

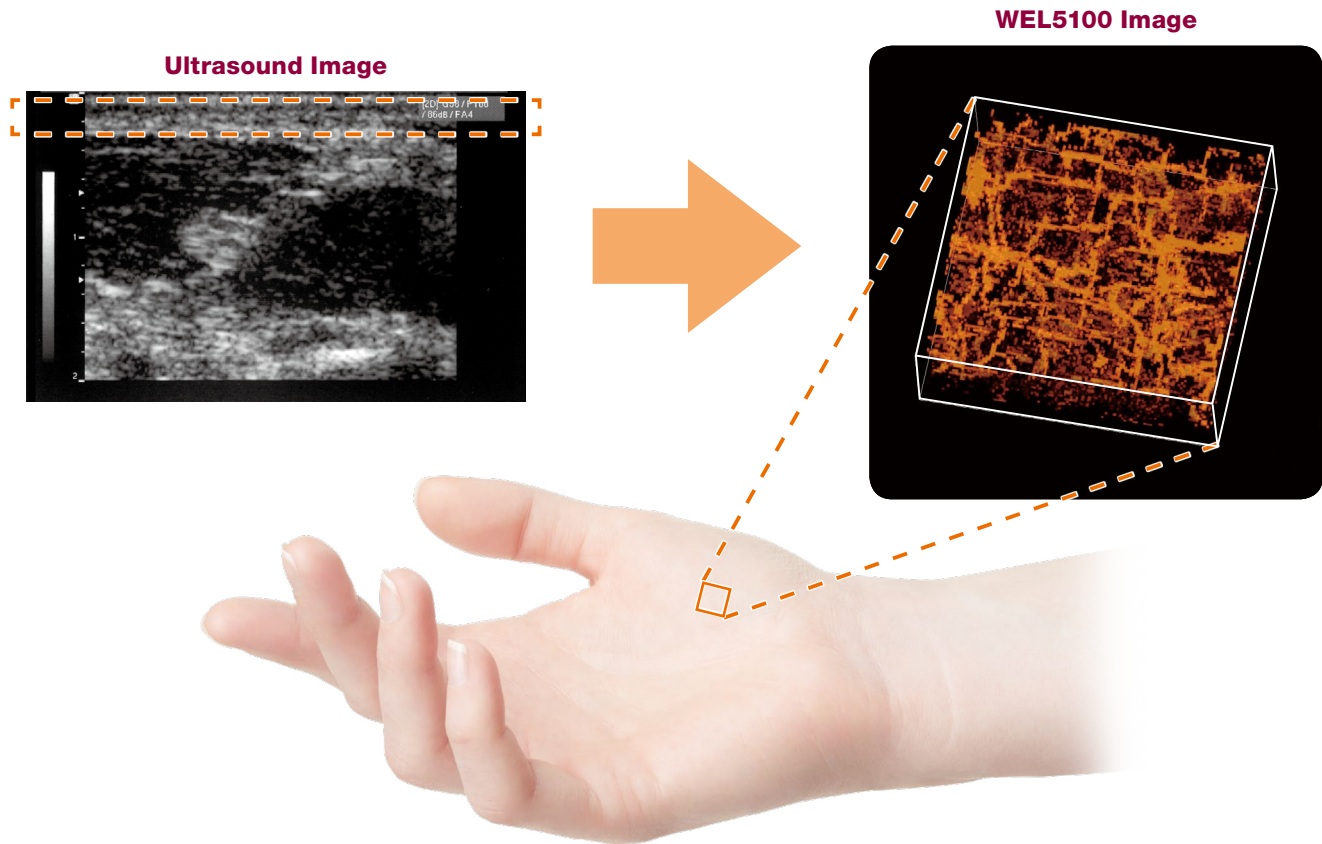
# Hadatomo™ WEL5100

A New Tool for Non-Invasive Imaging of Blood Vessels in  
the Dermis to a Depth of 3mm



Hadatomo  
5100

# Noninvasive, High Contrast Imaging of Blood Vessels to a Depth of 3mm



## New Hybrid Imaging Method Combines Advantages of Optical & Ultrasound Technologies

Existing ultrasound technology can noninvasively provide images of tissue structures by contrasting the relative hardness of constituent areas. However, it is inadequate to image areas within the dermis, where little hardness contrast exists.

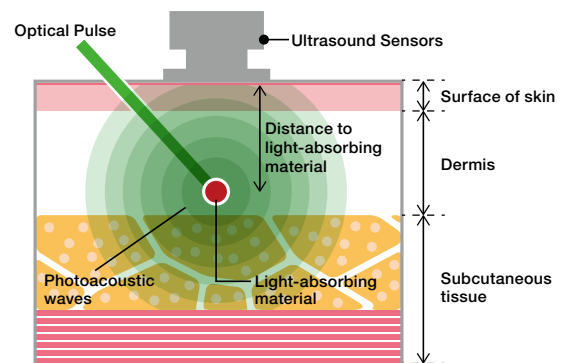
Conversely, optical imaging tools such as microscopes cannot "see" even 1mm beneath the skin.

