

Optical technologies for combined monitoring of cerebral blood flow and oxygen metabolism to improve outcome in patients with stroke, traumatic brain injury and after cardiac arrest

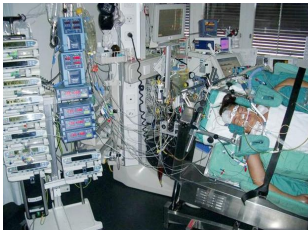
The Problem

Demographics:

- Stroke and brain injury are leading causes of death & disability worldwide; increasing age of population

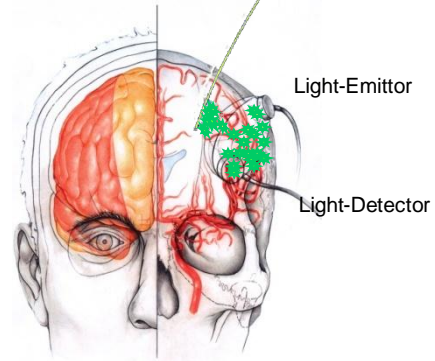
Neurointensive Care:

- Avoid secondary brain damage by hypoxia and reduced brain blood flow
- Brain blood flow (CBF) & oxygenation = most important parameters to guide therapy
- Available methods not suitable for bedside CBF-monitoring



The Solution

- Conventional near infrared spectroscopy (NIRS) for O2 monitoring further developed by dye dilution mode for CBF monitoring
- Results of 12 years R & D University Hospital & ETH Zürich leads to foundation of spin-off NeMoDevices



Patent
EP 1 301 119

The Product

Patent
EP 1 464 276

NeMo Probe: A minimal invasive probe used for intracranial pressure (ICP) monitoring, has been extended with optical fibers and a light emitter-detector pair.



Pocket NeMo
The smallest NIRS instrument to be connected with NeMo Probe or NeMo Patch



NeMo Patch: A conventional non-invasive NIRS patch with optical fibers applied over the skin has been extended with a light absorbing dye dilution mode applying indocyanine green (ICG) for CBF-monitoring.



Milestones & Next Steps

Milestones Achieved

- **NeMo Probe:** Clinical studies with prototypes started successfully in Dec 2008. Feasibility and proof of principle are shown.
- **Pocket NeMo:** Thanks to advanced optoelectronic technologies the sensors for multi-parameter monitoring are connected to the smallest cerebral NIRS instrument ever constructed (from NeMo Control Unit to Pocket NeMo).
- **NeMo Patch:** Functional models have been developed, ready to be finalized to prototypes.

Future Milestones & Next Steps

- **NeMo Probe and System:** CE can be achieved within 12 months (mid of 2012).
- **NeMo Patch:** CE can be achieved within 18months (end of 2012).



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