

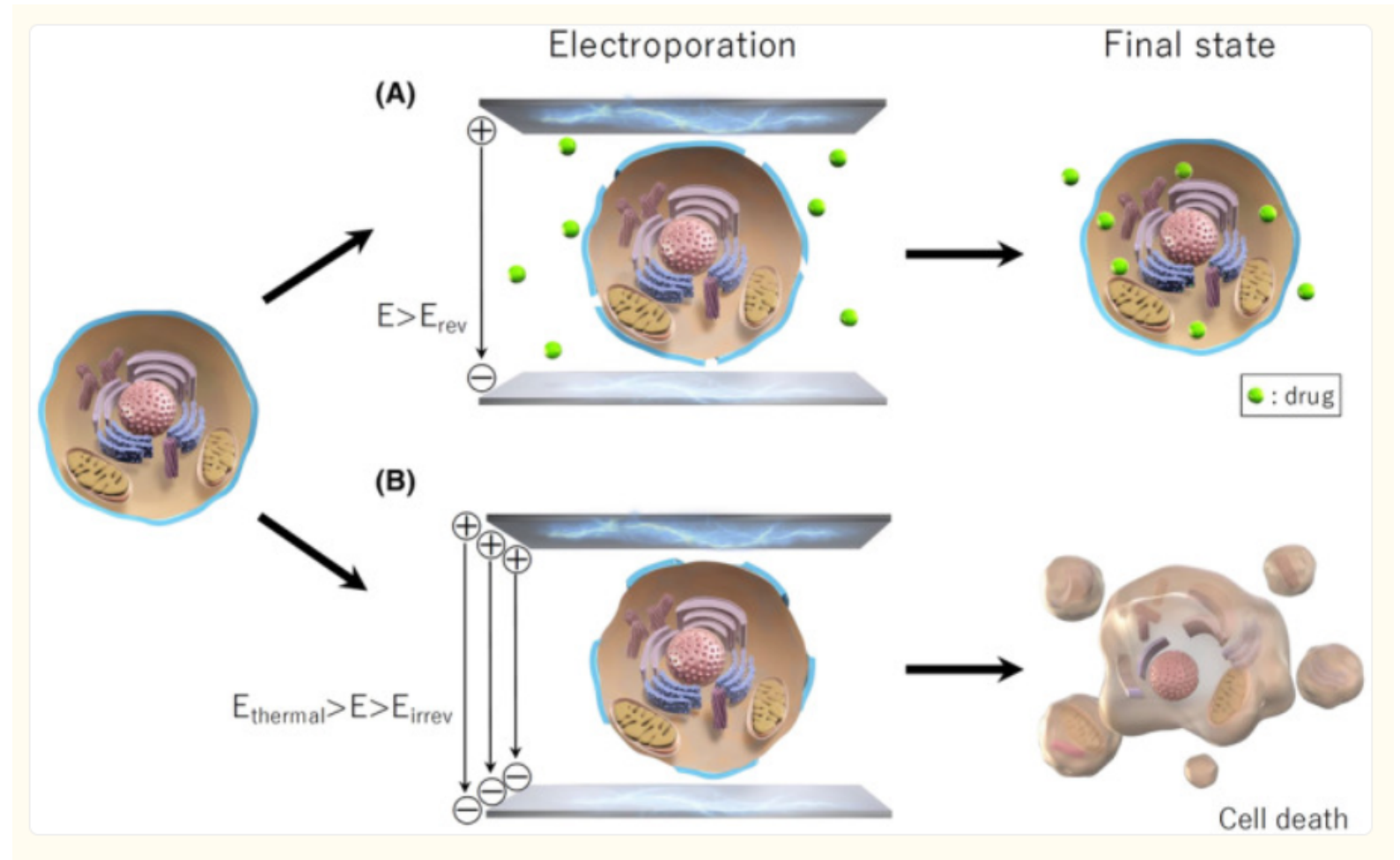
Migliorare i risultati della PFA attraverso il monitoraggio del contatto catetere-tessuto

PLACE 26 Giugno 2026
- Dr Luca Rossi -



Pulsed Field Ablation

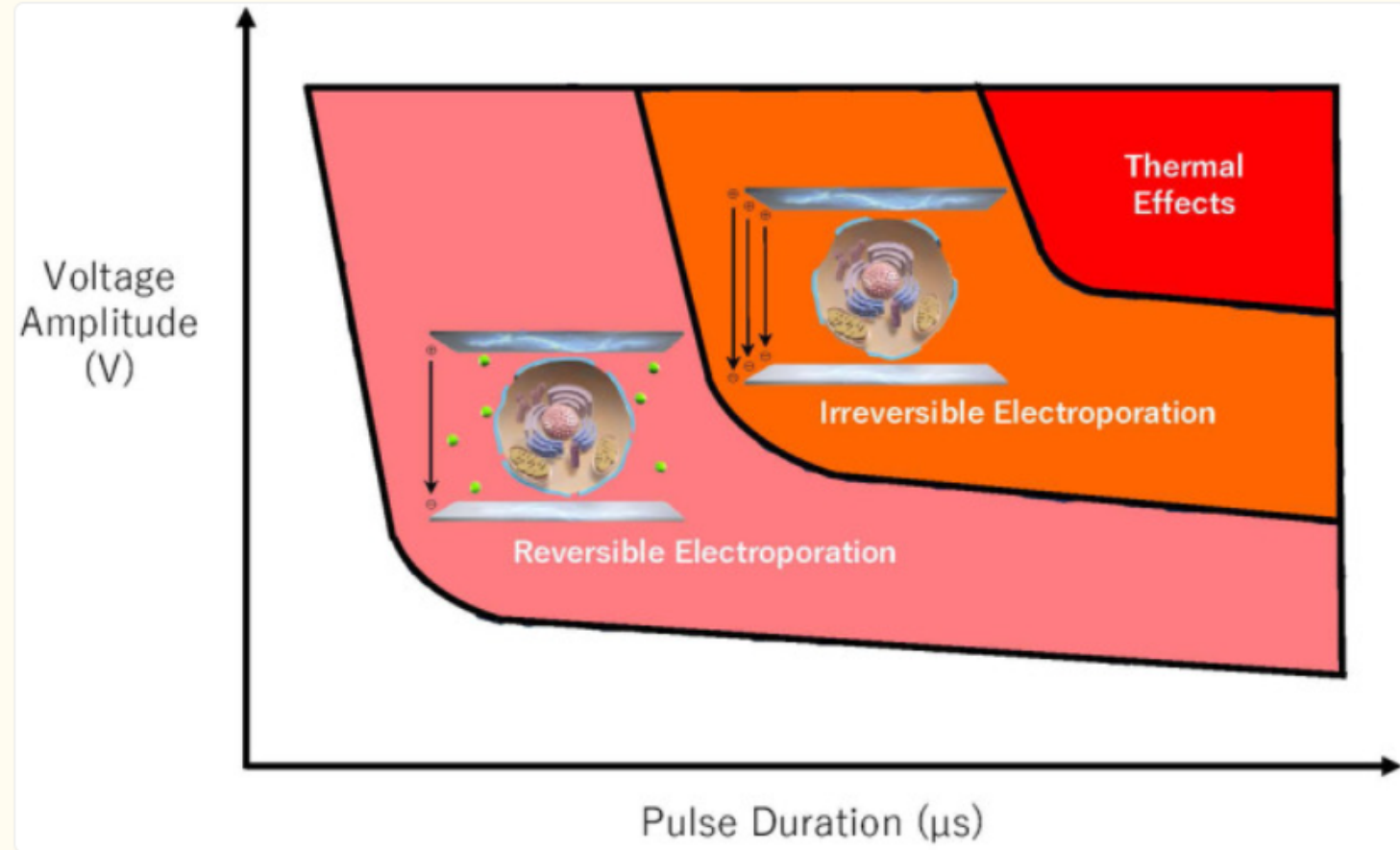
Ultra short, high voltage electrical pulses applied to the myocardial cells



