Pacemaker Leads

Sensing Performing Factors

Factors	Influenced by:
• Sense amplifier	• IPG
• P and R wave amplitude	• Patient
• Tissue - electrode proximity	• Lead design & placement
• Depolarization wave factor	• Lead placement
• Electrode surface area	• Electrode design

Better Sensing with Selox ST/JT

Tissue - Electrode Proximity

Optimal myocardial contact is crucial for signal amplitude detection and slew rate

- Selox has an optimized lead design of tip & tines
  Benefit: Optimal myocardial contact (atrium and ventricle)

- Short bipole in Selox leads (15 mm)
  Benefit: Assures excellent signal specificity and high slew rates

Geometry of the Tines

Tissue - Electrode Proximity

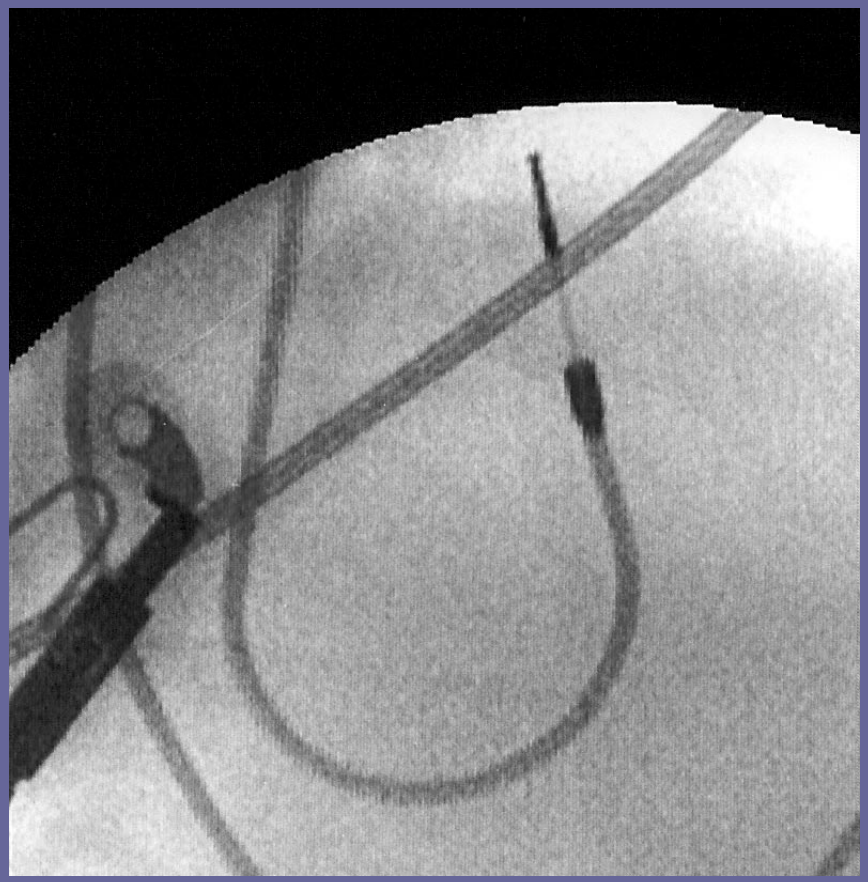
Selox has 3 tines

Maximum width of each tine is 1.6 mm for Selox

	Selox ST/JT
Length	4 mm
Geometry	Structure more shapely

Geometry of the Tines

More Reliable Fixation with Selox



Sensing with Selox ST / JT

Electrode Surface Area

Ideal leads are compromised of small geometric and large electrically active surfaces.

