

# **A picture is worth a thousand words: Synergies in Imaging**

**Dr. Ann-Christin Niehoff**

# Shimadzu Corporate Outline

- **Corporate Philosophy**

- Contribution to Society through Science and Technology

- **Management Principle**

- Realizing our Wishes for the Well-being of both Mankind and the Earth

<b>Established:</b>	March, 1875
<b>Total Number of Employees:</b>	11,954 (2018)
<b>Consolidated Subsidiaries:</b>	74 (24 in Japan, 50 Overseas)



# Key Business Segments



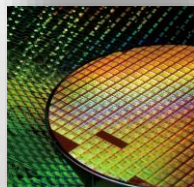
Environment



Medicine



Medical Care



Semiconductor /  
Electronics



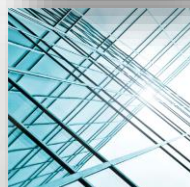
Transport



Food



Energy



Material

# Innovation in Shimadzu



## Annual Review

3,500 engineers in Japan  
work in R&D

## R&D Investment

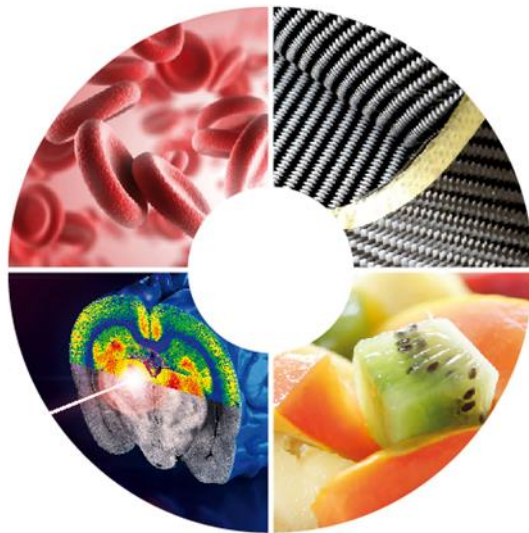
€102m invested in R&D

## PATENTS

6549 patents held in 2017;  
more than 450 patent  
applications

# Global Innovation Centers

- Develop innovative technologies through collaboration with cutting edge researchers
- Provide solution for local demands for analytical and measurement technologies





# Imaging Mass Microscope – iMScope TRIO

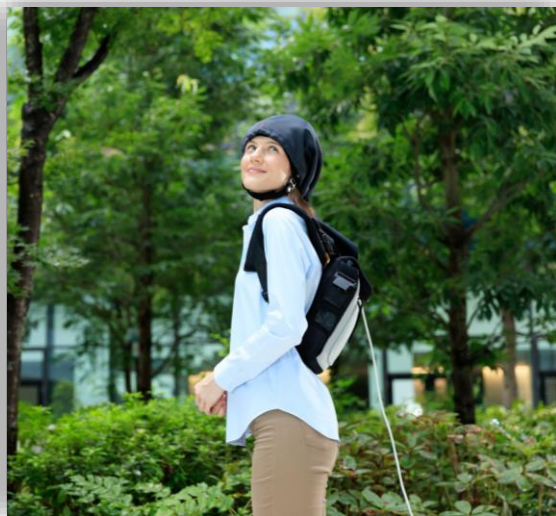
- Matrix **a**ssisted laser **d**esorption/**i**onization **m**ass **s**pectrometry (MALDI-MS)
- Scanning of tissue section
- One mass spectrum per pixel → 2D image