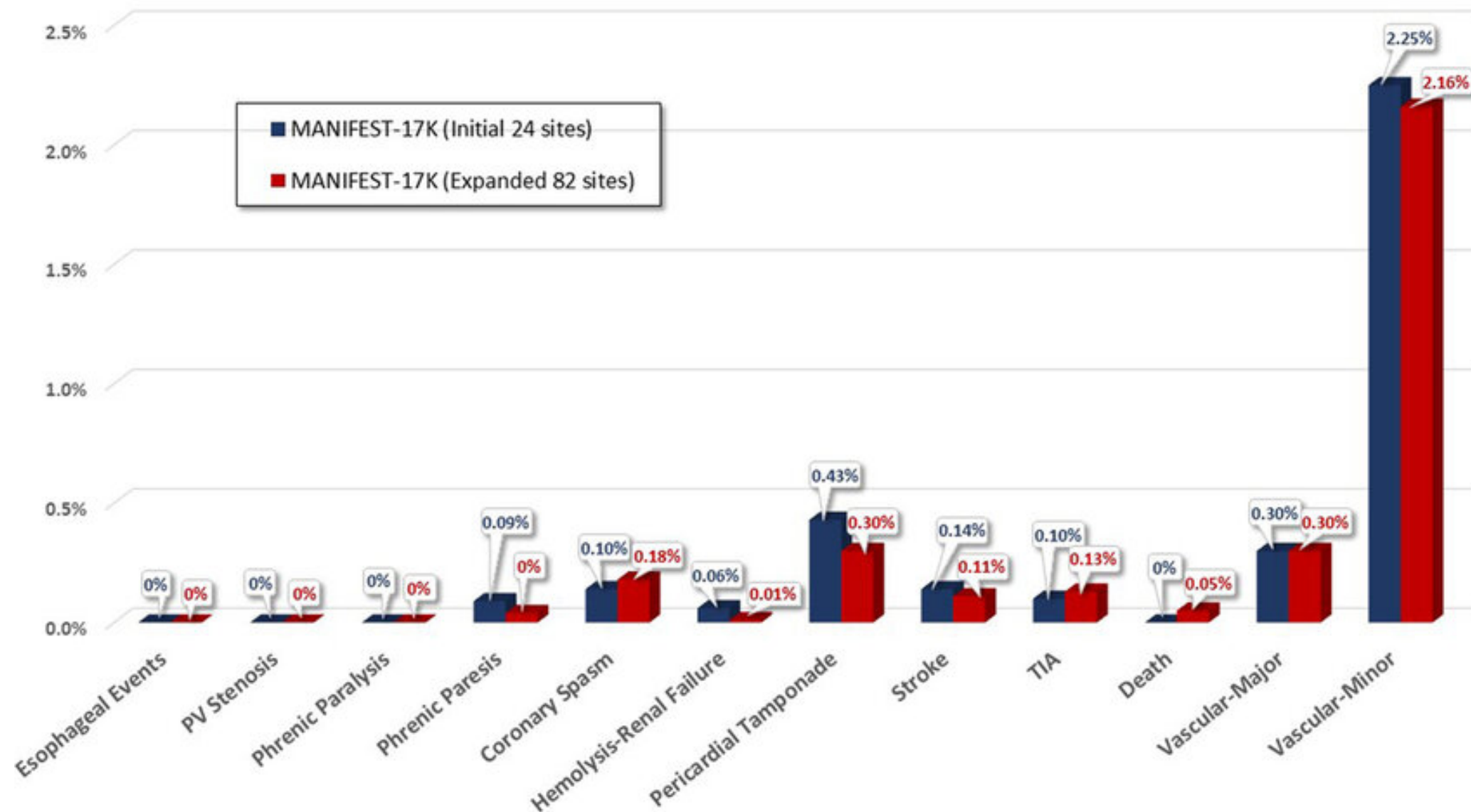
Kuroki K, Tada H. J Arrhythm. 2025 Feb 4;41(1):e70011. doi: 10.1002/joa3.70011. eCollection 2025 Feb.

Pulsed Field Ablation

Thermal ablation methods act non-specifically on tissues. In contrast, tissue sensitivity to PFA varies significantly. Cardiomyocytes are particularly susceptible to PFA.



MANIFEST-17K Cohort (Initial *MANIFEST-PF* vs Expanded *MANIFEST-17K* sites)

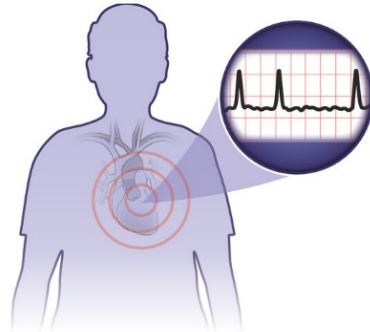
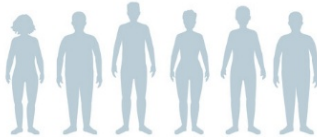


Pulsed Field or Cryoballoon Ablation for Paroxysmal Atrial Fibrillation

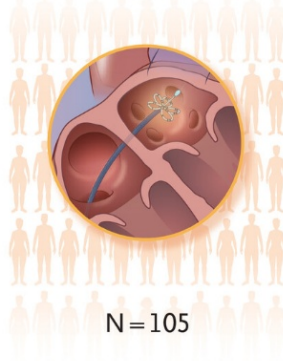
A Research Summary based on Reichlin T et al. | 10.1056/NEJMoa2502280 | Published on March 31, 2025

Patients

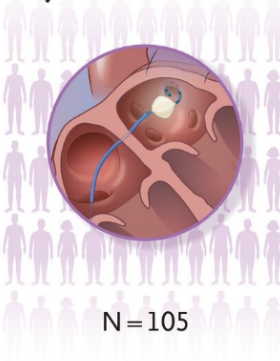
- 210 adults
- Median age, 64 years
- Men: 72%; Women: 28%



Pulsed Field Ablation

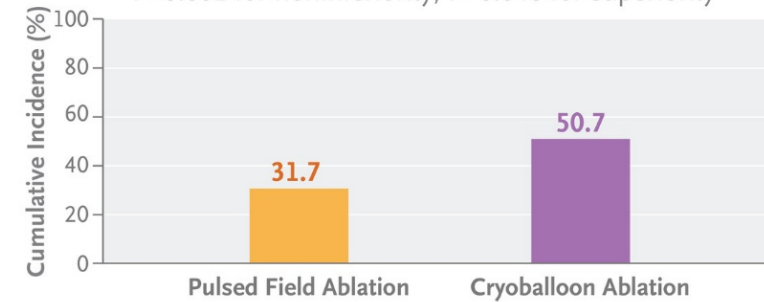


Cryoballoon Ablation

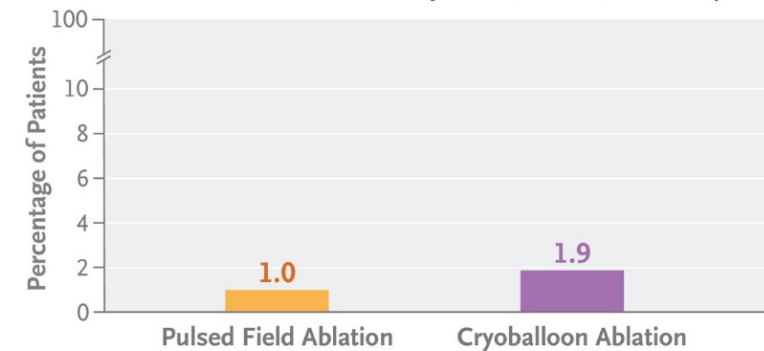


Recurrence of Atrial Tachyarrhythmia, Day 91–365

Difference, -13.6 percentage points (95% CI, -26.9 to -0.3)
P<0.001 for noninferiority, P=0.046 for superiority



Procedure-Related Complications within 30 Days



Graphical Abstract

Efficacy and safety of PFA ablation for pulmonary vein isolation: single-centre experience in a real-world setting



Paroxysmal AF, retrospective, clinical database
deep sedation, no general anaesthesia



PFA, <i>n</i> = 201		HPD-RF, <i>n</i> = 210
61 (44–103)	Procedural time, min	125 (105–143)
46 (34–92)	LA dwell time, min	110 (92–125)
16 (13–20)	Fluoroscopy time, min	4 (2–5)
6 (2,9)	Procedural complications, <i>n</i> (%)	13 (6,2)

	PFA, <i>n</i> = 201	HPD-RF, <i>n</i> = 209	<i>P</i> -value
Access site, <i>n</i> (%)	1 (0.5)	3 (1.4)	0.623
Tamponade, <i>n</i> (%)	3 (1.4)	6 (2.8)	0.504
Stroke or TIA, <i>n</i> (%)	2 (1.0)	2 (0.9)	1.000
Air embolism, <i>n</i> (%)	0	2 (0.9)	0.499
Total, <i>n</i> (%)	6 (2.9)	13 (6.2)	0.1587

Keywords

Pulsed field ablation • Pulmonary vein isolation • Atrial fibrillation • High-power short-duration ablation • Ablation index

PRIORI study - Reinsch N et al. Europace (2024) **26**, euae194 <https://doi.org/10.1093/europace/euae194>



