

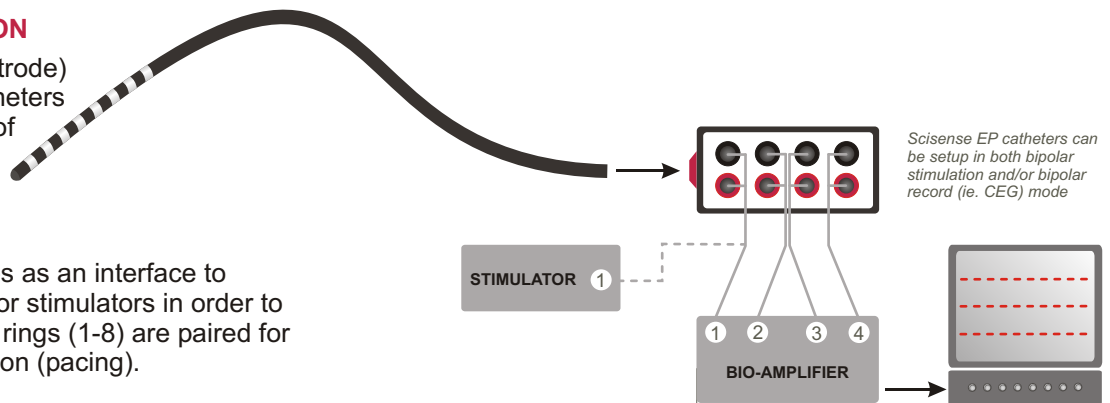
Measuring acute cardiac electrical signals in the rodent model is generally limited to a surface ECG.

One could, in theory, use epicardial surface electrodes to measure regional electrical potentials; however, such an invasive procedure would be obviously undesirable. A minimally invasive alternative offered by Scisense is our octapolar electrophysiology (EP) catheter. These unique catheters allow for more in-depth analysis of biopotential propagation through the heart (Cardiac Electrogram - CEG).

Scisense offers a 1.1F octapolar (8 electrode) catheter for use in mice and a 1.6F octapolar catheter for use in rats. These catheters come with a standard ring spacing of 0.5 mm and 1.0 mm, respectively, but can be customized to suit any specific application. Our octapolar EP catheters offer advantages over traditional surface CEG in that you can gain detailed information about the propagation and timing of atrial and ventricular electrical signals.

PRINCIPLE OF OPERATION

Scisense Octapolar (8 electrode) Electrophysiology (EP) catheters allow for in-depth analysis of biopotential propagation through the heart.



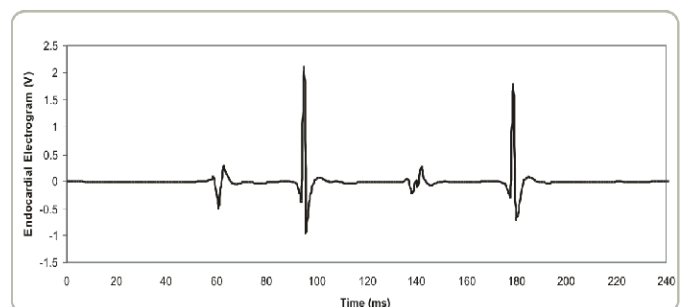
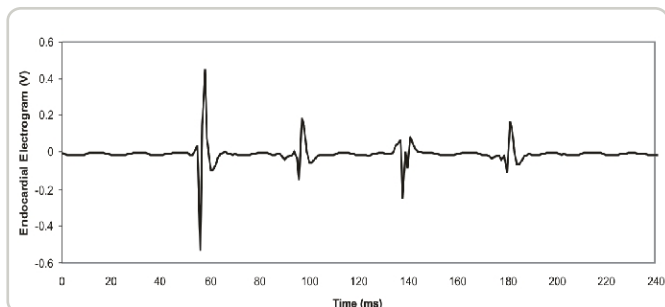
The EP breakout box serves as an interface to biopotential amplifiers and/or stimulators in order to define what combination of rings (1-8) are paired for either recording or stimulation (pacing).

