

# Real-Time Assessment of Spinal Cord Microperfusion in a Porcine Model of Ischemia/Reperfusion

Christoph R. Behem<sup>1</sup>, Till Friedheim<sup>1</sup>, Sabine H. Wipper<sup>2</sup>, Hans O. Pinnschmidt<sup>3</sup>, Michael F. Graessler<sup>1</sup>, Catharina Gaeth<sup>4</sup>, Hannes Holthusen<sup>1</sup>, Adina Rapp<sup>5</sup>, Timo Suntrop<sup>1</sup>, Josephina Haunschild<sup>6</sup>, Christian D. Etz<sup>6</sup>, Constantin J. C. Trepte<sup>1</sup>

<sup>1</sup>Department of Anesthesiology, Center of Anesthesiology and Intensive Care Medicine, University Medical Center Hamburg-Eppendorf <sup>2</sup>University Department for Vascular Surgery and Department of Operative Medicine, Medical University of Innsbruck <sup>3</sup>Department of Medical Biometry and Epidemiology, University Medical Center Hamburg-Eppendorf <sup>4</sup>Department of Vascular Medicine, University Heart and Vascular Center Hamburg (UHZ) <sup>5</sup>Department of Cardiology, Rostock University Medical Center <sup>6</sup>University Department for Cardiac Surgery, Heart Center Leipzig

## Corresponding Author

Christoph R. Behem  
c.behem@uke.de

## Citation

Behem, C.R., Friedheim, T., Wipper, S.H., Pinnschmidt, H.O., Graessler, M.F., Gaeth, C., Holthusen, H., Rapp, A., Suntrop, T., Haunschild, J., Etz, C.D., Trepte, C.J.C. Real-Time Assessment of Spinal Cord Microperfusion in a Porcine Model of Ischemia/Reperfusion. *J. Vis. Exp.* ( ), e62047, doi:10.3791/62047 (2020).

## Date Published

December 10, 2020

## DOI

10.3791/62047

## URL

jove.com/video/62047

## Materials

| Name                                                                  | Company                                         | Catalog Number | Comments                                                                          |
|-----------------------------------------------------------------------|-------------------------------------------------|----------------|-----------------------------------------------------------------------------------|
| CardioMed Flowmeter                                                   | Medistim AS, Oslo, Norway                       | CM4000         | Flowmeter for Flow-Probe Femoral Artery                                           |
| CardioMed Flow-Probe, 5mm                                             | Medistim AS, Oslo, Norway                       | PS100051       | Flow-Probe Femoral Artery                                                         |
| COncidence probe,                                                     | Transonic Systems Inc., Ithaca, NY, USA         | MA16PAU        | Flow-Probe Aorta                                                                  |
| 16 mm liners                                                          |                                                 |                |                                                                                   |
| DIVA Sevoflurane Vapor                                                | Dräger Medical, Lübeck, Germany                 |                | Vapor                                                                             |
| Hotline Level 1 Fluid Warmer                                          | Smiths Medical Germany GmbH, Grasbrunn, Germany | HL-90-DE-230   | Fluid Warmer                                                                      |
| Infinity Delta                                                        | Dräger Medical, Lübeck, Germany                 |                | Basic Monitoring Hardware                                                         |
| Infinity Hemo                                                         | Dräger Medical, Lübeck, Germany                 |                | Basic Pressure Monitoring and Pulmonary Thermodilution Hardware                   |
| LabChart Pro                                                          | ADInstruments Ltd., Oxford, UK                  | v8.1.16        | Synchronic Laser-Doppler, Blood Pressure, ECG and Blood-Flow Acquisition Software |
| LiquoGuard 7                                                          | Möller Medical GmbH, Fulda, Germany             |                | Cerebrospinal Fluid Drainage System                                               |
| Millar Micro-Tip Pressure Catheter (5F, Single, Curved, 120cm, PU/WD) | ADInstruments Ltd., Oxford, UK                  | SPR-350        | Pressure-Tip Catheter Aorta                                                       |
| moor VMS LDF                                                          | moor Instruments, Devon, UK                     |                | Designated Laser-Doppler Hardware                                                 |
| moor VMS Research Software                                            | moor Instruments, Devon, UK                     |                | Designated Laser-Doppler Software                                                 |
| Perivascular Flow Module                                              | Transonic Systems Inc., Ithaca, NY, USA         | TS 420         | Flow-Module for Flow-Probe Aorta                                                  |
| PiCCO 2, Science Version                                              | Getinge AB, Göteborg, Sweden                    | v. 6.0         | Blood Pressure and Transcardiopulmonary Monitoring Hard- and Software             |

|                                                    |                                                 |              |                                                                                         |
|----------------------------------------------------|-------------------------------------------------|--------------|-----------------------------------------------------------------------------------------|
| PiCCO 5 Fr. 20cm                                   | Getinge AB, Göteborg, Sweden                    |              | Thermistor-tipped Arterial Line                                                         |
| PowerLab                                           | ADInstruments Ltd., Oxford, UK                  | PL 3516      | Synchronic Laser-Doppler, Blood Pressure, ECG and Blood-Flow Acquisition Hardware       |
| QuadBridgeAmp                                      | ADInstruments Ltd., Oxford, UK                  | FE 224       | Four Channel Bridge Amplifier for Laser-Doppler and Invasive Blood Pressure Acquisition |
| Silverline                                         | Spiegelberg, Hamburg, Germany                   | ELD33.010.02 | Cerebrospinal Fluid Drainage                                                            |
| SPSS statistical software package                  | IBM SPSS Statistics Inc., Armonk, New York, USA | v. 27        | Statistical Software                                                                    |
|                                                    |                                                 |              |                                                                                         |
| Twinwarm Warming System                            | Moeck & Moeck GmbH, Hamburg, Germany            | 12TW921DE    | Warming System                                                                          |
| Universal II Warming Blanket                       | Moeck & Moeck GmbH, Hamburg, Germany            | 906          | Warming Blanket                                                                         |
| VP 3 Probe, 8mm length (individually manufactured) | moor Instruments, Devon, UK                     |              | Laser-Doppler Probe                                                                     |
| Zeus                                               | Dräger Medical, Lübeck, Germany                 |              | Anesthesia Machine                                                                      |