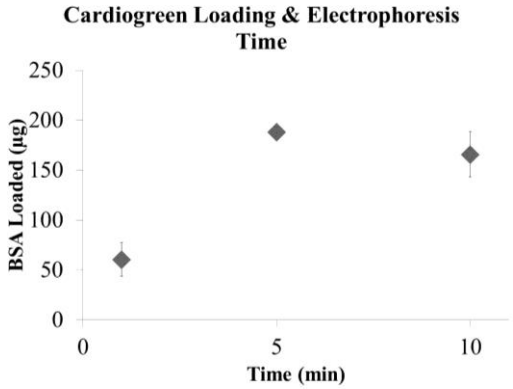
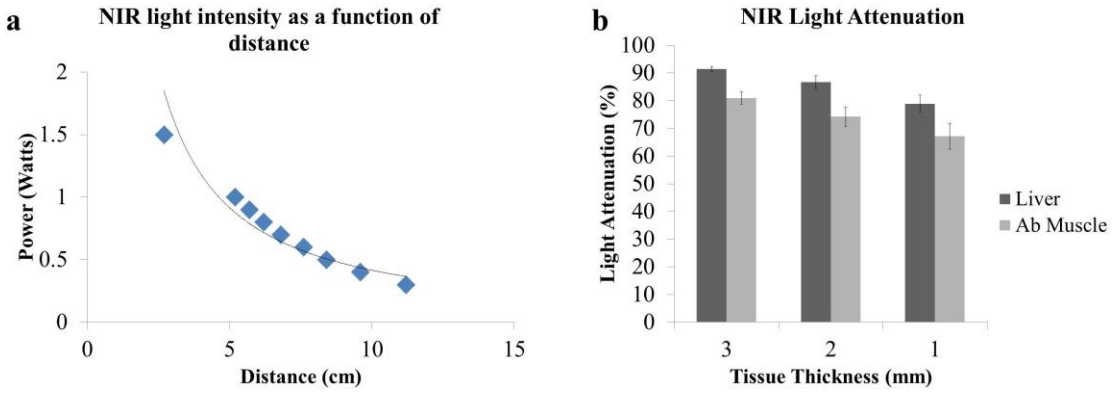
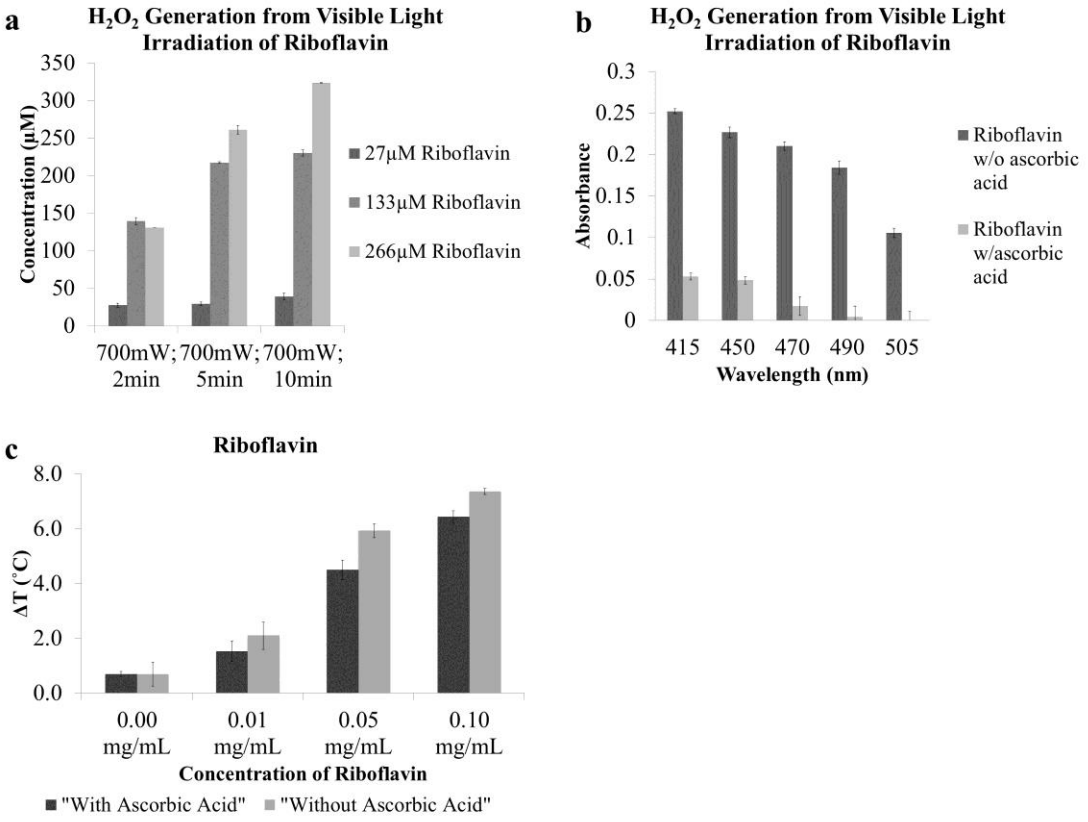
SUPPLEMENTARY MATERIAL



Supplement Fig. 1 The amount of cardiogreen (µg) loaded into NiPAAm hydrogels via electrophoresis with 1, 5 and 10 minutes run time (n=3). The 5 minute run time was used to load the NiPAAm hydrogels for the experiments in this study



Supplement Fig. 2 (a) Light intensity is proportional to the inverse square of the distance from the light source. (b) Light attenuation of NIR light in biological tissues increases with tissue thickness due to absorption by water in tissue and scattering by collagen fibers (n=3)



Supplement Fig. 3 (a) Various concentrations (27, 133 and 266μM) of riboflavin were irradiated with 700mW of 450nm light for 2, 5 and 10 minutes and the concentration of hydrogen peroxide generated by each solution was determined using hydrogen peroxide assay kit (National Diagnostics, Georgia, USA) (n=6). (b) Effect of 2.5mM ascorbic acid on hydrogen peroxide generation by riboflavin (0.01 mg/mL) irradiated with visible light (600mW, 450nm) for 5 minutes (n=6). The addition of ascorbic acid to the solution results in a decrease in hydrogen peroxide generation. (c) The measured temperature change of 1mL aqueous solutions of riboflavin after 4 minutes of 450nm light (500mW) exposure with and without 2.5mM ascorbic acid (n=6). Addition of ascorbic acid slightly weakened the photothermal response

Supplement Table 1 POLILIGHT® PL500 Specifications

Wavelength (nm)	**Bandwidth (nm)**
415	40
450	100
470	40
490	40
505	40
530	40
555	27
590	40
620	40
650	40
900 (NIR)	400