

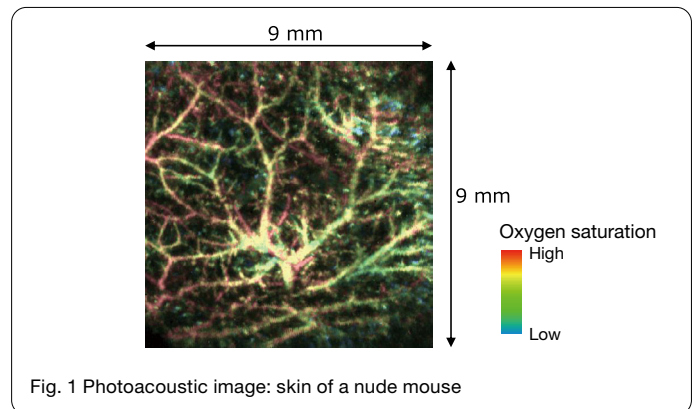
# Animal Model Measurement Example

## Measurement of Experimental Animal Models

We measured animal models of burn injuries with the Hadatomo™ Z photoacoustic microscope using a rat and a mouse, and evaluated the acquired blood vessel images. The measurement area is 9 mm square, and the scan step is 30 μm. Two wavelength lasers, 532 nm and 556 nm were used for measurement.

### 1 Measurement of mouse skin

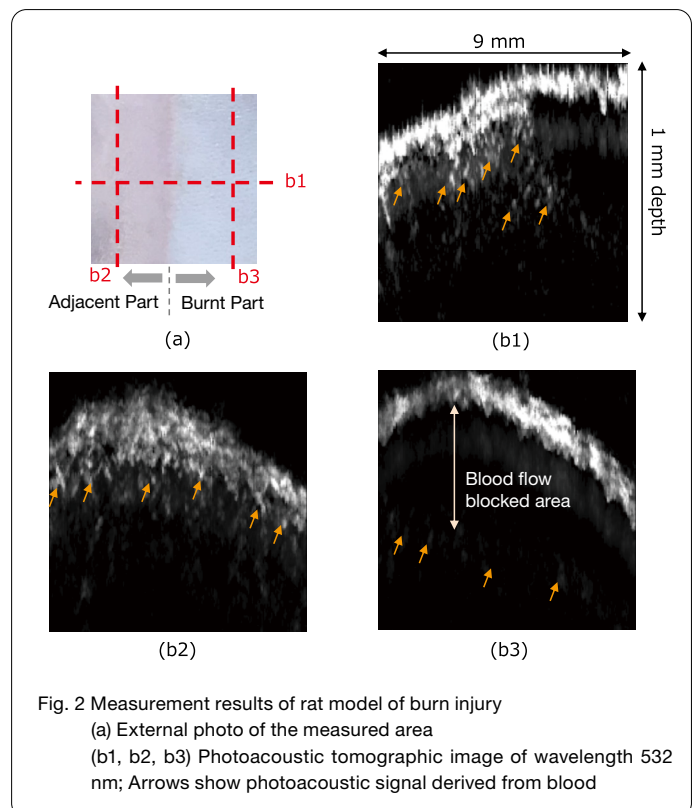
We measured the skin (back) of a nude mouse. Fig. 1 shows the measurement result. Oxygen saturation was calculated using photoacoustic signals acquired with 532 nm and 556 nm lasers, and the intensity is displayed in colors. The picture shows blood vessels within the dermis visualized with high contrast.



### 2 Rat model of burn injury measurement

We created superficial-dermal burns on the back of a rat according to the Walker-Mason method, and measured the boundary between the burnt part and the adjacent part. Fig. 2 shows an external photo of the measured area and photoacoustic images utilizing a wavelength of 532 nm.

Fig. 2 (a) shows a clear boundary between the burnt part and its adjacent part. Fig. 2 (b1) shows a tomographic image of broken line b1 in (a). In the adjacent area, signals derived from the blood can be observed on each layer of the skin, but in the burnt area, signals derived from the blood cannot be observed. This suggests that an area of blocked blood flow owing to the burn is observed. Fig. 2 (b2) and (b3) show tomographic images of broken lines b2 and b3 in (a), representing tomographic images of the adjacent area and the burnt area. In the adjacent part in (b2), photoacoustic signals derived from blood can be observed in every layer, but in the blood-blocked area in the burnt part (b3), signals derived from blood cannot be observed, while they can be observed in the area beneath the burnt area. As a result, there is a possibility that we could visualize the blockage of blood flow, owing to the burn, in a rat model of burn injury.



With these data, possibilities of measuring blood disorders using the Hadatomo™ Z photoacoustic microscope are shown by noninvasively measuring animal models.