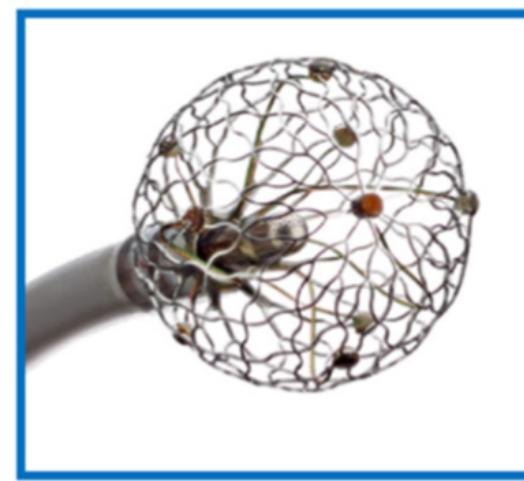
VARIPULSE™



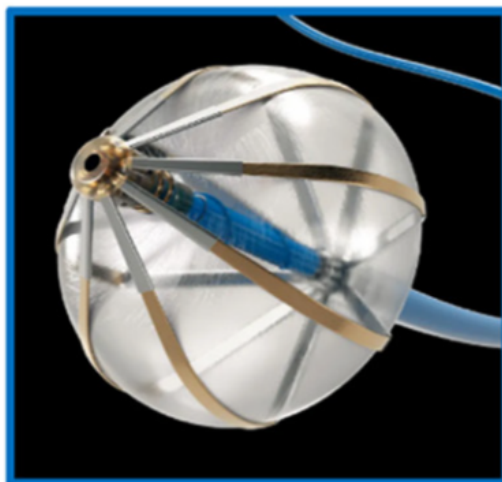
FARAPULSE™



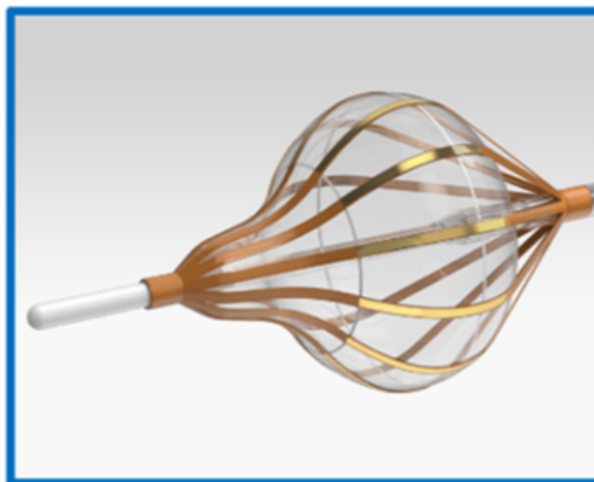
PulseSelect™



Sphere-9™



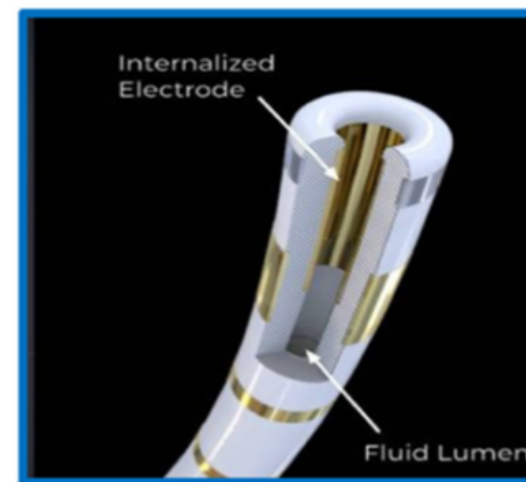
Volt™



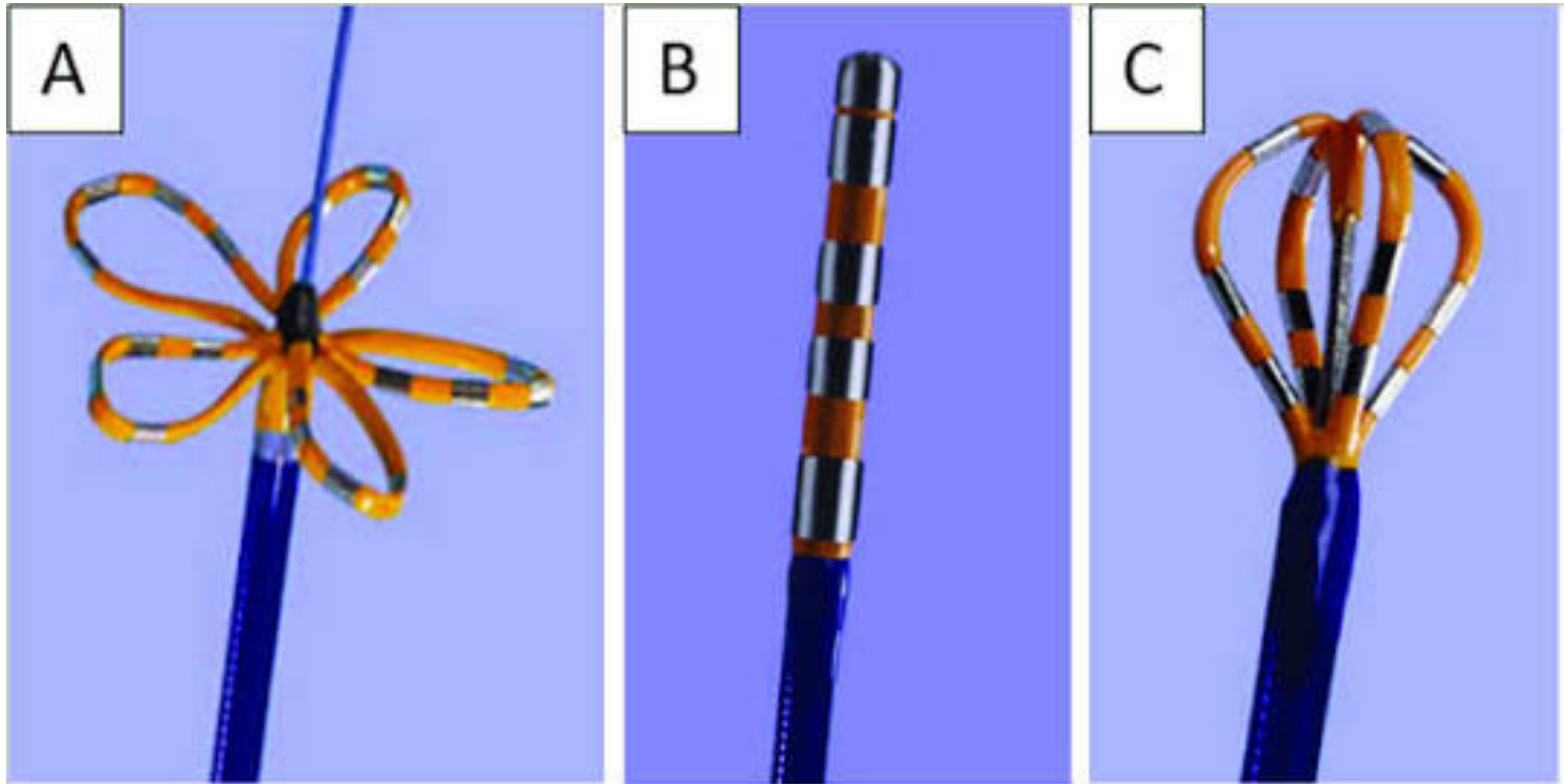
X4 PFA™

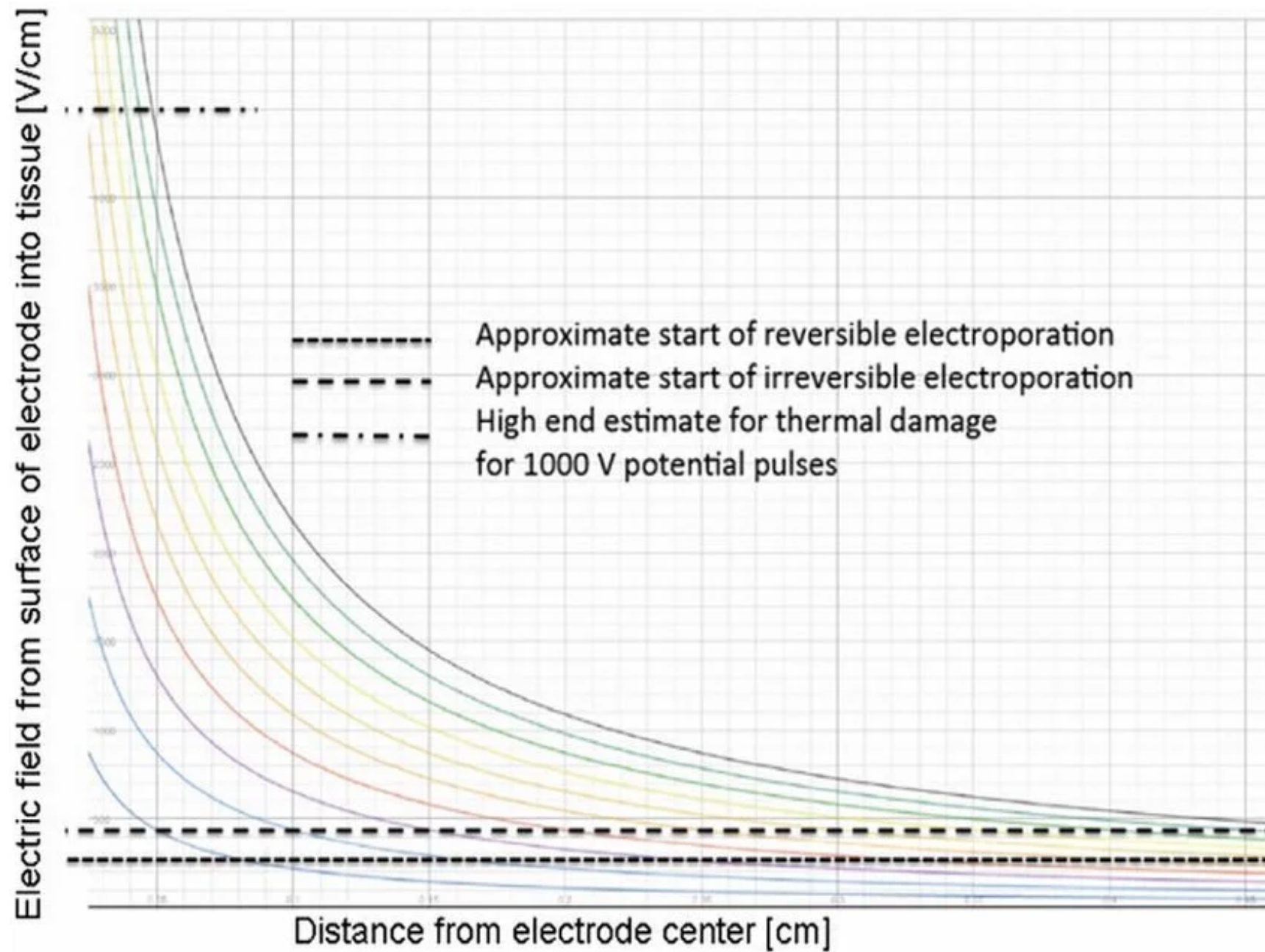


Sphere-360™



FieldForce™

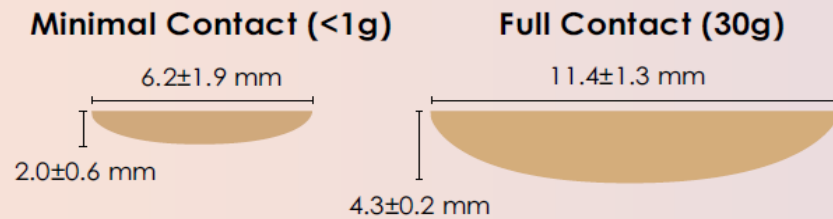




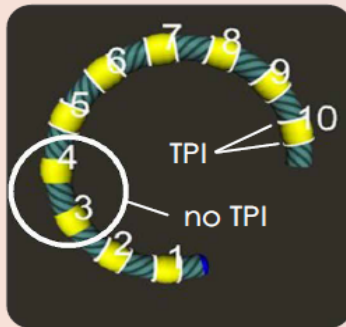
Application repetition and electrode–tissue contact result in deeper lesions using a pulsed-field ablation circular variable loop catheter

