

## A TEMPERATURE END POINT METHODOLOGY USING 1726 NM LIGHT TO TREAT ACNE THAT COULD CHANGE THE WAY WE USE DEVICES FOR MEDICAL AND AESTHETIC APPLICATIONS

### **Background**

Using 1726 nm light to treat acne posed a number of challenges to successfully and selectively damage sebaceous gland with a very narrow therapeutic window due to the 2 to 1 differential absorption of sebum to water. We developed specialized hardware and software to use highly controlled air-cooling with this fiber laser to successfully treat acne.

### **Objectives**

With a focus on safety, we developed a device that utilized a thermal camera to real time record and display temperature measurements on the skin surface which correlated with damage to sebaceous gland, a temperature endpoint. This was best accomplished by robust highly controlled air-cooling. Utilizing a multi-pulse protocol, we were able to monitor and adjust the power in real time with software that permitted us to achieve a consistent temperature end point.

### **Methods**

The results of our phase 2 study involving 19 patients are reported with patients receiving 4 monthly treatments and up to 2 years of follow-up.

### **Results**

The patients in the study had 79% inflammatory lesion reduction at 12 weeks post treatment and a 90% reduction after 1 year.

### **Conclusions**

The results of this investigation validate the use of temperature as a clinical endpoint. The variability from different areas of the body and face, from person to person, and device to device with a very narrow therapeutic window makes this an important innovation. The methodology with sophisticated hardware and software can be applied to many other medical and cosmetic device treatments which are thermally based.