Advantest's new photoacoustic microscope combines the propagation characteristics of ultrasound and the absorption characteristics of light into a new hybrid imaging method. By using ultrasound technology, it can obtain accurate information to a depth of several millimeters: Hemoglobin selectively absorbs the energy of pulsed light and returns ultrasonic waves to the surface of the skin, where they can be captured by sensors. Based on how long it takes for the waves to return, the depth of the target can be accurately measured and imaged.

The new WEL5100 enables imaging of blood vessels within the dermis to a depth of 3mm. The differing absorptive characteristics of hemoglobin and tissue allow the target area to be selectively imaged in high contrast.

## No Contrast Agent Required. Easy to Operate.

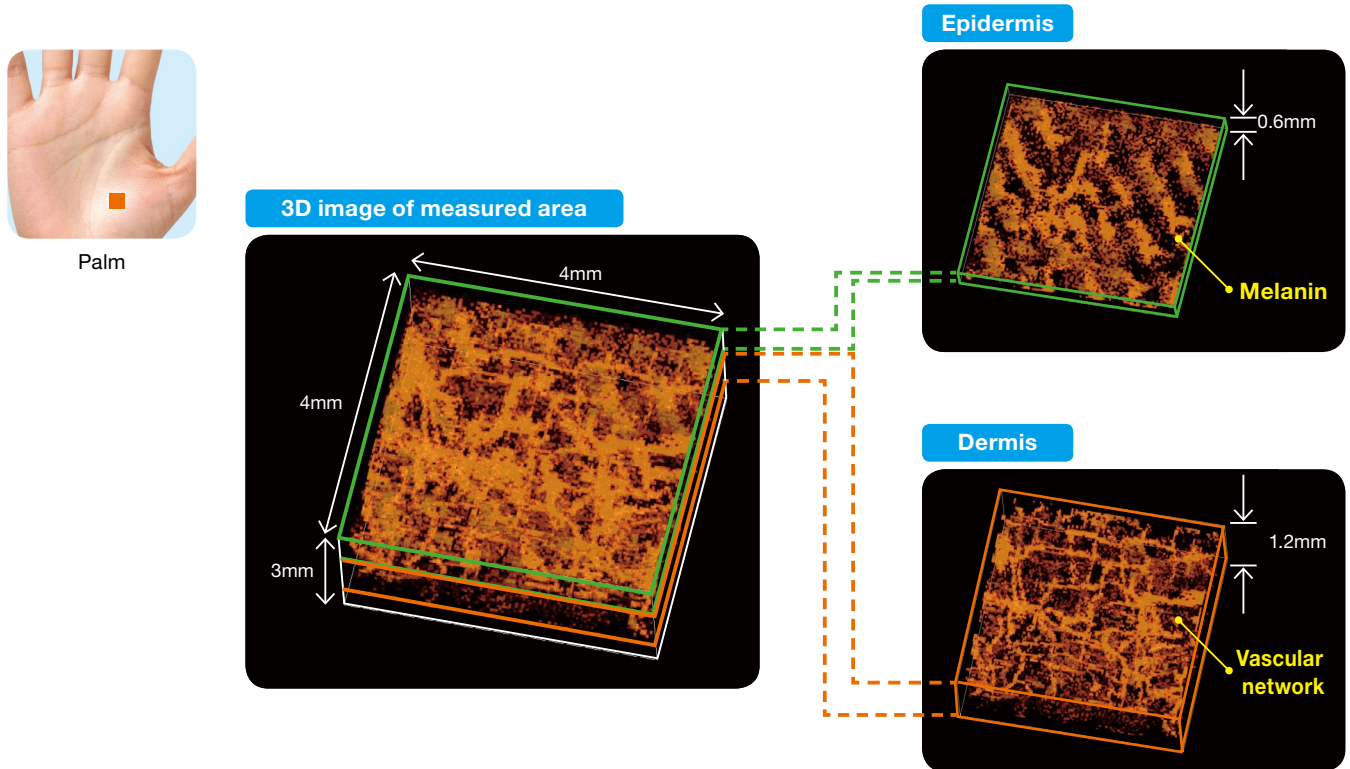
- |                   |   |
|-------------------|---|
| Label-Free:       | No contrast agent required  |
| Lens-Free:        | Advantest's proprietary imaging algorithms make setup easy, with no optical lens or acoustic lens required.   |
| Highly Sensitive: | The WEL5100's sensors are 10x more sensitive than conventional ultrasound tools. Advantest's circuit technology enables high-speed measurement for quick diagnoses. |
| Patient-Friendly: | The WEL5100 can perform measurements from any direction with a simple application of ultrasound gel or other coupling agent.  |



