What is claimed is:

[Claim 1] A retinal phototherapy or photostimulation system, comprising:

a laser console generating at least one pulsed treatment beam, the at least one treatment beam having parameters of wavelength, power, pulse train duration and duty cycle to photostimulate or treat a retinal target tissue while not permanently damaging the retinal target tissue, wherein the parameters of the at least one treatment beam are fixed so as to not be alterable by a medical provider;

a projector or camera for projecting the at least one treatment beam onto at least a portion of a retina; and

a scanning mechanism for controllably directing the at least one treatment beam to treatment areas of the retina.

[Claim 2] The system of claim 1, wherein the at least one treatment beam stimulates heat shock protein activation in the target tissue.

[Claim 3] The system of claim 1, wherein the at least one treatment beam raises a target tissue temperature to a desired level while maintaining an average temperature rise of the target tissue over a period of time at or below a predetermined level so as to not permanently damage the target tissue.

[Claim 4] The system of claim 2, wherein the at least one treatment beam raises a target tissue temperature no greater than eleven degrees Celsius to achieve a therapeutic or prophylactic effect, wherein the average temperature rise of the target tissue over several minutes is maintained at or below a predetermined level so as to not permanently damage the target tissue.

[Claim 5] The system of claim 4, wherein the at least one treatment beam raises the target tissue temperature between six degrees Celsius to eleven degrees Celsius at least during application of the pulsed energy source to the target tissue while maintaining the average temperature rise of the target tissue over several minutes at one degree Celsius or less.

[Claim 6] The system of claim 5, wherein the average temperature of the target tissue is maintained at one degree Celsius or less over a six minute period of time.

[Claim 7] The system of claim 1, wherein the at least one treatment beam is applied to a plurality of target tissue areas, and wherein adjacent target tissue areas are separated to avoid thermal tissue damage and/or
wherein the laser console has a power output of between 0.5-3.0 watts and/or
wherein the at least one treatment beam creates a treatment spot on the retina having a size of 100-1,000 micrometers.

[Claim 8] The system of claim 1, wherein the at least one treatment beam has a wavelength between 530nm to 1300nm, a duty cycle of less than 10%, and a pulse train duration between 0.1 and 0.6 seconds.

[Claim 9] The system of claim 8, wherein the at least one treatment beam has a wavelength between 750nm and 850nm, a duty cycle of between 2% and 5%, and a pulse train duration of between 0.15 and 0.5 seconds.

[Claim 10] The system of claim 1,

wherein the at least one treatment beam raises a target tissue temperature between six degrees Celsius and eleven degrees Celsius to stimulate heat shock protein activation in the target tissue and achieve a therapeutic or prophylactic effect; and

wherein the average temperature rise of the target tissue over several minutes is maintained at or below one degree Celsius or less over a six minute time period so as to not permanently damage the target tissue.

[Claim 11] The system of claim 10, wherein the at least one treatment beam is applied to a plurality of target tissue areas, and wherein adjacent target tissue areas are separated to avoid thermal tissue damage and/or

wherein the laser console has a power output of between 0.5-3.0 watts and/or

wherein the at least one treatment beam creates a treatment spot on the retina having a size of 100-1,000 micrometers.

[Claim 12] The system of claim 10, wherein the at least one treatment beam has a wavelength between 530nm to 1300nm, a duty cycle of less than 10%, and a pulse train duration between 0.1 and 0.6 seconds.

[Claim 13] The system of claim 12, wherein the at least one treatment beam has a wavelength between 750nm and 850nm, a duty cycle of between 2% and 5%, and a pulse train duration of between 0.15 and 0.5 seconds.

[Claim 14] The system of claim 1,

wherein the at least one treatment beam has a wavelength between 530nm to 1300nm, a duty cycle of less than 10%, and a pulse train duration between 0.1 and 0.6 seconds;

wherein the at least one treatment beam creates a treatment spot on the retina having a size of 100-1,000 micrometers; and

wherein the at least one treatment beam is applied to a plurality of target tissue areas, and wherein adjacent target tissue areas are separated to avoid thermal tissue damage.

[Claim 15] The system of claim 14, wherein the at least one treatment beam has a wavelength between 750nm and 850nm, a duty cycle of between 2% and 5%,

and a pulse train duration of between 0.15 and 0.5 seconds and the laser console has a power output of between 0.5-3.0 watts and/or

wherein the at least one treatment beam raises a target tissue temperature between six degrees Celsius and eleven degrees Celsius to stimulate heat shock protein activation in the target tissue and achieve a therapeutic or prophylactic effect; and

wherein the average temperature rise of the target tissue over several minutes is maintained at or below one degree Celsius or less over a six minute time period so as to not permanently damage the target tissue.