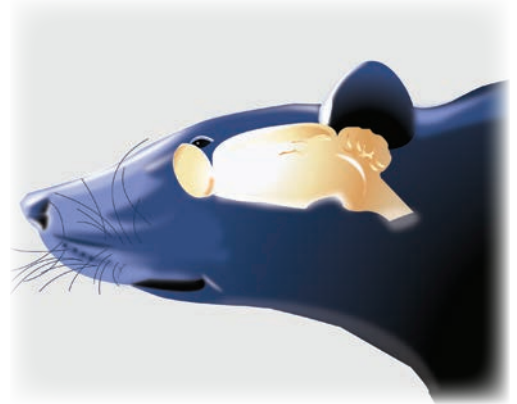


# Cerebral Blood Flow

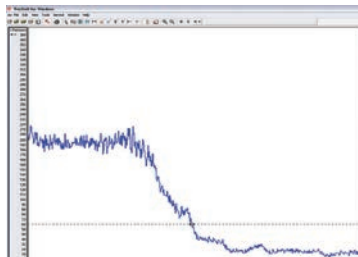
To investigate and understand cerebral blood flow, both blood perfusion monitoring and blood perfusion imaging have proven to be valuable tools. Perimed has been developing, manufacturing and marketing state-of-the-art equipment for measuring microvascular perfusion since 1981, becoming a world leader within the field. Today, three different systems are available, the [PeriFlux System 5000](#), the [PeriScan PIM 3 System](#) and the [PeriCam PSI System](#).



## Blood perfusion monitoring

### Middle Cerebral Artery Occlusions (MCAO)

A major drawback with the commonly used MCAO model in mice and rats is incomplete occlusion upon filament insertion due to for example collateral vessel supply or poor insertion. This can be controlled by monitoring the cortical blood flow at one, or both hemispheres, using the [PeriFlux System 5000](#). In this set-up, the cerebral blood perfusion is continuously monitored throughout the entire procedure



Monitoring blood perfusion during MCAO.

by attaching a laser Doppler probe onto the skull of the animal. In larger animals, thinning of the skull might prove necessary in order to measure through the skull. The blood flow is recorded using the dedicated [PeriSoft](#) software and a graph is displayed automatically. This makes it easy to confirm that an occlusion has been induced by viewing a drop in perfusion of around 70%.

For rats, [PROBE 407](#) is recommended, while the smaller mice require [PROBE 418](#) Master probe with microtip. [PROBE 407](#) is positioned by gluing a mini holder directly on to the skull, whilst [PROBE 418](#) is attached via the microtip.



PROBE 407 with probe holder



PROBE 418 with microtip

### Cerebral Blood Perfusion - Open skull

The superficial cortical blood flow in animal brain can be studied using the [PeriFlux System 5000](#) equipped with, for example, a [PROBE 403](#) Stainless Steel probe. For invasive measurements in for example deeper structures, the [PROBE 411](#) Needle probe with its thin tip (0.45mm) is the best option. Both are designed to fit in a micromanipulator for exact positioning. In addition, Perimed has a long tradition in developing customized probes for specific applications.

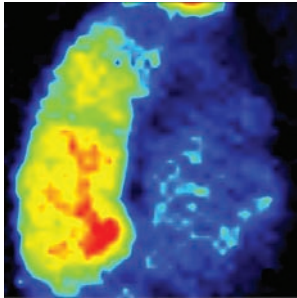


PROBE 411



PROBE 403

## Blood perfusion imaging



Blood perfusion in rat brain after induced stroke

In many models designed to study the cerebral blood flow, imaging systems such as the [PeriScan PIM 3 System](#) or the [PeriCam PSI System](#) have proven to be useful tools. They can provide non-invasive microcirculatory data that can aid in understanding stroke, cortical spreading depression/depolarization and more. It is even possible to scan straight through intact skull of large rats with the [PeriScan PIM 3 System](#), avoiding the need to open/thin the skull. The [PeriCam PSI System](#) will scan through the skull of mice and small rats.

The [PeriScan PIM 3 System](#) will yield quantitative blood perfusion data whilst the speed of the [PeriCam PSI System](#) can be useful to study the dynamics of an event. Furthermore, the [PeriCam PSI System](#) is equipped with a high quality CCD camera making it possible to study details in high resolution.

### PeriFlux System 5000 -

*Laser Doppler blood perfusion monitoring*

The [PeriFlux System 5000](#) uses laser Doppler to monitor the cerebral blood perfusion in a single point. Monitoring in a single point allows for rapid sampling of data, visualizing the dynamics of the perfusion. A wide range of probes adapted to different tissues/organs, both invasive and non-invasive, are available.

### PeriScan PIM 3 System –

*Laser Doppler blood perfusion imager*

The [PeriScan PIM 3 System](#) is an imager based on the established laser Doppler technique. Spatial distribution of the cerebral blood flow can be followed by creating static images using a patented stepwise movement of the laser beam across the tissue. This keeps the background noise to a minimum and improves the quality of the measurements in minimally perfused areas.

### PeriCam PSI System –

*Real-time microcirculation imaging*

The [PeriCam PSI System](#) uses the laser speckle technique to assess the microcirculation in the tissue/organ of interest. This allows you to combine speed -instant real-time imaging- with high resolution images. The [PeriCam PSI System](#) is available in normal and high resolution models.



*Due to Perimed's commitment to continuous improvement of our products, all specifications are subject to change without notice.*

[For more information please contact Perimed AB](#)

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