10. The system of claim 8, wherein the NIR laser emits light having a wavelength of approximately 800 nm.

11. The system of claim 8, wherein the beam size is within the range of 1mm to 5mm diameter,

12. The system of claim 8, wherein the tunable power is within the range of 0.6 to 15 W.

13. The system of claim 8, wherein the exposure duration is within the range of 30 – 45 seconds.

~~14. A photothermal method of in vivo fat removal comprising the melting and liquefying of fat using the system of claim 1.~~

~~15. A method of inducing skin tightening around regions from which adipose tissue has been removed using the system of claim 1.~~

~~16~~14. A system for in vivo photothermal removal of subcutaneous fat in a target area, the system comprising:

photo-absorbing nanoparticles having an aspect ratio of 1:3 to 1:5 suspended in a solution;

a near infrared light source configured for delivering a light beam to the target area, the near infrared light source comprising a system controller for generating control signals controlling delivery parameters of the light beam, wherein the control signals comprise selection of an emission wavelength within an emission wavelength range of 700 to 900 nm, an emission intensity and an exposure duration, and wherein the system controller is configured to select the emission wavelength to excite the nanoparticles to a temperature to melt and liquefy fat within the target area and the emission intensity and exposure duration to modulate heating to minimize damage to tissue adjacent the fat;

a first syringe adapted for directly subcutaneously injecting the nanoparticle solution into a target area; and

a second syringe or cannula adapted for aspirating melted and liquefied fat from the target area after exposure of the target area to NIR light energy.

~~17~~15. The system of claim ~~16~~14, wherein the photo-absorbing nanoparticles are gold nanorods having an axial diameter of approximately 10 nm and a longitudinal diameter in the range of 9 to 50 nm.

~~18~~16. The system of claim ~~16~~14, wherein the system controller is configured to select an emission wavelength of 800 nm.