

## White Paper

# Elite MPX™ for the Treatment of Solar Lentigines and Pigmentation

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## SUMMARY

As laser technology continues to advance, physicians have choices regarding wavelengths, spot sizes and pulse durations that can effectively target a specific chromophore while respecting the surrounding epithelium in darker skin types. These advances allow for more efficient eradication of chromophores, such as melanin, with less downtime.

## INTRODUCTION

The Elite MPX laser (Cynosure, Westford, MA) has been a gold standard platform for laser hair removal. With the dual-wavelength delivery of the 1064nm Nd:YAG wavelength and the 755nm Alexandrite wavelength, clinicians can titrate the percentage of each, and modify pulse durations to provide the most effective and safe destruction of the hair follicle.

However, the applications of Elite MPX are greater than hair removal alone. By utilizing the additional intense pulsed light (IPL) component, and isolating the Alexandrite wavelength in different spot sizes, the clinician is armed with a powerful solution to address both diffuse pigmentation and discreet melanin.

## MELANIN

Melanin production occurs in the basal layer of the skin in response to UV stimulation. The absorption curve of melanin has a gradual slope; therefore, there is no single “best” wavelength for targeting this chromophore. However, shorter wavelengths within the blue spectrum or the green/yellow spectrum will be absorbed better than longer wavelengths. Balancing the wavelength, spot-size, and pulse duration parameters will allow the clinician to target the cosmetically concerning pigmentation.

The safety and efficacy of the long-pulsed Alexandrite laser for treating solar lentigines has been reported.<sup>1</sup> Thus, for patients with more diffuse dyschromia, or with greater areas of solar lentigines, the long-pulsed Alexandrite laser may present a useful and effective alternative to the Q-Switched laser for pigment reduction.



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## THE ELITE MPX LASER

Elite MPX is a dual-wavelength, sequentially emitting laser consisting of both the Alexandrite and the Nd:YAG wavelengths. These wavelengths can be fired sequentially or singularly in a wide array of spot sizes ranging from 3mm to 18mm. Versatility is further increased by the IPL component.

The IPL can be used to treat generalized dyschromia, while the Alexandrite wavelength can target discrete solar lentigines, which will audibly “pop” when treated at a 5 Hz repetition rate. The melanin will immediately darken, and appear elevated and textural as a result. Perilesional erythema and slight edema may persist for up to 24 hours. Patients are instructed to use sun protection and to wash normally and not exfoliate the treated areas. The darkened lentigines will typically flake off within 10-14 days. If a second treatment is needed, it is typically scheduled 4-6 weeks post initial treatment.

### Subject 1

A 38-year-old male with Fitzpatrick skin type III presented to our clinic with solar lentigines on the left side of his face. He reported currently using sunscreen with SPF of 30 or higher, but did not use as a child. He had not previously been treated with tretinoin or hydroquinone. He was interested in exploring laser and light-based options to treat his area of concern.

During consultation, the patient was informed that 2-3 treatments may be needed every 4-6 weeks. No topical numbing was applied to the skin. The 560nm filter IPL was used first to address diffuse pigmentation. The fluence was increased until the pigmentation darkened and mild erythema developed. Once the integrated SmartCool air cooling system was set at a low level of 3, treatment with the Alexandrite laser began at a fluence of 16 J/cm<sup>2</sup> and a 5mm spot size. The pulse duration was shortened to 0.5ms and the repetition rate was increased to 5 Hz. An audible “popping” noise could be

heard, and the lentigo took on a rough, textural, darkened appearance. The patient described his discomfort as 2 out of 10 for both the IPL and the Alexandrite laser on the visual analog scale. The patient followed up six weeks post the first laser treatment and was happy with the results post one treatment.

### Subject 2

A 36-year-old white female with Fitzpatrick skin type III presented to our office because of solar lentigines on her legs. She was bothered by their appearance and felt self-conscious of the pigmentation when wearing skirts or dresses.

Upon examination, her lesions appeared discrete with no surrounding pigmentation, so the Alexandrite laser was selected to target the lesions. As before, no topical numbing was applied, and the integrated SmartCool air cooling system was set at 2. Fluence was increased until the popping sound and change in texture and color was noted. Mild perilesional erythema and edema developed, then resolved after six hours. The patient did very well post one treatment with nearly 100% clearance of her lesions.

### Subject 3

A 42-year-old female with Fitzpatrick skin type III and solar lentigines of the décolletage presented to our clinic. She had used a combination of tretinoin and hydroquinone 4% in the past, but felt that the pigmentation was only minimally lightened by this combination. She wanted to explore other treatment options.

The discrete nature of her solar lentigines correlated well to the efficacy of the Alexandrite wavelength alone. She was treated using the Alexandrite laser with a fluence of 16 J/cm<sup>2</sup>. The patient did very well post one laser treatment.

## Subject 1

6 weeks post 1 Tx  
IPL 560nm  
13 J/cm<sup>2</sup>  
755nm  
5mm spot size  
16 J/cm<sup>2</sup>  
0.5ms  
5 Hz



## Subject 2

6 weeks post 1 Tx  
755nm  
5mm spot size  
16 J/cm<sup>2</sup>  
0.5ms  
5 Hz



## Subject 3

3 months post 1 Tx  
755nm  
5mm spot size  
18 J/cm<sup>2</sup>  
5 Hz



## CONCLUSION

Solar lentigines and generalized dyschromia can be treated with a variety of different laser and light sources.<sup>2,3</sup> The primary class of lasers for treating melanin has been the Q-Switched laser, which can induce instant melanocyte destruction, but may damage normally pigmented epidermis in some patients. Conversely, a long-pulsed Alexandrite laser gently heats the melanin and is less spatially selective, so broader areas of pigmentation can be treated quickly and safely.<sup>3</sup>

The combination of IPL and long-pulsed Alexandrite together can aid in pigment lightening with better yields still. The IPL is used first for dyschromia, followed by discrete treatment of the solar lentigines with the Alexandrite wavelength. Both the IPL and the Alexandrite laser are found in Elite MPX, thus providing safe and effective treatment for pigmentation.

## REFERENCES

1. Rosenbach A, Lee SJ, Johr RH. Treatment of medium brown solar lentigines using an Alexandrite laser designed for hair reduction. *Arch Dermatol* 2002. 138:547-8.
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3. Traeli J, Kwan JM, Meehan KJ, Domankivitz Y, Gilbert S, Malomo K, Ross EV. Use of a long-pulsed Alexandrite laser in the treatment of superficial pigmented lesions. *Dermatol Surg* 2007 33:1-7.