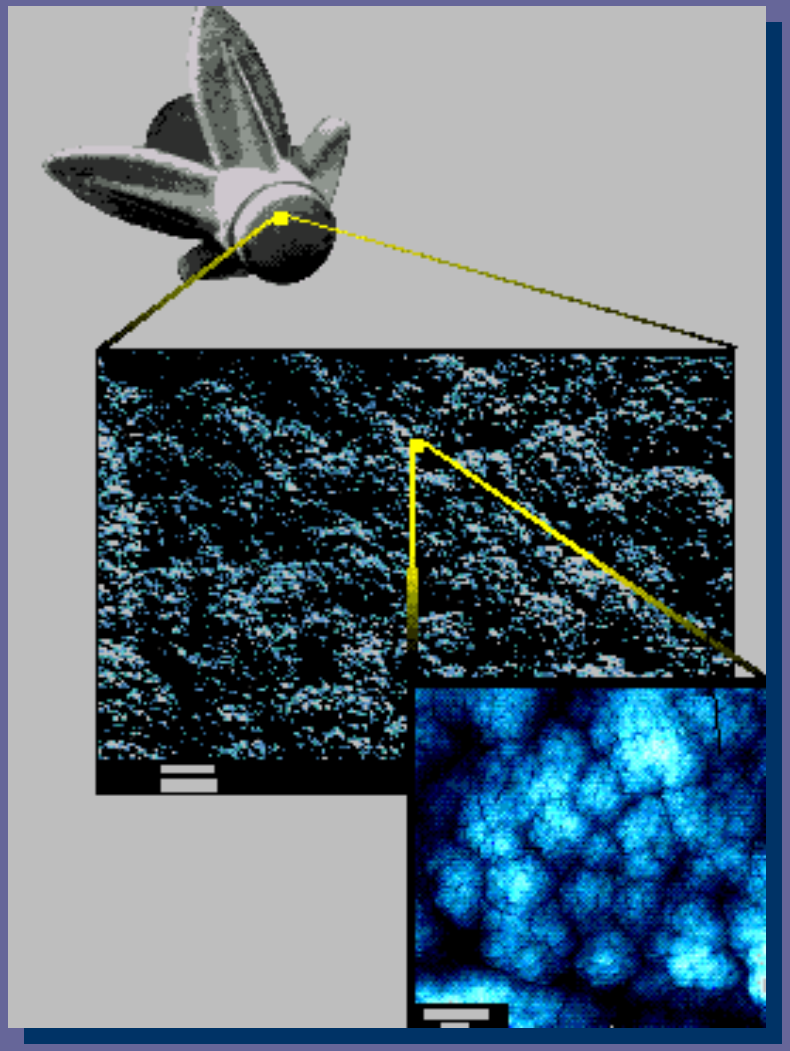
Selox feature fractal coating[1,2,3] of BIOTRONIK

Benefits:

- Sensing of smallest amplitudes
- Superb signal to noise ratio
- Optimal compatibility to automatic capture control algorithms[3]

[1] Israel et al., Herzschrittmacher 18(1), 1998
[2] Bolz et al., Herzschrittmachertherapie und Electrophysiologie 7 (4)
[3] Philos DR Active Capture Control, IDE No. G010286 Clinical Report (2002)

Fractal Coating



The “Cauliflower” structure of a fractal coated electrode tip
(self repeating structure)

Small geometric size: efficient transfer of energy from tip electrode to heart tissue

Large bio-effective surface area for the clear detection of intrinsic cardiac signals by the pacemaker and elimination of polarization artifacts

Pacemaker Leads

Pacing Performing Factors

Factors	Influenced by:
• Myocardial tissue at pacing position	• Patient
• Small electrode size	• Lead design
• Acute inflammatory response	• Lead design
• Scar tissue due to enduring inflammatory processes	• Lead design

High Pacing Impedance with Selox

Small Electrode Size with fractal coating

- 1.3 mm^2 electrode tip (Selox)

Benefits:

- High electrical density and low thresholds
- High impedance

Optimal Pacing with Selox

Reduction of acute inflammatory responses via

Selox has a Platinum-Iridium lead tip

Benefit:

- Excellent biocompatibility for minimum inflammatory responses

Selox has fractal coating

Benefit:

- Optimal charge transfer between electrode and myocardium
- Long-term stability of pacing threshold

