameters used

Treatment parameters were: 175 μ s pulse-duration, a total fluence of 13,8 J/cm² were delivered per single micropore, 3 % surface density of micro-pores, 1 pulse per micro-pore and 1 pass only. The depth to deliver the substance was approximately 55 micrometer.

SMART PORATION[™]

Treatment process – Melasma

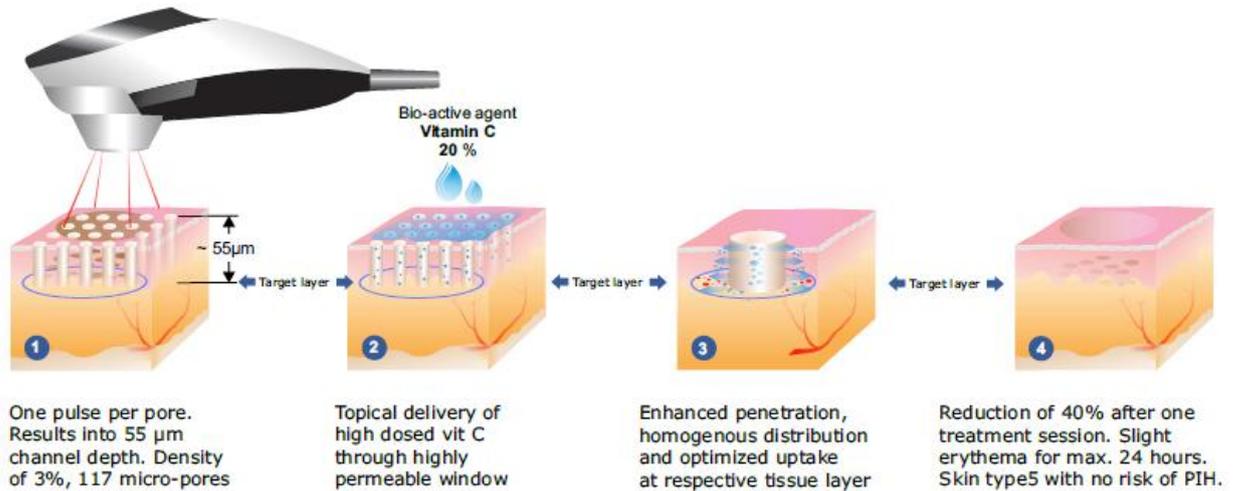
We performed one treatment session before summer. Evaluation was done during August taking visible light and special UV-pictures.

The patient was instructed that skin care during the study consist only of using a specific moisturizer and cleanser. There was no need to use additional sun protection. We observed a reduction of 40 % of the melasma on subjective evaluation on standard visible and UV pictures taken. A slight erythema directly after the SMART PORATION[™] process was present for duration of less than 24 hours. The SMART PORATION[™] procedure is painless,

well tolerated by the patient and were performed without any topical anesthesia. The SMART PORATION™ process and the associated microchannels

do not produce thermal damage. No crusts were observed after the treatment.

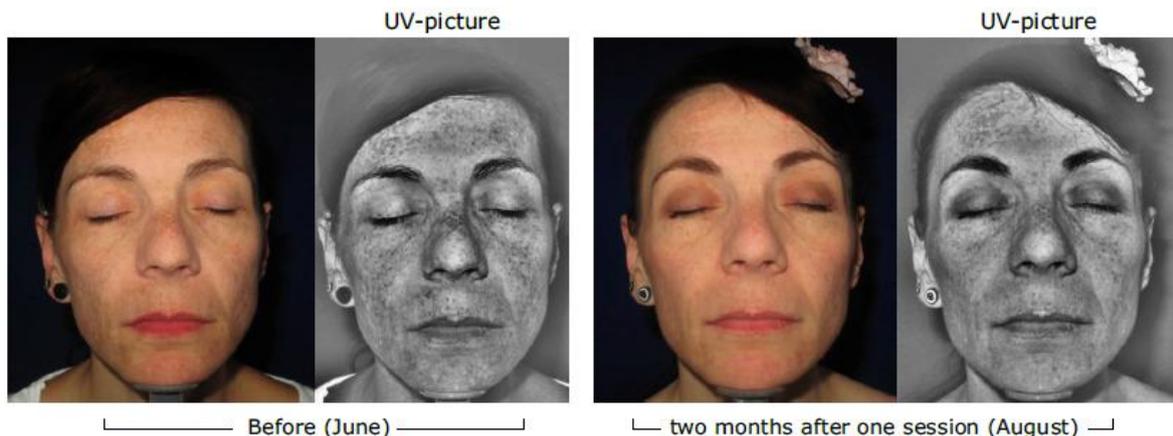
SMART PORATION treatment process - Melasma



Results

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Conclusion

Melasma is a difficult condition that needs the precise homogenous deposition of classic therapeutic agents delivered at the right place within the epidermal layer. SMART PORATION™ produces a precise, non-thermal density of micro-pores without post inflammatory hyperpigmentation. P.L.E.A.S.E.® SMART PORATION™ in combination with high dosed Vitamin C is a safe and effective treatment option for melasma. The previous results are very encouraging but need to be confirmed on a larger series of patients.