Luigi Di Biase ^{1*}, Jacopo Marazzato ^{1,2}, Tara Gomez ³, Eric Byun ³,

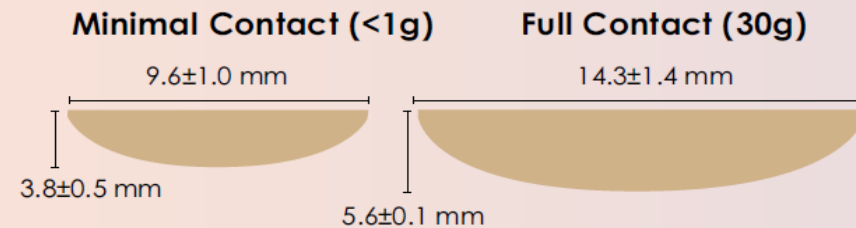
One ablation



Tissue Proximity Indication



Two ablations



Catheter Rotation

Stacked ablations



5.8±0.2 mm depth

Ablation with rotation

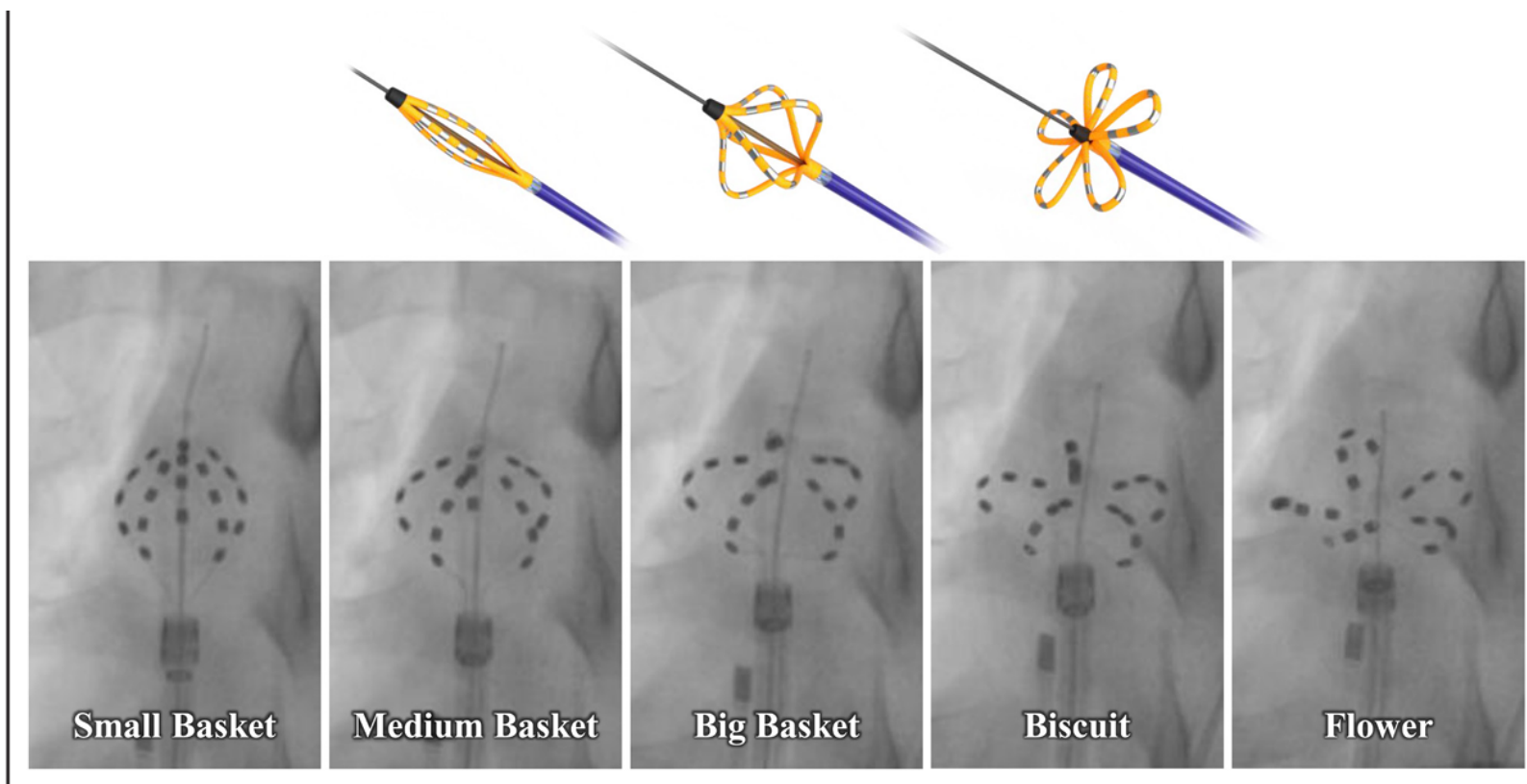


5.6±0.5 mm depth

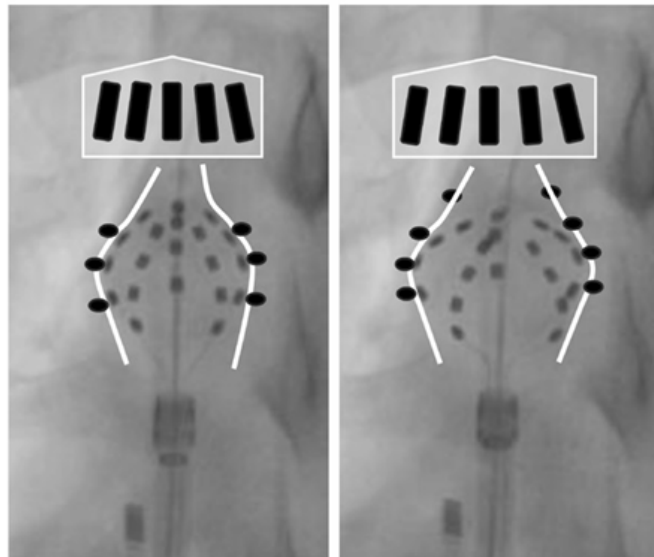


Lesion Morphometry of the Pentaspline Pulsed Field Ablation Catheter: Understanding Catheter Pose, Rotation, and Dosing

Keita Watanabe^{id}, MD; Moritz Nies, MD; Vivek Y. Reddy^{id}, MD; Jacob S. Koruth^{id}, MD