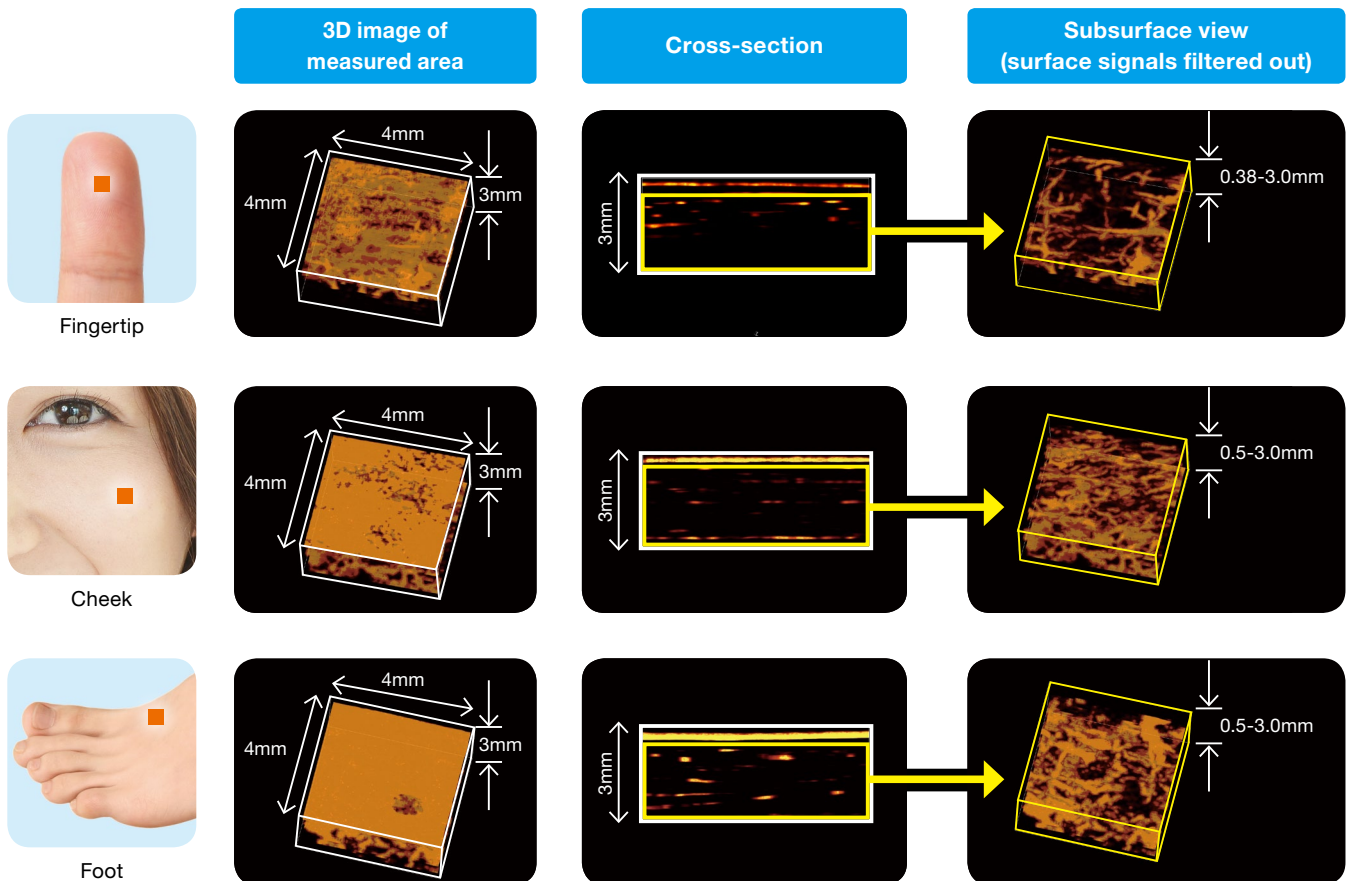
[The principle of Photoacoustic Imaging]

## WEL5100 Imaging Examples

- 3D image of a 4mm x 4mm x 3mm area of the palm, including the epidermis and dermis



- 3D images of 4mm x 4mm x 3mm areas of the fingertip, cheek, and foot, with cross-sections and subsurface views.





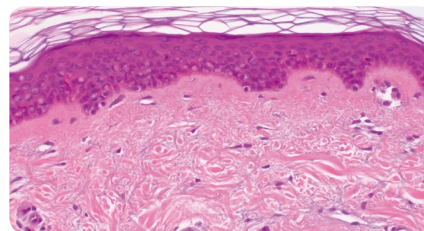
## Suggested Applications



Analyze progress of skin grafts in plastic surgery procedures



Diagnose condition of blood circulation in peripheral artery disease patients and others



Check regrowth of blood vessels in cultured tissues in regenerative medicine procedures



AGA research into hair regrowth and scalp blood circulation



Research into the efficacy of percutaneous absorption type medications and other drug delivery systems



Diagnose efficacy of cosmetics and skin care products

## Key Specifications

Product	WEL5100
Wavelength	532 nm
Pulse width	<2 ns
Pulse energy	<37 microjoules / pulse <sup>*1</sup>
Measurement time settings	10/20/40/80 seconds
Max. measurement area	4 × 4 × 3(depth)mm
External dimensions	Approx. 540 (W) × Approx. 545 (D) × Approx. 1,546 (H) mm
Weight	<110 kg

\*1 Pulse energy is constant, but the repetition frequency may differ depending on the measurement setting.



● This product is categorized as a Scientific Instrument.

● All information supplied in this release is correct at the time of publication, but may be subject to change.

# ADVANTEST®

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