ELECTROPHYSIOLOGY PARAMETERS MEASURED

VARIABLE	DESCRIPTION	VARIABLE	DESCRIPTION
QR-I	QR Interval	ERP	Effective Refractory Periods
QT-I	QT Interval	QRS	QRS, P Widths
RR-I	RR Interval	QTD	QT Dispersion
PR-I	PR Interval	HR	Instantaneous Heart Rate
ST-I	ST Interval	R-H,P-H,T-H	R, P, T, Wave Height

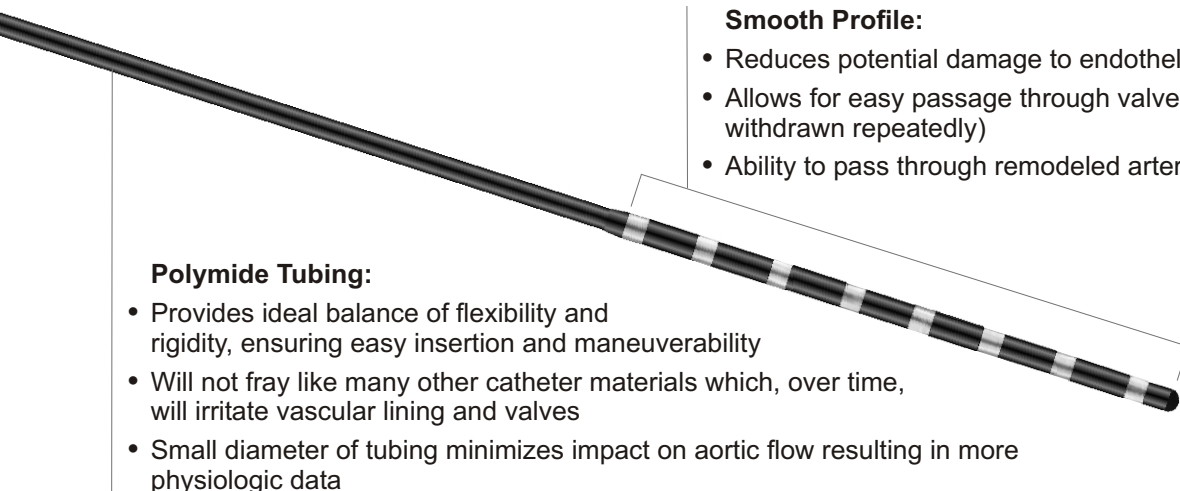
Scisense EP catheters can be used for both pacing and recording and will operate with any commercially available stimulator and/or biopotential amplifier. Scisense carries a selection of third party stimulators and amplifiers along with acquisition hardware/software solutions to create a fully functional CEG setup for your research lab.

* Please contact Scisense for a more complete list of parameters, as this is dependent on the specific analysis software package being used



*Placement comparison of mouse CEG signals.
Left: Endocardial Electrogram recording from right ventricle (bipolar measurement from electrodes 7 and 8 at the apex)
Right: Endocardial Electrogram recording from right atrium (bipolar measurement from electrodes 7 and 8 at the valve)*

SCISENSE CATHETER DESIGN, FEATURES & BENEFITS:

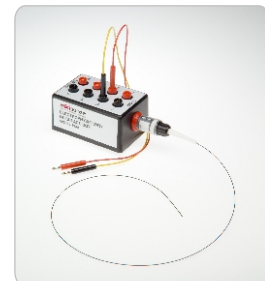


Smooth Profile:

- Reduces potential damage to endothelial lining during catheterization
- Allows for easy passage through valves (can be inserted and withdrawn repeatedly)
- Ability to pass through remodeled arteries

Polyimide Tubing:

- Provides ideal balance of flexibility and rigidity, ensuring easy insertion and maneuverability
- Will not fray like many other catheter materials which, over time, will irritate vascular lining and valves
- Small diameter of tubing minimizes impact on aortic flow resulting in more physiologic data



APPLICATIONS

STUDY OBJECTIVE	MEASUREMENT SPECIFICS	INSERTION & PLACEMENT
Conduction time/velocity from SA node to AV node (through Bundle of His)	Prominent A wave or V wave depending on location of the record rings relative the atrium or ventricle	Right Jugular Vein insertion resulting in placement within the RA and RV
Comparison between basal, medial, and apical regions in the left ventricle	Prominent left ventricular cavity V wave	Right Carotid Artery insertion resulting in placement within the LV cavity
Endocardial CEG assessment	Prominent V wave measured from the outside of the heart	Esophageal insertion resulting in placement beside the heart

ADDITIONAL ELECTROPHYSIOLOGY PRODUCTS

Scisense offers a switch selector box to be used in combination with our mouse and rat pressure-volume catheters. The FW893 control module is hooked up between our standard Rodent Pressure-Volume Control Box (FP896) and rodent PV catheter. The catheter can now be used to measure electrical potentials at the apical and basal region of the LV when turned to "CEG mode", or record ventricular volume when turned to "Volume mode". In either case a simultaneous ventricular pressure is being recorded.



tel: 519.680.7677
fax: 519.680.7718

3397 White Oak Rd.,
Unit 3, London, Ontario
Canada N6E 3A1

www.scisense.com



MOUSE'N GENES

The mouse'n genes was conceived, as many great ideas, on a restaurant napkin. As a serious discussion around transgenic mice evolved, so did Sammy Scisense, as he is affectionately known today.

FOR ANIMAL USE ONLY