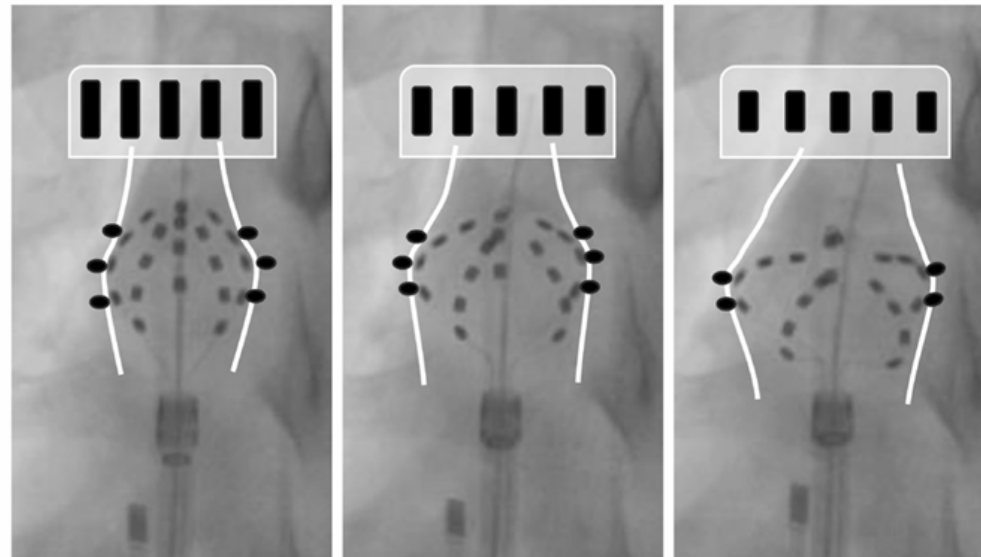
Basket/Biscuit Pose in a Narrow Vein



Small basket
Narrow vein
Linear lesions
with narrow gaps

Medium basket
Narrow vein
Linear lesions
with gaps

Basket/Biscuit Pose in a Wide Vein

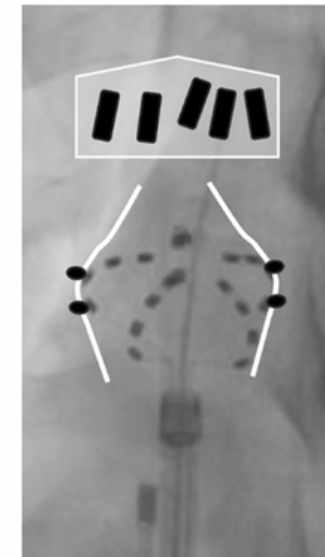


Small basket
Wide vein
Linear lesions
with narrow gaps

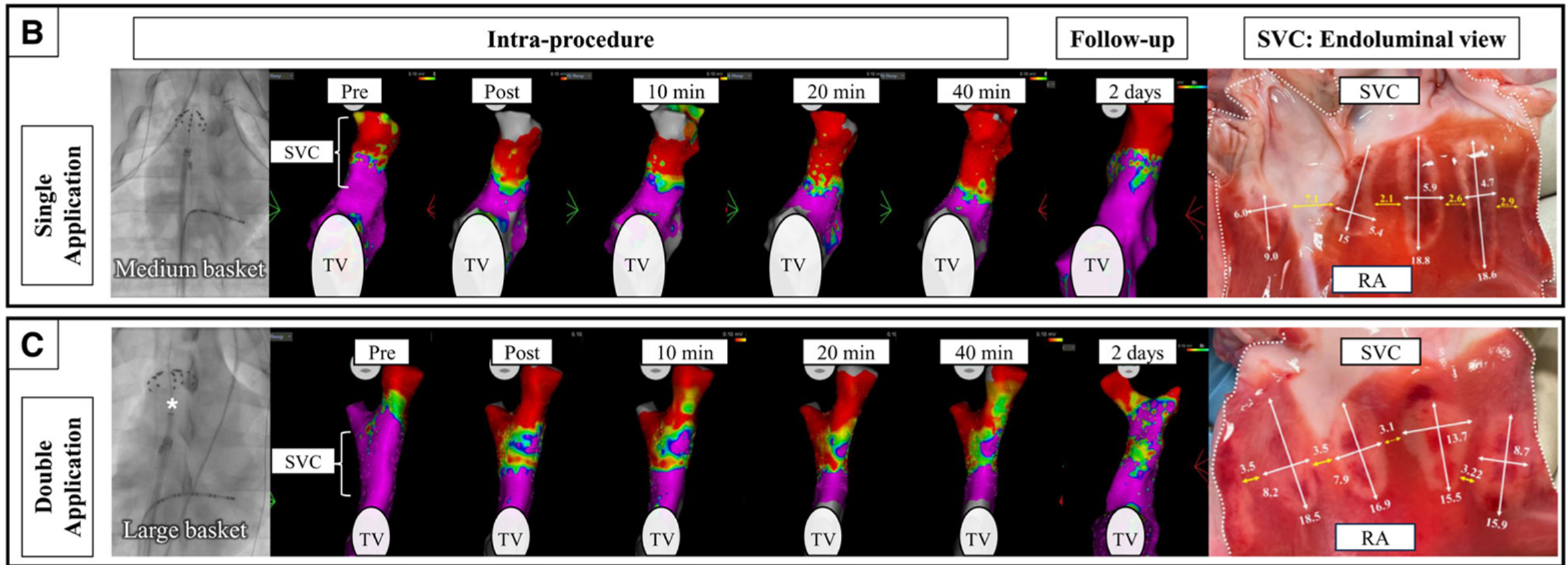
Big basket
Wide vein
Shorter lesions
with gaps

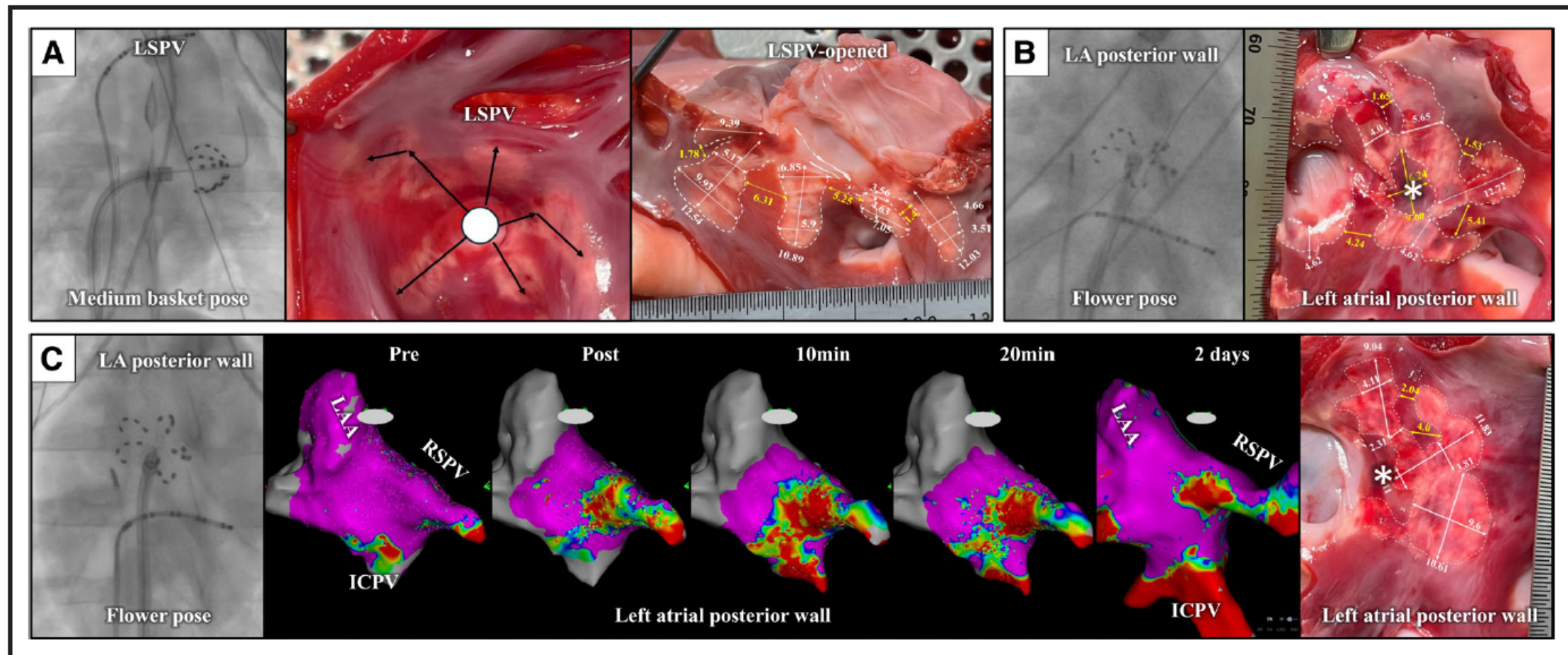
Biscuit pose
Wide vein
Shorter lesions
with gaps

