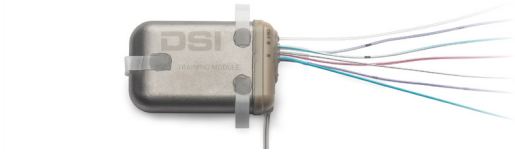
Telemetric Devices in Göttingen Minipigs

Measuring cardiovascular parameters is an essential part in safety pharmacology studies and can be required in toxicology and pharmacokinetic experiments. At times, a simple setup collecting arterial blood pressure and ECG data is sufficient, but sometimes it is necessary to include left ventricular pressure (LVP) data as well.

Collecting these data is preferably done from undisturbed animals and therefore implanted telemetric devises that transmit data wirelessly to a receiver is the gold standard. As Göttingen Minipigs are getting increasingly popular in preclinical research, the demand for minipigs with telemetric implants is increasing as well. However, the implantation procedure in large animal models is demanding in resources and requires a certain level of expertise. To meet this demand, you can order pre-implanted Göttingen Minipigs with telemetric transmitters already in place and ready for use.

Picture 1
Göttingen Minipig with telemetric device implanted in flank.

Picture 2
DSI M series device: 40x26x14 mm, weighing 13.7 g.



Picture 3
DSI L series device: 59x38x15 mm, weighing 56 g.

At Ellegaard Göttingen Minipigs we have four established models: Two with LVP and two without. The four models differ from each other in placement of device, blood pressure catheters and electrodes. You can find and overview of the different models illustrated as models A, B, C, and D in the table below. Do these not meet your demands, please contact us to discuss modification of the models.

	A	B	C	D
Device	In neck	In flank	On ribs	In flank
Arterial BP	Carotid Artery	Femoral Artery	Aorta	Aorta
LVP	-	-	Apex of the heart	Apex of the heart
ECG +	Submuscular	Submuscular	Apex, intra thoracal	Apex, intra thoracal
ECG -	Intravenous	Submuscular	Base, intra thoracal	Base, intra thoracal
Temp	From device	From device	From device	From device
Motion	From device	From device	From device	From device

Ellegaard Göttingen Minipigs A/S
Sorø Landevej 302
DK-4261 Dalmose,
Denmark

Tel.: +45 5818 5818
ellegaard@minipigs.dk
www.minipigs.dk

In our modern surgery suite we can pre-implant Göttingen Minipigs with telemetric devices and have them delivered to you in time for the start of your study. With this planning, you optimise your ressources and capacity, without blocking space and staff for OP and recovery in your facility. Adding to this, we offer socialisation and training of the minipigs in the recovery phase, and if you are interested in collecting cardiovascular data while the minipig is exercising, we can train them to perform on a treadmill.

As a standard, we implant devices from DSI, and the most appropriate models are M11, L11 and L22. If you prefer devices from other manufactures, please contact us to discuss the options.

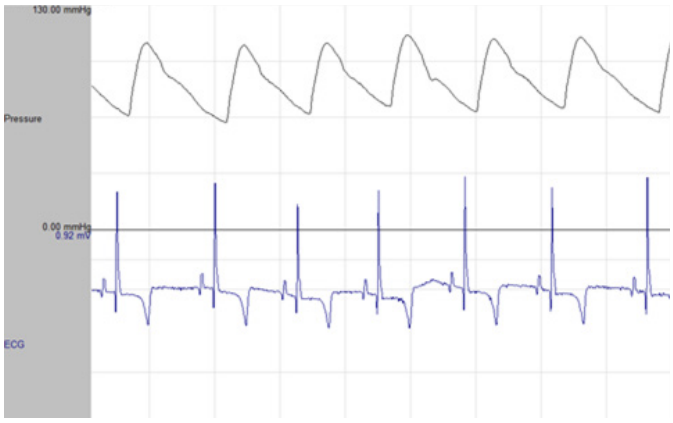


Figure 1
Signals from an M11 device.

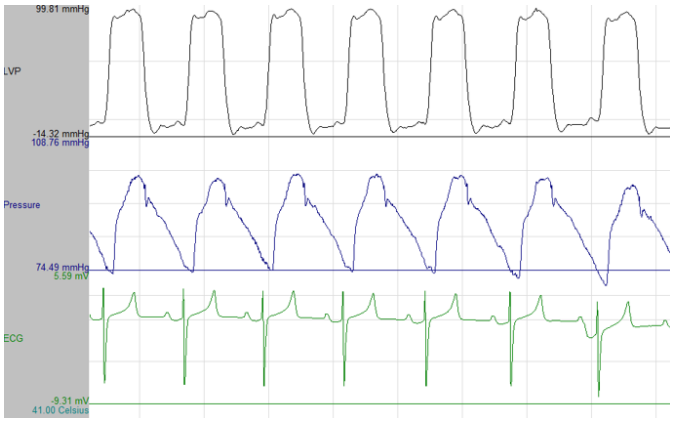


Figure 2
Signals from an L21 device.

Picture 3
Minipig with telemetric implant walking on the treadmill.

"Telemetric-based cardiac hemodynamic measurements represent a more predictive approach, compared to traditionally used invasive measurement techniques, due to the possibility of continuous data collection in conscious animals. Furthermore, they help to implement the 3R concept (reduction, refinement, replacement) in animal research. The incorporation of these techniques in preclinical testing of novel therapies, represents a translational approach that offers the opportunity to increase the validity of animal models and further reduces failures in the cost-intensive late-stage development of drugs.

Dr. Thomas Mondritzki
Bayer AG | Germany

Wish to know more?

We offer several standard surgical options, but are happy to discuss different protocols needed for your study.

Please contact us at ellegaard@minipigs.dk with your enquiry for more information.

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DK-4261 Dalmose,
Denmark

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www.minipigs.dk

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