CLAIMS

1. A device for treating a mammalian eye having an eyelid, comprising:

an energy transducer having a device that emits light energy at multiple wavelengths, including a first wavelength selected to pass through eyelid and a second wavelength selected to be absorbed by the eyelid for warming;

a frontplate positionable proximate an outer surface of the eyelid, the frontplate being made of a clear material that passes the wavelengths of light emitted by the energy transducer, the frontplate further comprising sensors configured to provide information regarding a position of the eyelid relative to the frontplate;

a backplate positionable proximate an inner surface of the eyelid, the backplate being made of or coated with an energy-reflecting material configured to receive the first wavelength of light energy transmitted through the eyelid and reflect it back to the eyelid, the backplate further comprising sensors configured to provide information regarding a position of the eyelid relative to the frontplate;

at least one support arm coupled to the backplate; and

at least one aperture located between the back plate and the frontplate for viewing through the aperture of an eyelid margin of the eyelid during treatment;

wherein when the eyelid is positioned between the frontplate and backplate and the light energy from the energy transducer heats a target tissue region sufficiently to melt meibum within meibomian glands located within or adjacent to the target tissue region.

2. The device of claim 1, further comprising an actuator coupled to the frontplate and backplate configured to cause relative movement between the frontplate and backplate to squeeze the eyelid to express the meibomian glands.

3. The device of claim 2, wherein the actuator is further configured to control the amount of light energy emitted from the energy transducer at the second wavelength, thereby controlling the heating of the target tissue.

4. The device of claim 1, wherein the energy transducer is further configured to provide light energy at a third wavelength selected to treat bacteria.

5. The device of claim 1, further comprising a visualization device for viewing the eyelid during treatment.

6. The device of claim 1, wherein the energy transducer comprises at least one of an LED, laser, incandescent lamp, xenon lamp, halogen lamp, luminescent lamp, high-intensity discharge lamp, and gas discharge lamp.

7. The device of claim 1, further comprising one or more components selected from the group consisting of: a display or dashboard configured to display the device status; a temperature measurement device configured to measure various temperatures of the eyelid, including inner and/or outer eyelid surface temperatures; a datalogger; a voice recorder; a battery configured to power the device components; battery charging means; a controller; printed circuit board; and communication circuitry between shield and energy transducer.

8. The device of claim 1, wherein the at least one support arm comprises a pair of support arms and the at least one aperture is a single aperture located between the pair of support arms.

9. The device of claim 1, wherein the at least one support arm comprises a central support arm and the at least one aperture is two apertures located on two sides of the central support arm.