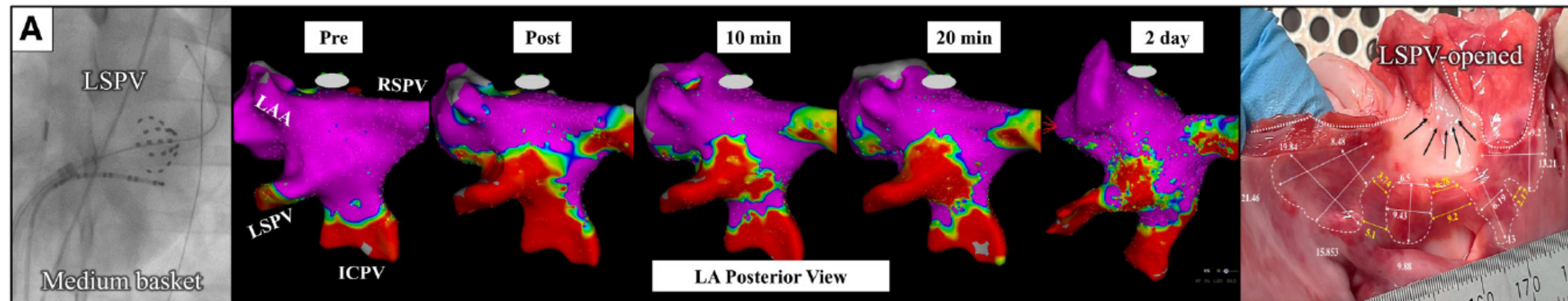
Non-Centered Biscuit Pose

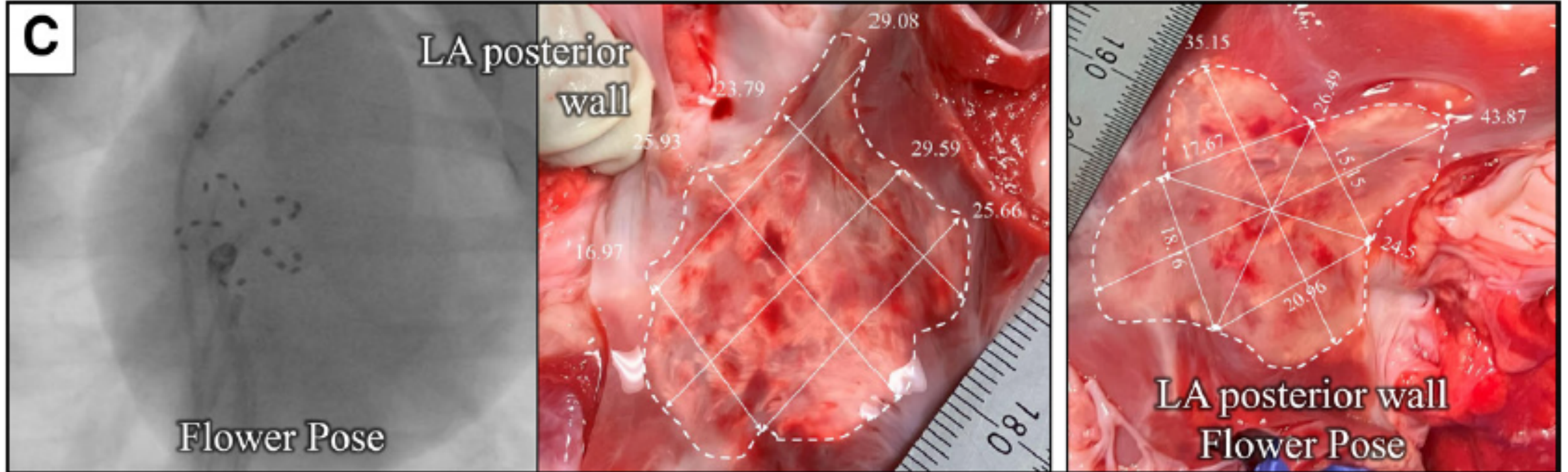


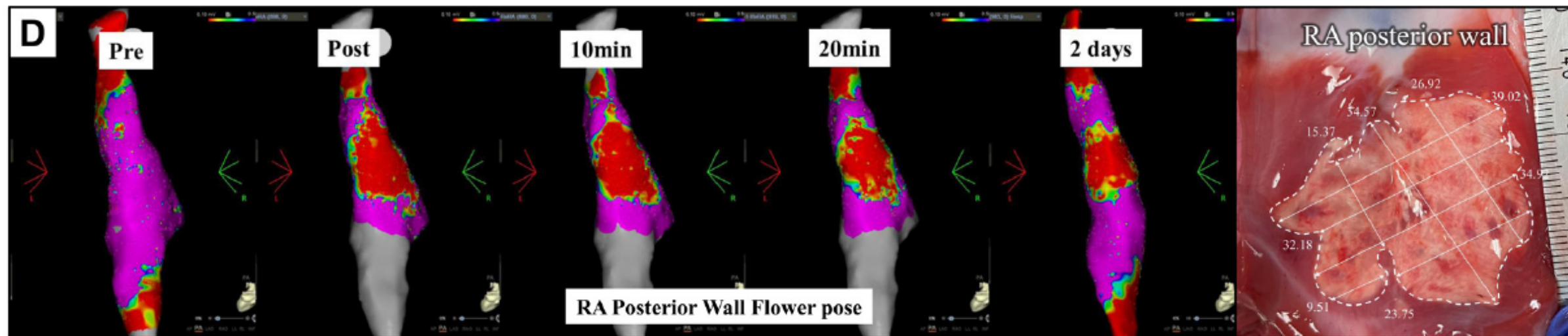
Biscuit pose
Non-centered
Shorter lesions
with gaps

