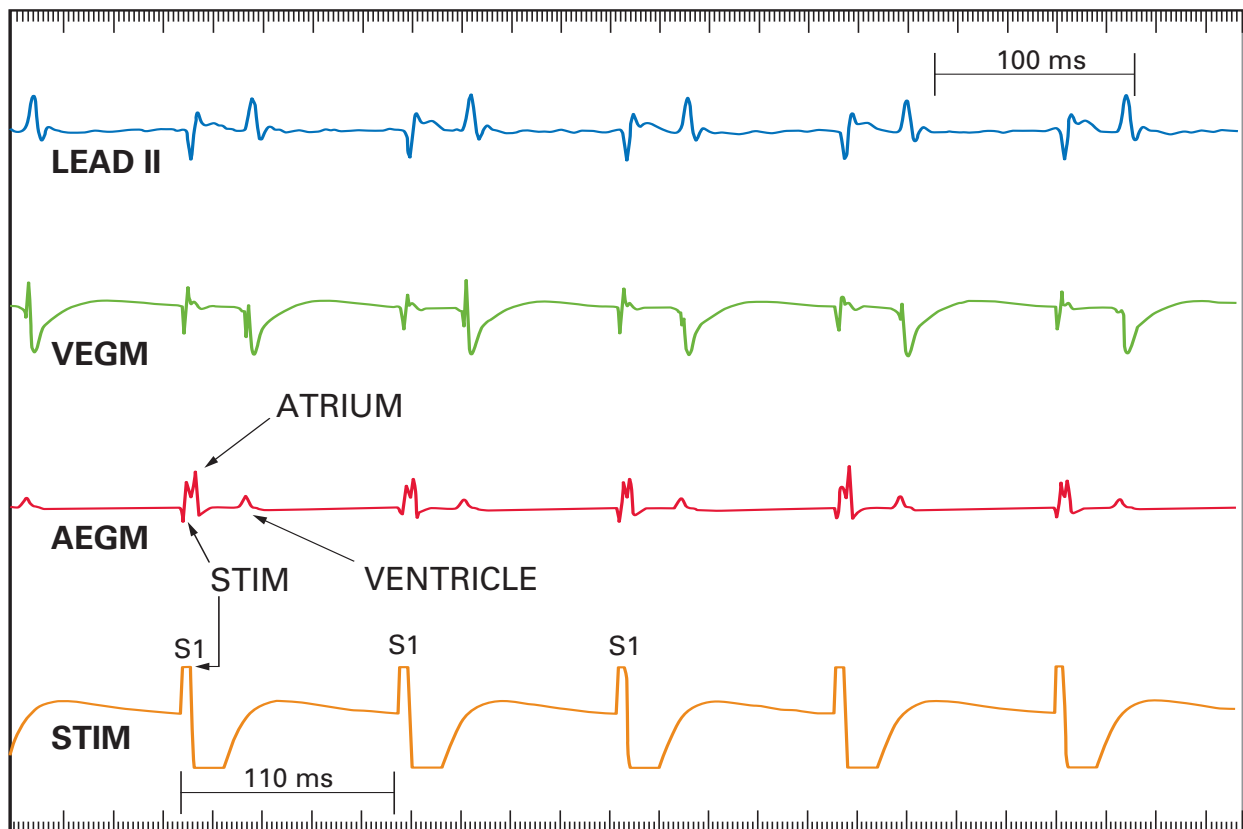


EPR-800 Ultra-Miniature Catheter for Electrophysiology Research

For Animal Use Only



The publication of the entire mouse genome has opened up a world of possibilities for the small animal researcher. The transgenic mouse is a perfect model for duplicating and reproducing genetic cardiac abnormalities that are similar to those occurring in humans, such as cardiomyopathy and heart failure. With these endeavors, researchers are able to manipulate the genetic codes of the mouse in an effort to possibly alter the genes that cause heart abnormalities. Theoretically, researchers then can make correlations between human and mouse genetic code in the continuous effort to battle heart disease.

