

## Supplemental Material

### Temperature measurement in the phantom

A transparent hydrogel phantom was prepared to mimic human muscle.<sup>1</sup> The needle thermocouple (0.2 mm, Omega Engineering, Stamford, CT, USA) was inserted into the phantom and its tip was located at the focal zone of the ultrasound transducer as shown in Suppl Fig. 1. Ultrasonic gel was coated on the interface between the transducer and the phantom. The measured temperature was 24 °C before ultrasound sonication (Suppl Fig. 1A) and increased to 26 °C (Suppl Fig. 1B) after ultrasound treatment with the intensity of 1126 W/cm<sup>2</sup> and sonication of 15 s.

### The body weights and fasting blood glucose levels

The body weights of control rats increased from 325±13 g at 0 week to 438±17 g at the 4<sup>th</sup> week (Suppl Fig. 2A) but their fasting blood glucose didn't change remarkably (94±6 mg/dl at 0 week, 98±11 mg/dl at 4<sup>th</sup> week, Suppl Fig. 2B). For STZ-injected rats, a significant decrease in the body weights (384±33 g vs 336±43 g) and a significant increase in glucose levels (95±5 mg/dl vs 343±72 mg/dl).

### The blood perfusion of the right and left middle toe ends in DSP I and Control I rats

The blood perfusion of the right and left middle toe ends in DSP I rats (255±48 BPU) was significantly lower than that in Control I rats (479±26 BPU) before single FUS treatment. (Suppl Fig. 3A). Suppl Fig. 3B illustrates one example of a skin blood perfusion profile for a DSP I rat subjected to single ultrasound treatment. The baseline blood perfusion and the duration of the increased perfusion (T) were 203±38 BPU and 144 s, respectively.

### References

1. Shieh J, Chen SR, Chen GS, et al. Acrylic acid controlled reusable temperature-sensitive

hydrogel phantoms for thermal ablation therapy. *Appl Therm Eng* 2014;62(2):322-29. doi: 10.1016/j.applthermaleng.2013.09.021