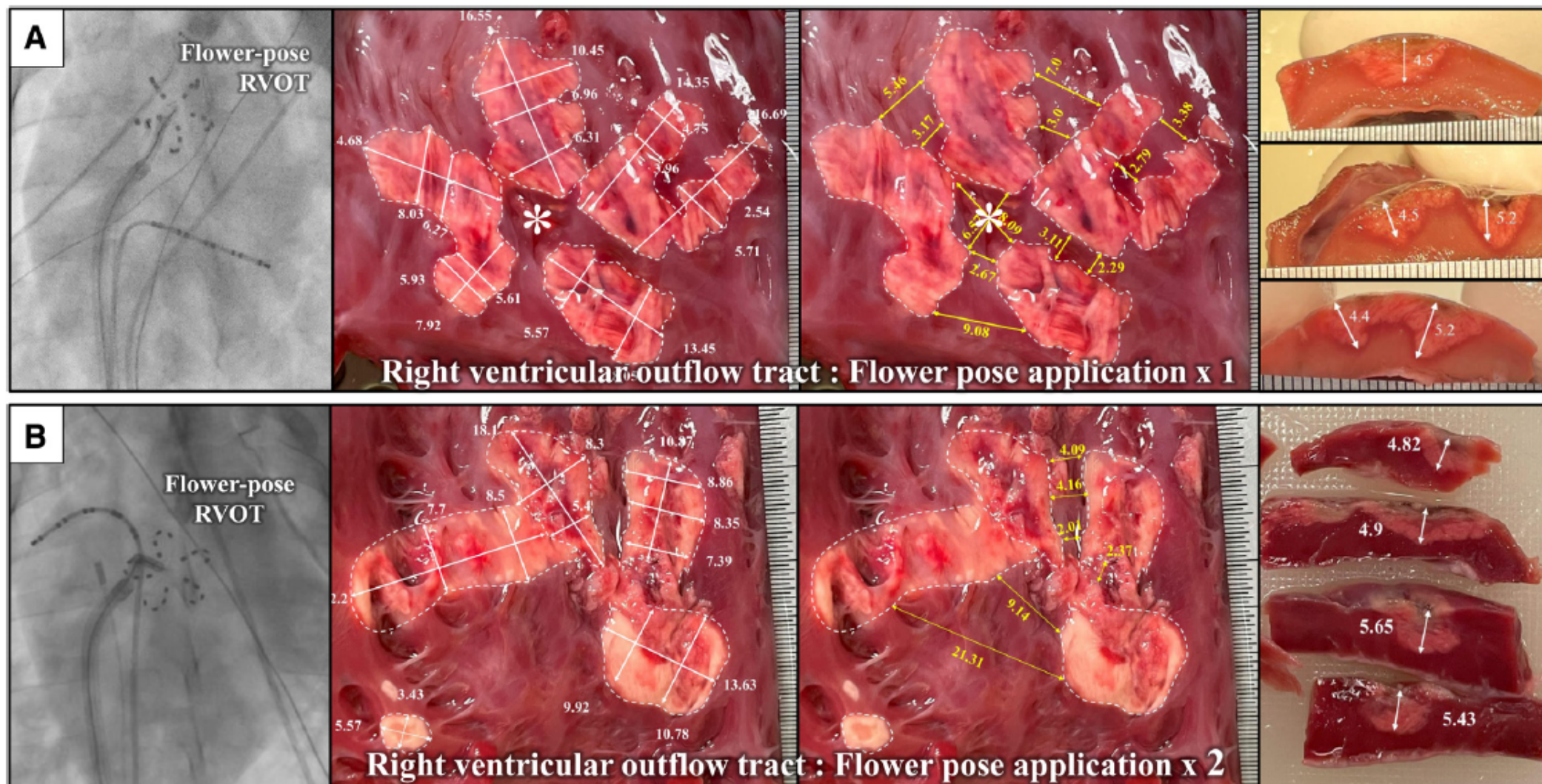


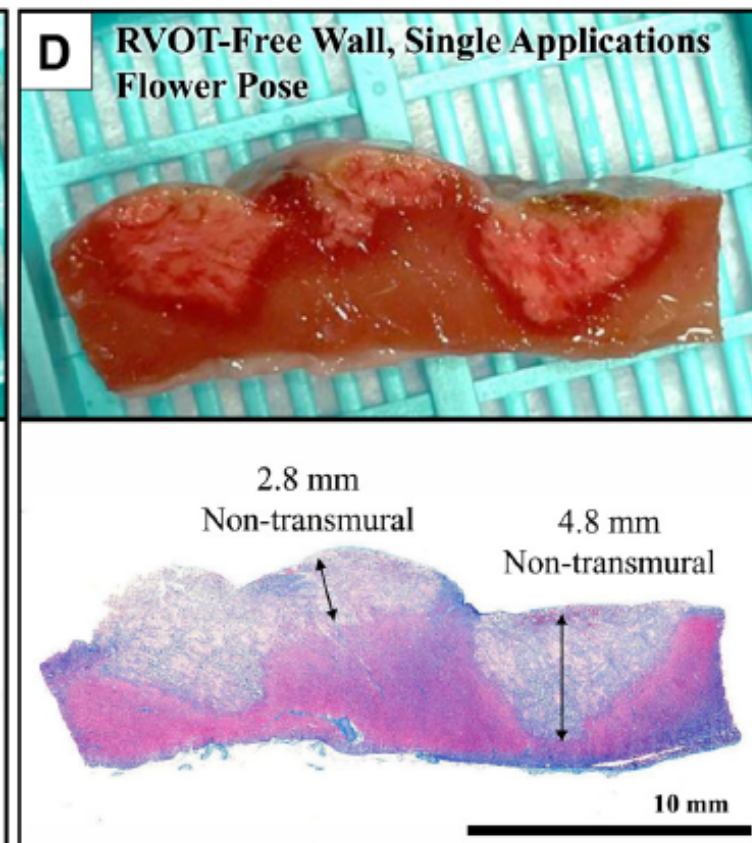
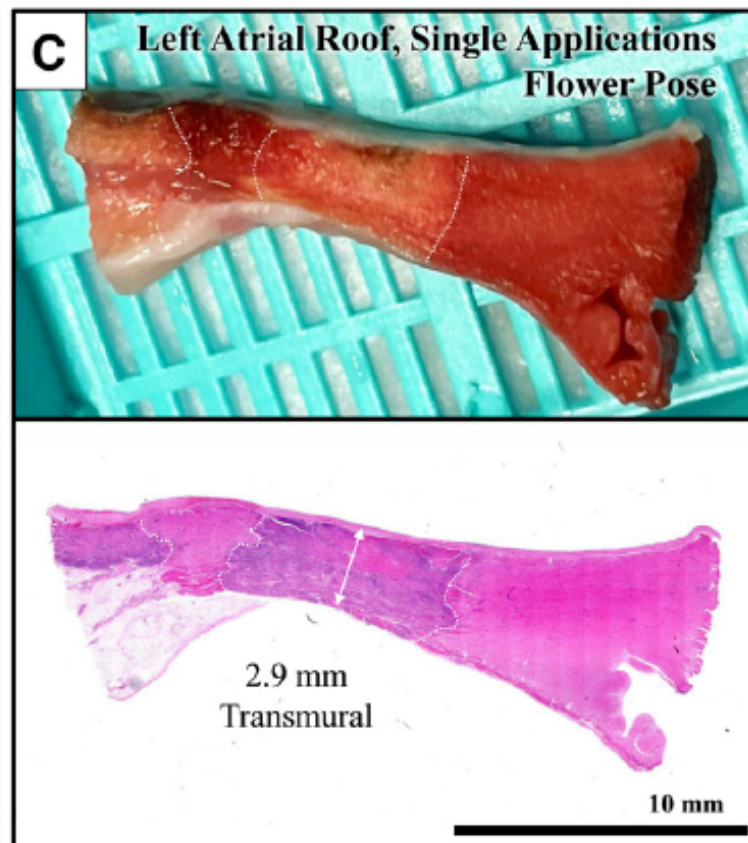
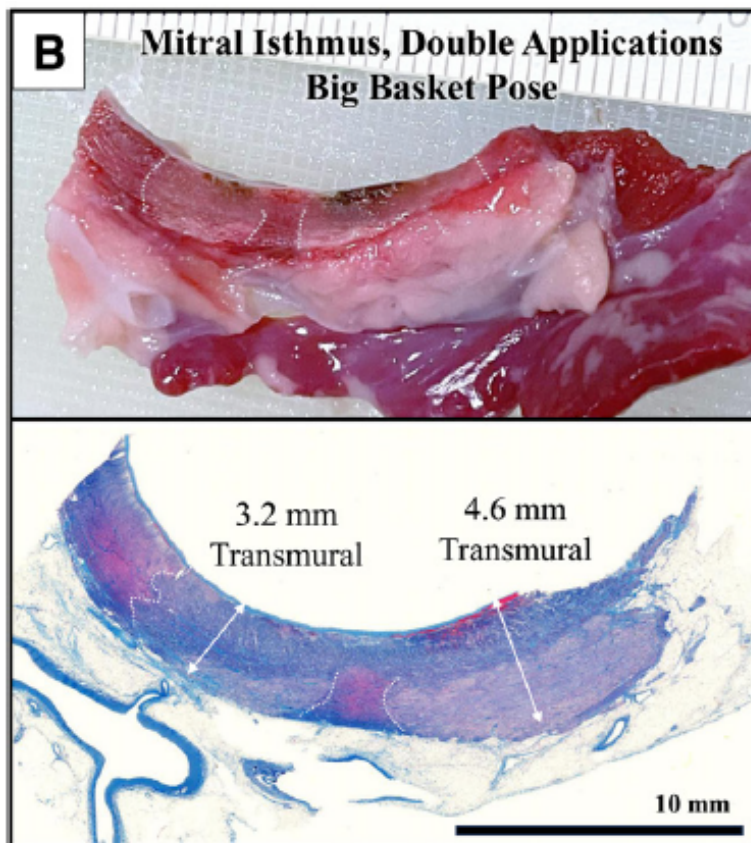






