CYNOSURE

Cynergy™

FAQs

Cynergy with MultiPlex™ FAQs

(Frequently asked questions)

What is Cynergy?

Cynergy is the first system to combine a long pulse pulse-dye-laser and a high powered Nd:YAG into one system. These wavelengths were chosen for their absorption characteristics and depth of penetration. Both wavelengths are well absorbed by blood. Both wavelengths are also absorbed by melanin. The wavelengths are synergistic in their depth of penetration criteria, the PDL has a more shallow depth of penetration while the Nd:YAG penetrates deeper.

What is MultiPlex?

MultiPlex is the ability to sequentially fire different laser wavelengths through the same handpiece, with precise timing, to improve the outcome of treatment compared to single-wavelength treatment.

MultiPlex Vascular refers to Cynergy's combination of PDL followed by YAG, with short, medium, long and extended delays between wavelengths.

Why is MultiPlex better?

MultiPlex vascular has been shown to provide 75% singles-treatment clearance in 75% of subjects when treating facial telangiectasia, with little of no purpura. MultiPlex improves treatment of leg veins as well. MultiPlex has also been shown to improve outcomes for those with recalcitrant and resistant vascular birthmarks, and to allow treatment of lesions previously requiring surgery.

When should I choose MultiPlex?

MultiPlex is the preferred method of treatment for discrete telangiectatic vessels from 0.2 to 1.2 mm in diameter, on the face and legs.

It also provides additional treatment options for resistant or recalcitrant vascular birthmarks. PDL therapy alone, continues to be the gold standard first-line treatment for vascular birthmarks, as it remains the safest option. MultiPlex is not recommended for treatment of children, unless PDL options have been exhausted.

Why PDL first?

PDL energy is very well absorbed by blood (about 50x better than Nd:YAG), hence very little energy (typically less than 10 J/cm^2) is required to heat blood sufficiently to cause conversion to Methemoglobin and/or thrombus (PDL products). Thus there is little background heating of tissue and less risk of thermal injury.

Both Methemoglobin and thrombus provide favorable absorption characteristics for Nd:YAG (~3-5x better then normal blood), thus modest Nd:YAG fluence is required to provide effective treatment. Because less Nd:YAG energy is used, there is a lower risk of side effects than Nd:YAG alone. The Nd:YAG absorption characteristics of Methemoglobin and thrombus are still much lower (~10x) than PDL, thus depth of penetration is not sacrificed.

If PDL only penetrates up to about 0.75-mm how does MultiPlex allow deeper treatment?

General perfusion causes Methemoglobin and thrombus to flow deeper into the dermal tissue between the penetration depths of PDL & Nd:YAG wavelengths. This allows the Nd:YAG energy to interact at depth, with PDL exposure products that were created more superficially. Detailed studies have shown that even when a vessel appears to be clotted, there is typically some residual flow, allowing propagation of PDL products.

When to use short, medium, long, extended?

- Short is required when treating discrete telangiectasia with high flow rates. This allows Nd:YAG to interact with PDL altered blood before it flows away from the treatment area.
- Medium is used for treatment of large, moderate flow-rate vessels, and for treatment of resistant salmon-colored Port Wine birthmarks.
- Long and extended are use for treatment of other resistant vascular birthmarks. The longer delays allow altered blood to perfuse deeply into the lesions while providing time for epidermal cooling between wavelengths. This reduces the risk of epidermal injury when using MultiPlex for treatment of these lesions.

Do I need to use cooling with MultiPlex?
Absolutely! The PDL does introduce residual heat into the field of Nd:YAG treatment. Without efficient epidermal cooling, this can lead to epidermal injury.

What about other lasers, or different pulse formats?
A longer pulse duration of the PDL is composed of multiple sub-pulses. The addition of more sub-pulses in PDL's has been an ongoing evolution for several years. The purpose of additional "pulselets" is to reduce the risk and/or duration of purpura at therapeutic fluences. The addition of more pulselets beyond 6 "pulselets" has not been shown to improve treatment efficacy, or to provide a greater depth of treatment, only to reduce the degree and duration of purpura associated with treatment.

What is purpura anyhow, and why don't I see it when treating things like telangiectasia?
Purpura looks like a bruise the size of the laser spot. Recent data indicates that it is the result of coagulation of the smallest (10-40 mm diameter) vessels that are normally in the skin. This happens when the wavelength/pulse duration combination is not selective enough to differentiate between the small, normal vessels, and the ones being treated. Longer pulse durations and the addition of more "pulselets" help differentiate between long & small vessels, thus increasing purpura threshold to a point.

When you treat a telangiectasia, and the vessel darkens (an intravascular clot) you have essentially caused "vessel specific" purpura, on a scale where you can actually see the clotted vessel. By using Cynergy, it is possible to cause this more-selective clotting without generalized purpura.

The vessel disappeared, isn't that a good thing?
Immediate vessel disappearance during laser treatment is a sign of vasospasm. Vasospasm occurs when a vessel is damaged, or irritated, but not necessarily destroyed. In the majority of cases, a vessel that displays vasospasm has been under treated, and will return within days or weeks. Intravascular coagulation (darkening of the vessel itself, which cannot be blanched) is the preferred endpoint for treatment of telangiectasia, suggesting effective damage to the vessel wall. Intravascular coagulation generally resolves within 1-3 weeks.

CYNOSURE®
Be transformed