# Functional Near-Infrared Spectroscopy



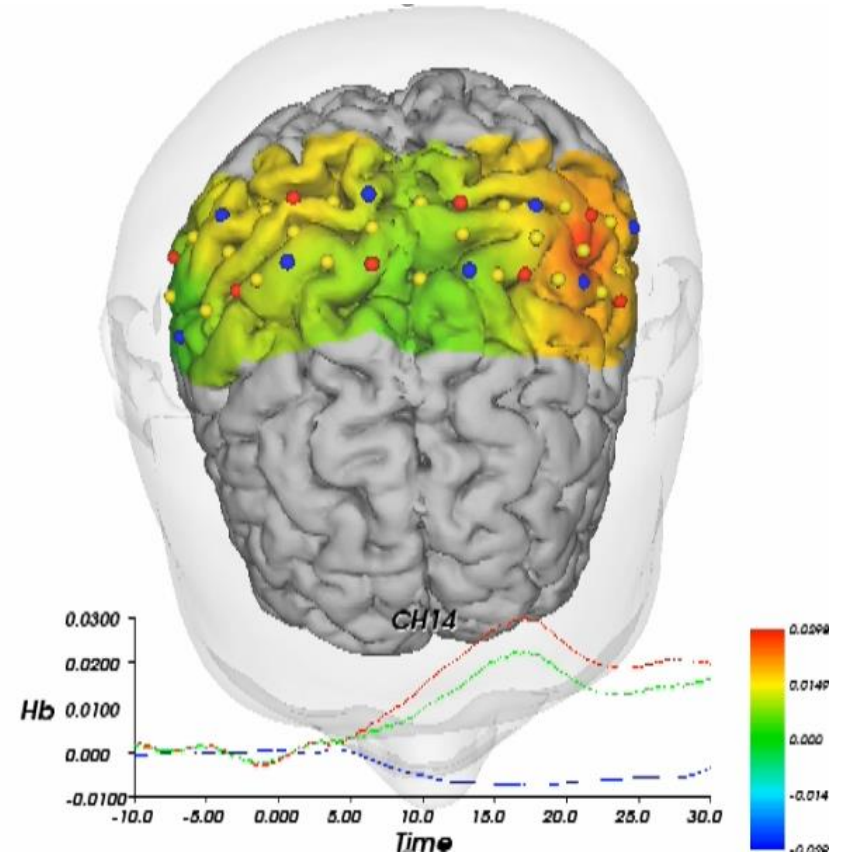
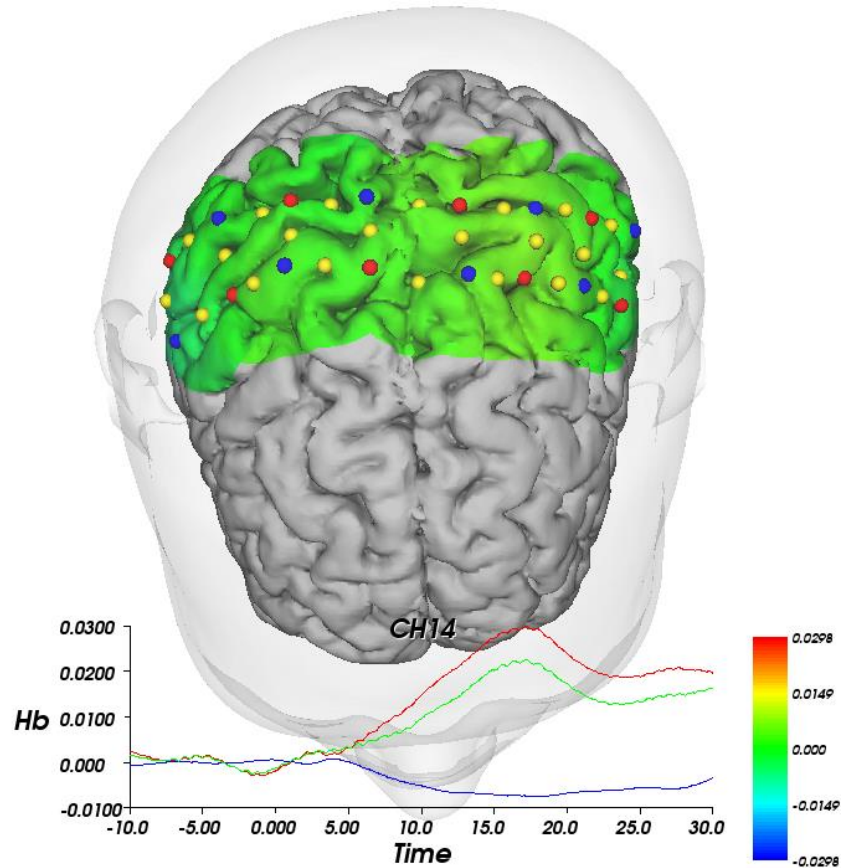
A type of functional neuroimaging technology that offers a non-invasive, safe, portable, and low-cost method of indirect and direct monitoring of brain activity



Analysis of everyday tasks and other experimental conditions such as medicine, psychology, education

By measuring changes in near-infrared light, it allows researchers to monitor blood flow in the surface of the brain

# Functional Near-Infrared Spectroscopy





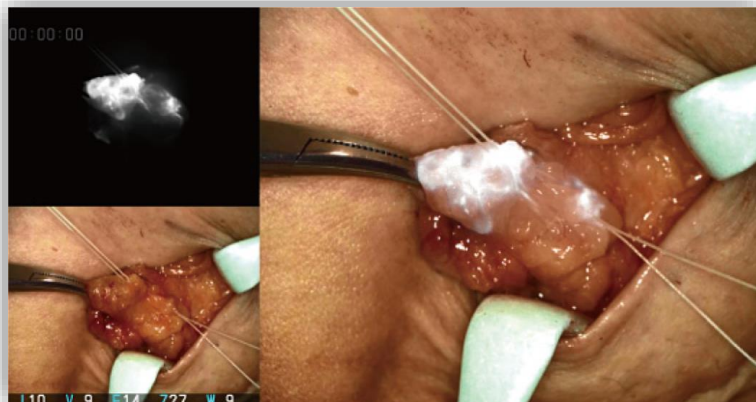
# LIGHTVISION



The near-infrared fluorescence imaging system irradiates near-infrared excitation light on an ICG (indocyanine green) contrast medium injected into the blood vessels, lymph ducts, or other areas.

The high definition imaging system has a large field of view and high sensitivity for fluorescence labelling.

# LIGHTVISION



Irradiation with near-infrared light  
(780 to 800 nm wavelengths)

Creating an image of near-infrared  
fluorescent light  
(800 to 850 nm wavelengths)

Excitation  
light

Fluorescent  
light

ICG

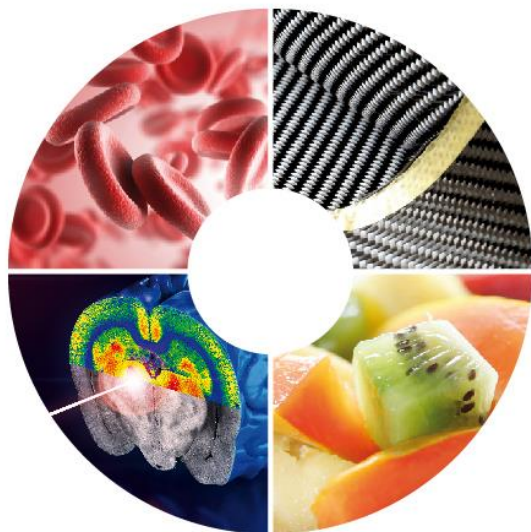
Blood vessels, lymphatic vessels, etc.



Near-infrared light  
and white lighting



# Thank you for your attention!



## European Innovation Center