Just as pressure, volume, and other hemodynamic parameters are essential to the diagnosis of various cardiac diseases, electrophysiology studies are a proven method for characterizing the electrical phenotype of transgenic mice, as well as for determining and diagnosing various detrimental heart conditions.

EPR-800 Electrophysiology Catheter

The EPR-800 electrophysiology catheter is the latest addition to Millar's line of ultra-miniature catheters for use in transgenic mouse research. At only 1.1F (0.36 mm), this sturdy, ultra-miniature and reusable eight-electrode catheter lends itself to use with transgenic mice as small as 2.5 grams.

EP Introduction Sites

The ultra-miniature size of the EPR-800 catheter allows it to be introduced invasively or minimally invasively to various sites of the animal, including:

- Jugular vein for placement inside the right atrium and right ventricle
- Esophagus for placement next to the heart
- Carotid artery for placement inside the left ventricle

The EPR-800 catheter can be used for invasive intracardiac electrophysiology studies in mice as young as five days old, and in even younger mice following minimally invasive transesophageal electrophysiology studies.

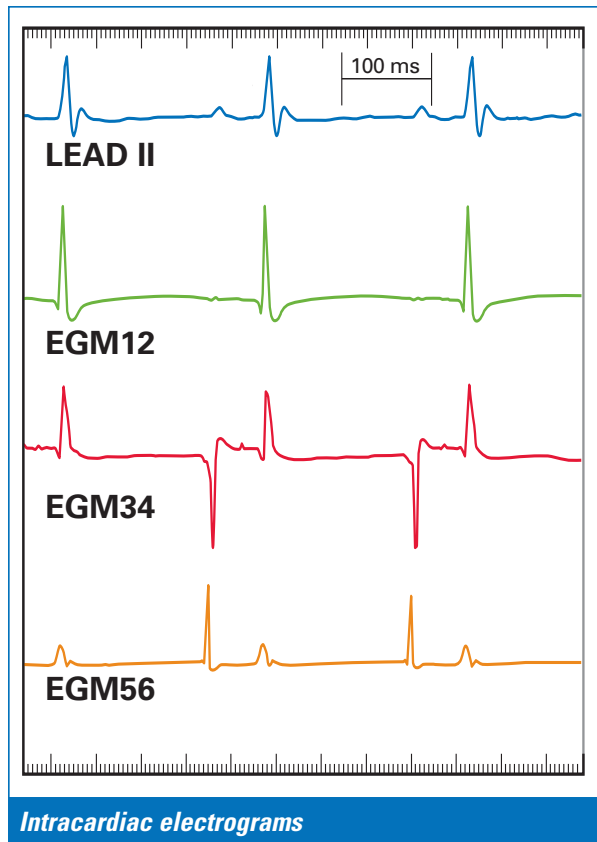
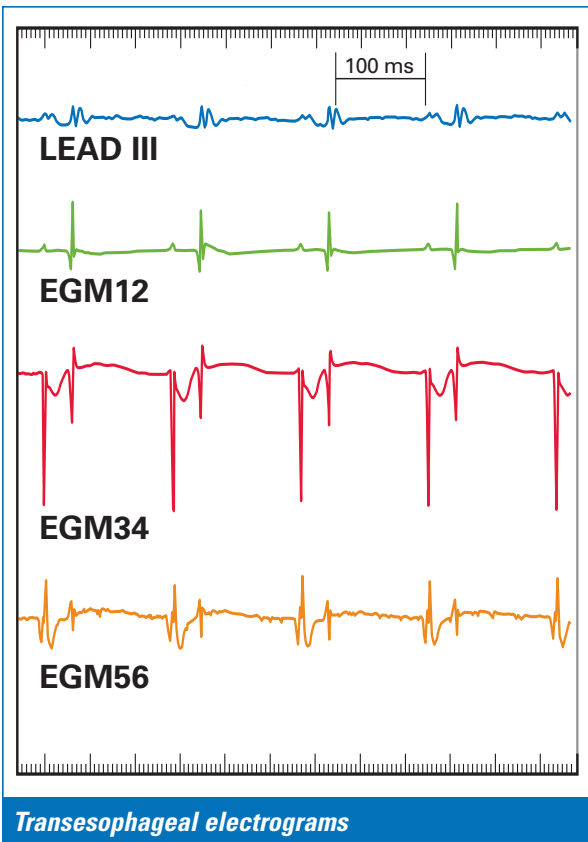
EPR-800 Applications