Lower Acute Pacing Thresholds with Selox ST/JT

Reduction of acute inflammatory responses via

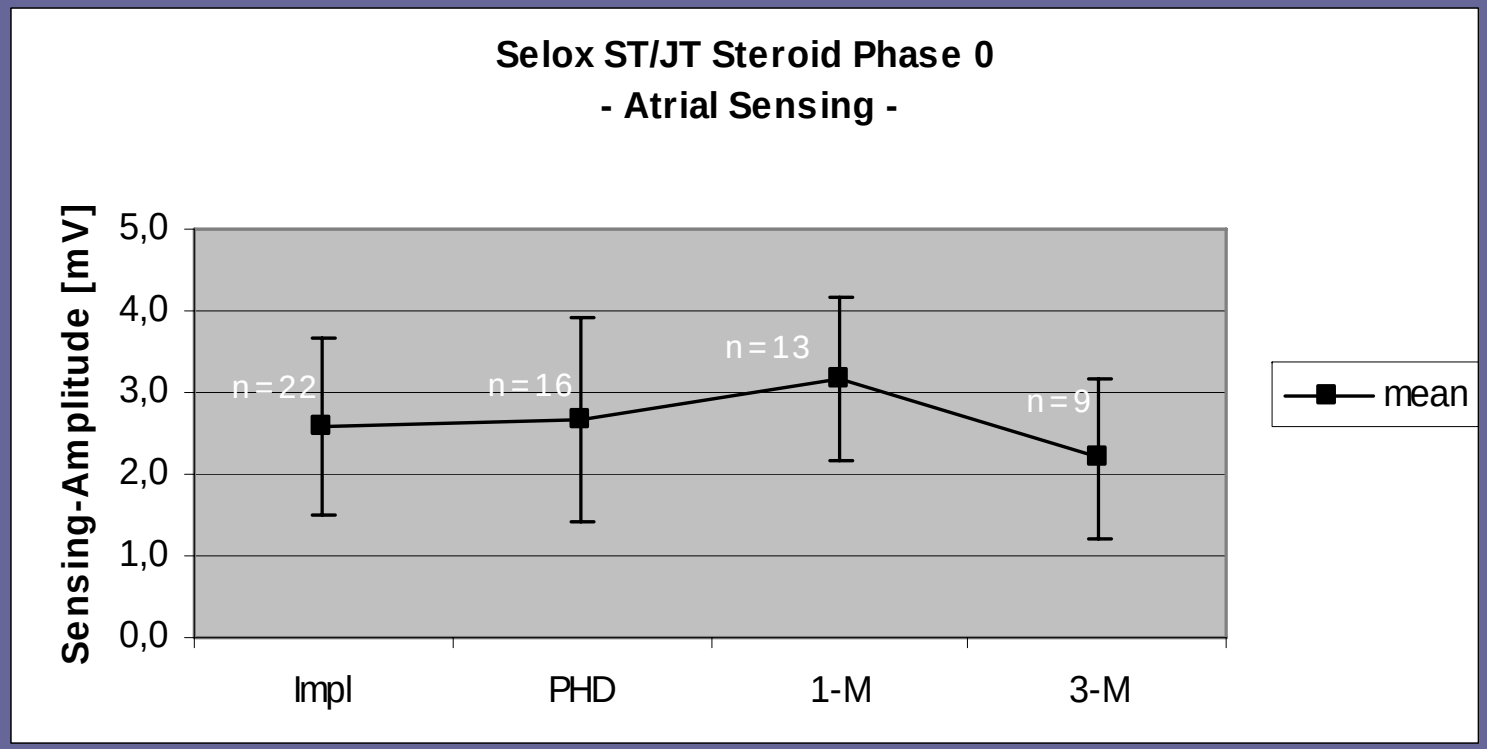
Selox leads have 0.75 mg Steroid near the lead tip

Benefit:

- Prevents tissue inflammation
- No post-implant threshold raises

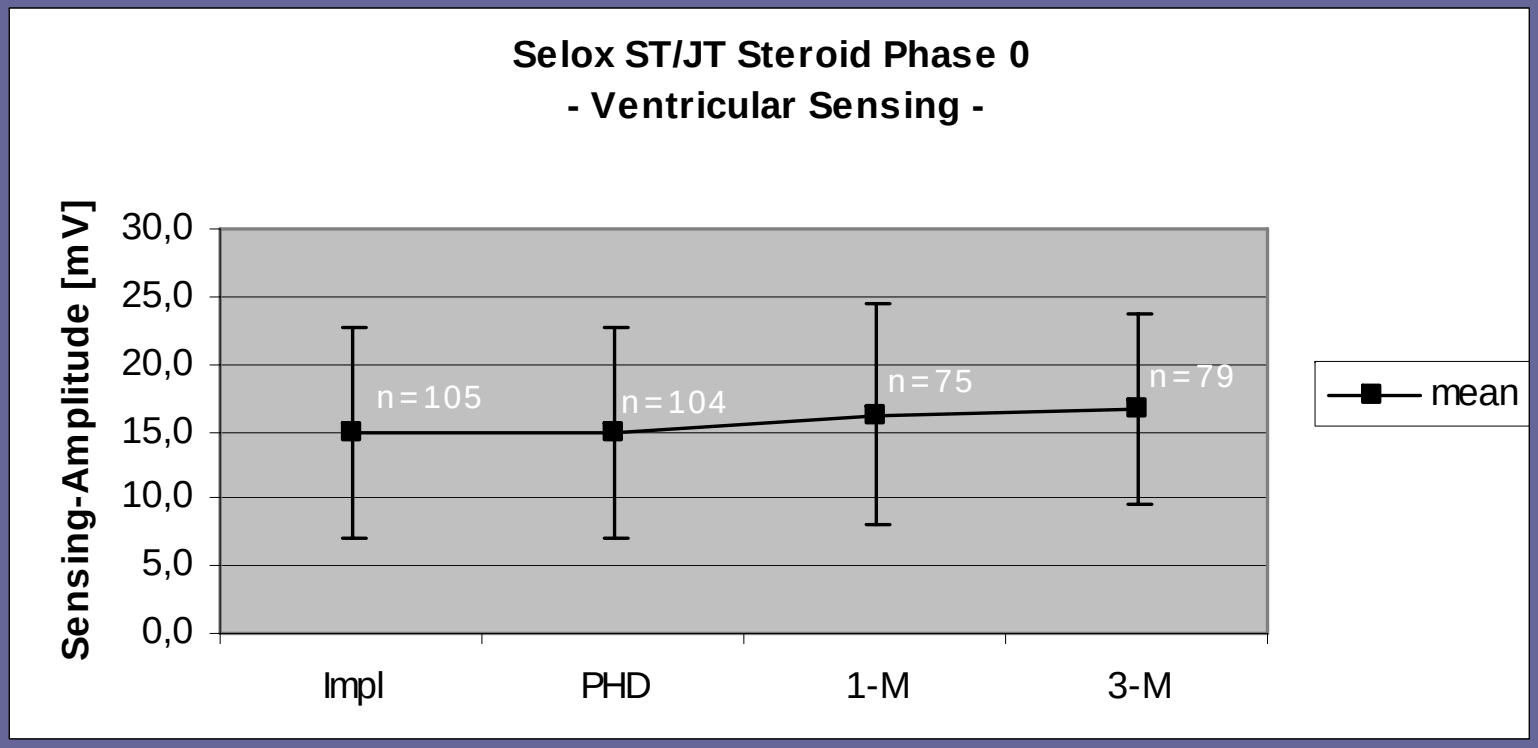
Selox ST/JT – Clinical Evaluation:

Sensing [mV] Atrium



Selox ST/JT – Clinical Evaluation:

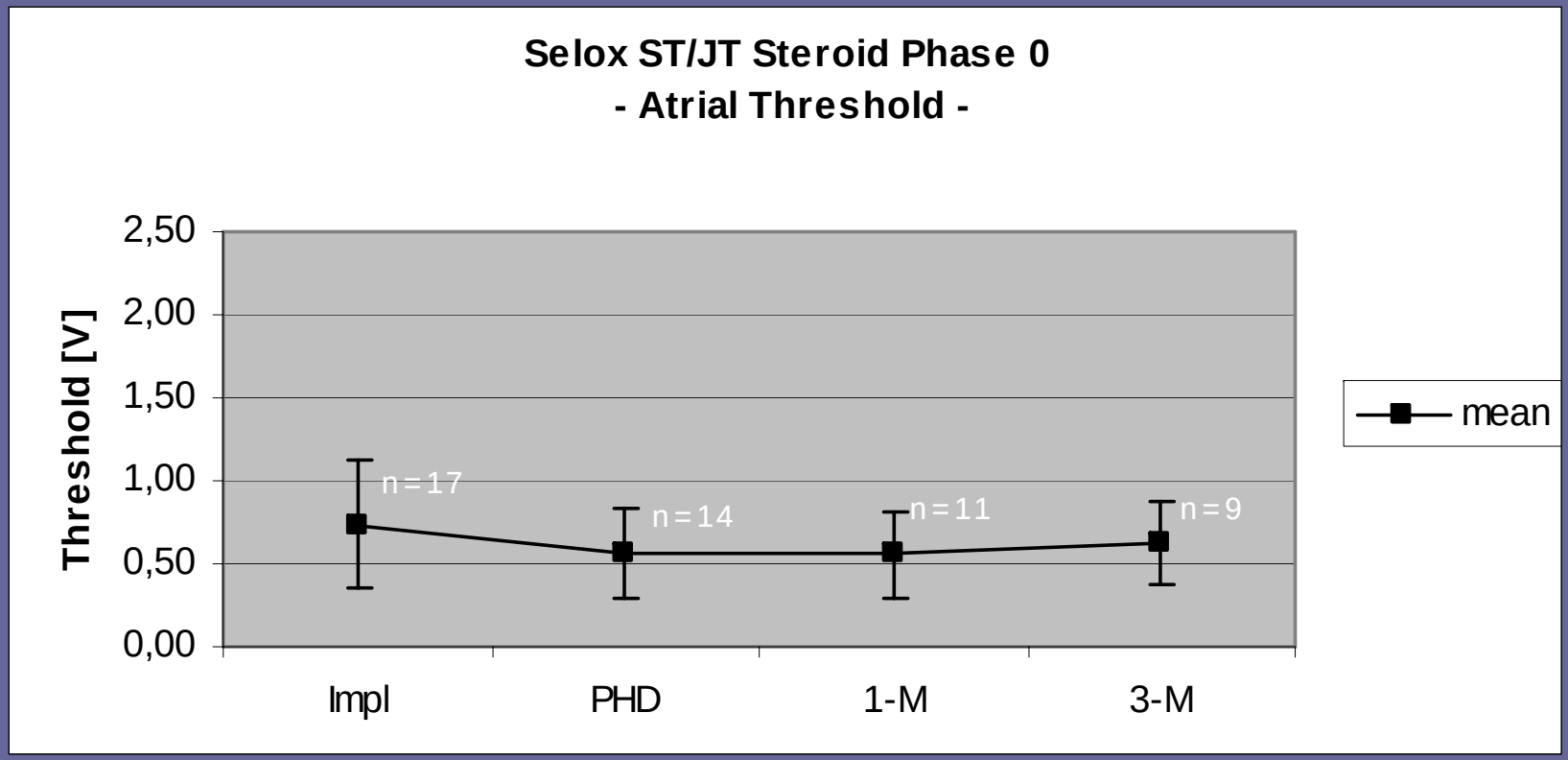
Sensing [mV] Ventricle



Impl: implant; PHD: pre-hospital discharge; 1-M: 1 month after discharge, 3-M: 3 months

Selox ST/JT – Clinical Evaluation:

Threshold [V] Atrium



Selox ST – Clinical Evaluation:

Threshold [V] Ventricle