Standard electrophysiology studies are performed with the EPR-800 catheter by applying pacing and recording protocols from inside the heart or through the esophagus to determine electrical properties of the atrium and the ventricle. Programmed electrical stimulation is also applied through the catheter for induction of abnormal heartbeats.



The eight gold electrodes on the EPR-800 catheter may be used for pacing and recording.

The following transesophageal recording was taken from a mouse weighing 4 grams, and the intracardiac recording was taken from a mouse weighing 22 grams. Both transesophageal and intracardiac bipolar electrograms were recorded using the EPR-800 catheter, with the distal pair of electrodes predominantly recording ventricular electrical activity and the proximal pair recording atrial activity.



System Hardware and Software

The EPR-800 catheter is designed to connect to commercially available amplifiers, stimulators and data-acquisition hardware. Many of the manufacturers also supply the necessary software to acquire, store and analyze information from the EPR-800 electrophysiology catheter.

Standard Parameters Determined via the EPR-800 Catheter

- Conduction times
- Refractory periods
- His potentials
- Sinus and atrioventricular nodal properties
- Inducibility of abnormal heartbeats

Interface Cable Ordering Information

Cable Model	Part Number	Cable Length	Control Unit Connector Type
EPC-5A	850-5098	5 ft. (152.4 cm)	DIN
EPC-5UT	850-5102	5 ft. (152.4 cm)	Unterminated
EPE-3A	850-5111	3 ft. (91.4 cm)	Redel

Beyond Electrophysiology

The Millar Pressure-Volume Systems (MPVS) simultaneously and continuously measure high-fidelity left ventricular pressure and relative volume from the intact beating hearts of small laboratory animals such as transgenic mice and rats. These systems are composed of data acquisition hardware and software, as well as Millar's PVAN data analysis software and 1.4F P-V catheters.

EP Catheter Specifications

Features	EPR-800
Part Number	840-8145
Animal Type	Mouse
Catheter Material	Nylon and Polyimide tubing
Effective Length	4.5 cm
French Size	1.1F (0.36 mm)
Gold Electrodes	8 (each 0.25 mm long)
Pin-to-Electrode Resistance	≤ 15 ohms
Electrode Spacing	1.0 mm
Electrode Connector Type	Redel 14-pin
Reusable	Yes
Repairable	No

World Headquarters

Millar Instruments, Inc.

6001-A Gulf Freeway

Houston, Texas 77023-5417 USA

Phone: 832-667-7000 or 800-669-2343 (in the USA)

Fax: 832-667-7001

Email: info@millarmail.com

Web site: www.millarinstruments.com

Millar Worldwide Distribution

Millar Instruments, Inc. has a network of Authorized Distributors in most countries around the world. For information on the Millar distributor in your country, please contact the Millar Customer Service Department at our headquarters in Houston.

Authorized Representative for the European Community

BOSA S.p.A.

Via Sardegna n°61

20146 Milano

Italy

Telephone: +39-02-48011-693

Fax: +39-02-468564

Email: bosasp@tin.it



Acknowledgement

Millar Instruments gratefully acknowledges the research contributions and data shared by Dirar S. Khoury, Ph.D., Associate Professor of Medicine, Baylor College of Medicine.



© 2003, 2004 Millar Instruments, Inc. All rights reserved.

Millar and At the Heart of Sensor Innovation are registered trademarks of Millar Instruments, Inc. Specifications subject to change without notice.

M.I. P/N 005-1010 Rev. A