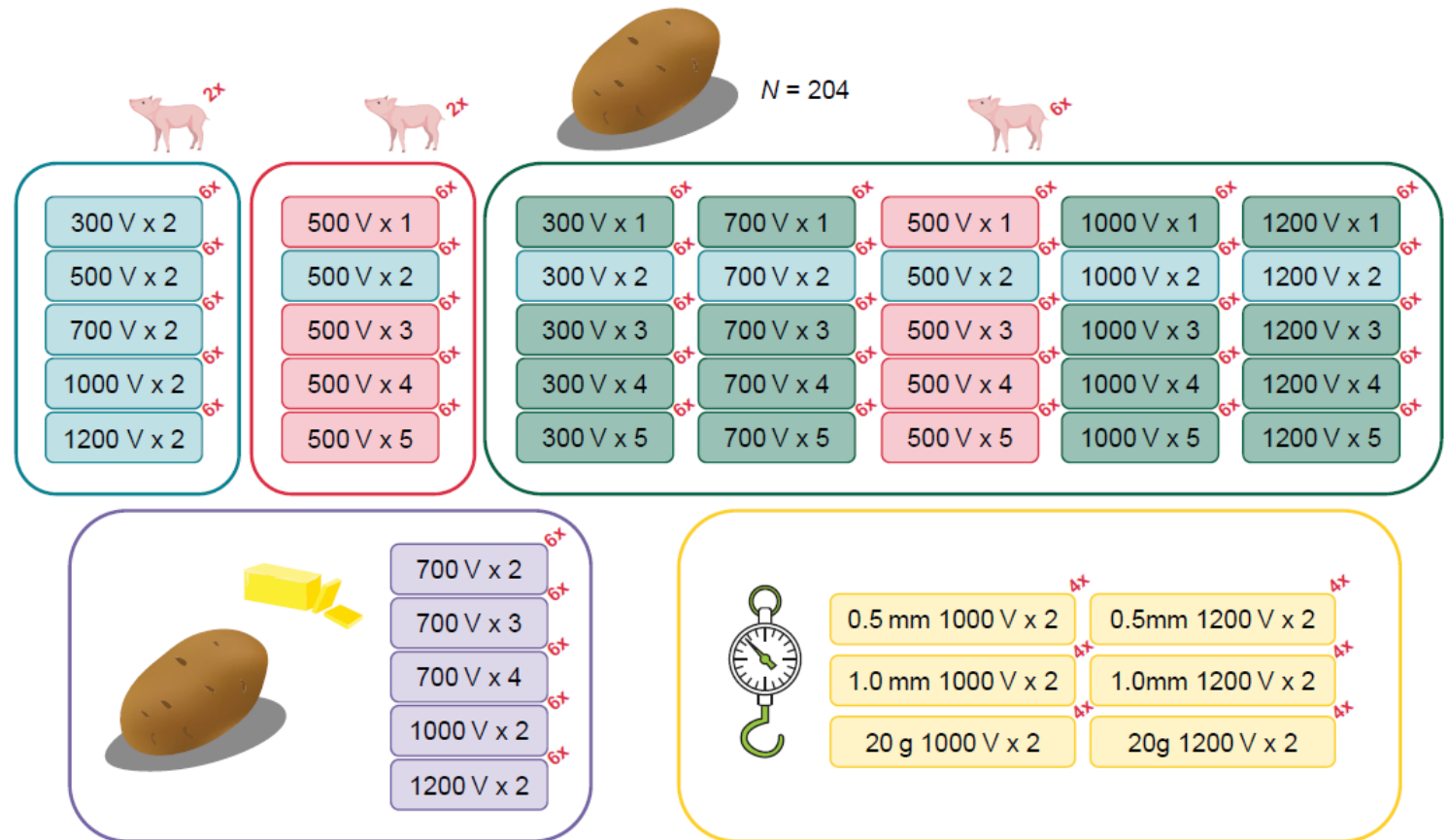


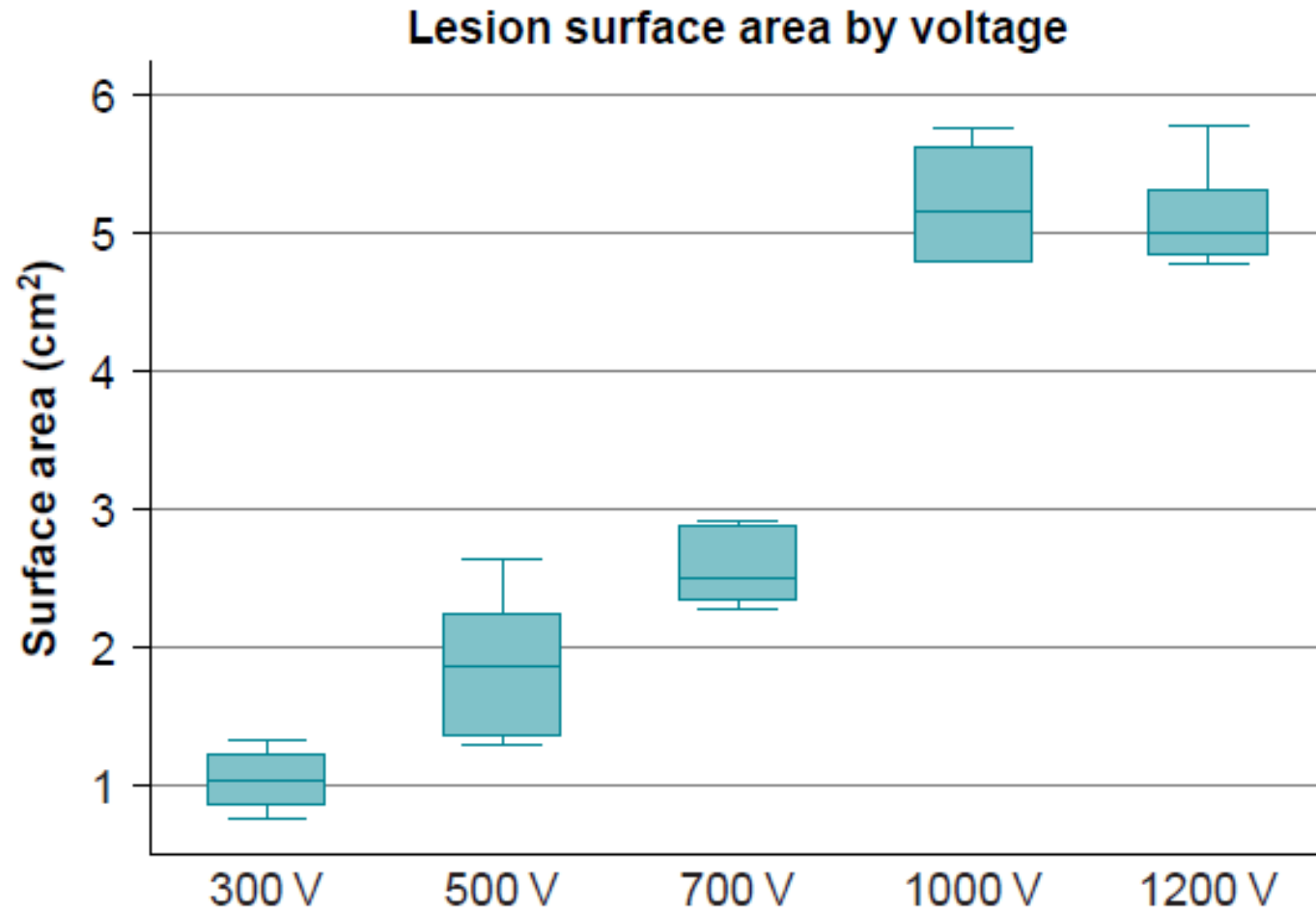




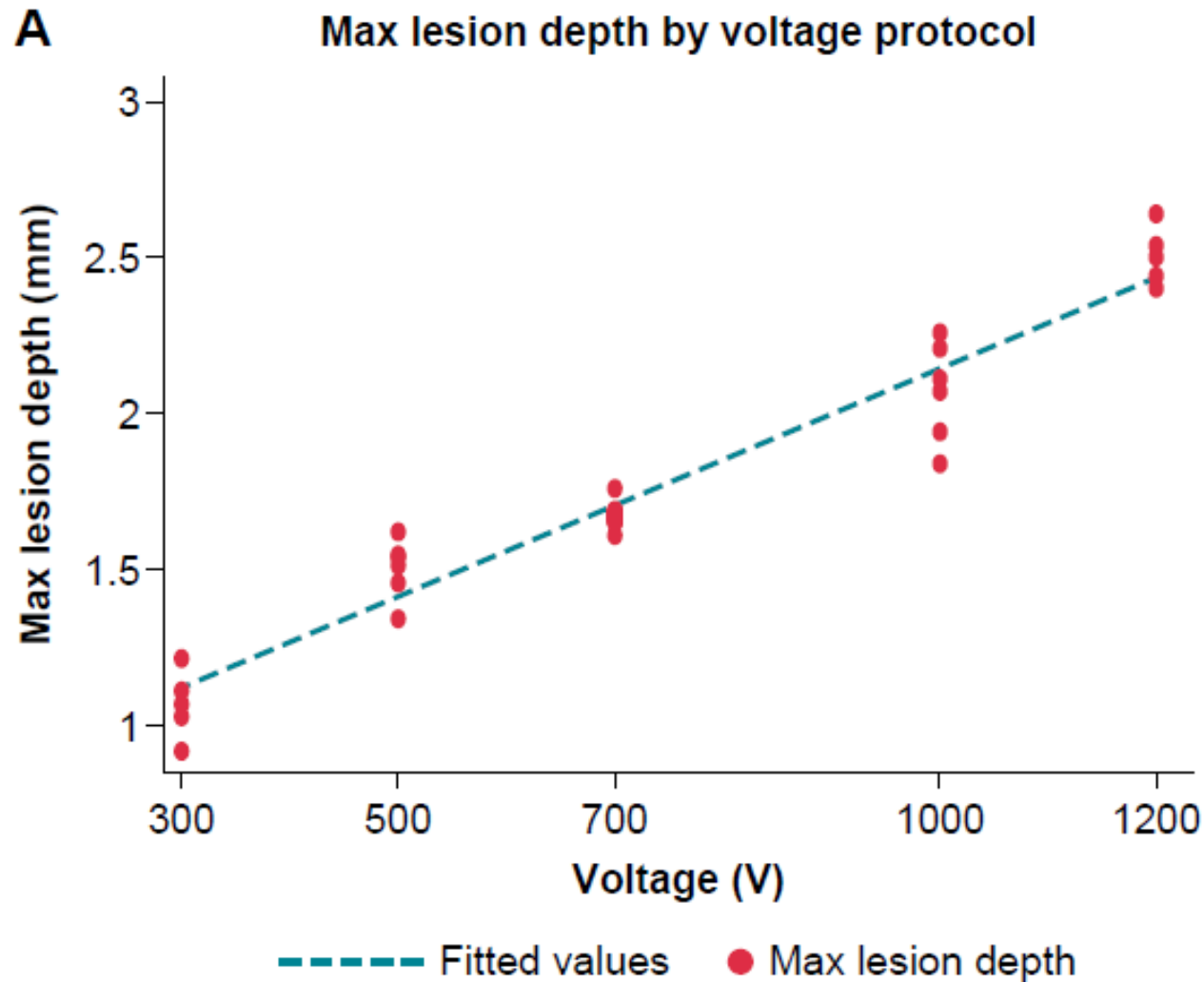
Determinants of acute irreversible electroporation lesion characteristics after pulsed field ablation: the role of voltage, contact, and adipose interference

Alessio Gasperetti ^{1*}, Fabrizio Assis ¹,
Masahito Suzuki¹, Akhilesh Gonuguntla ¹,
James Sampognaro ¹, Marco Schiavone ¹
and Harikrishna Tandri ¹

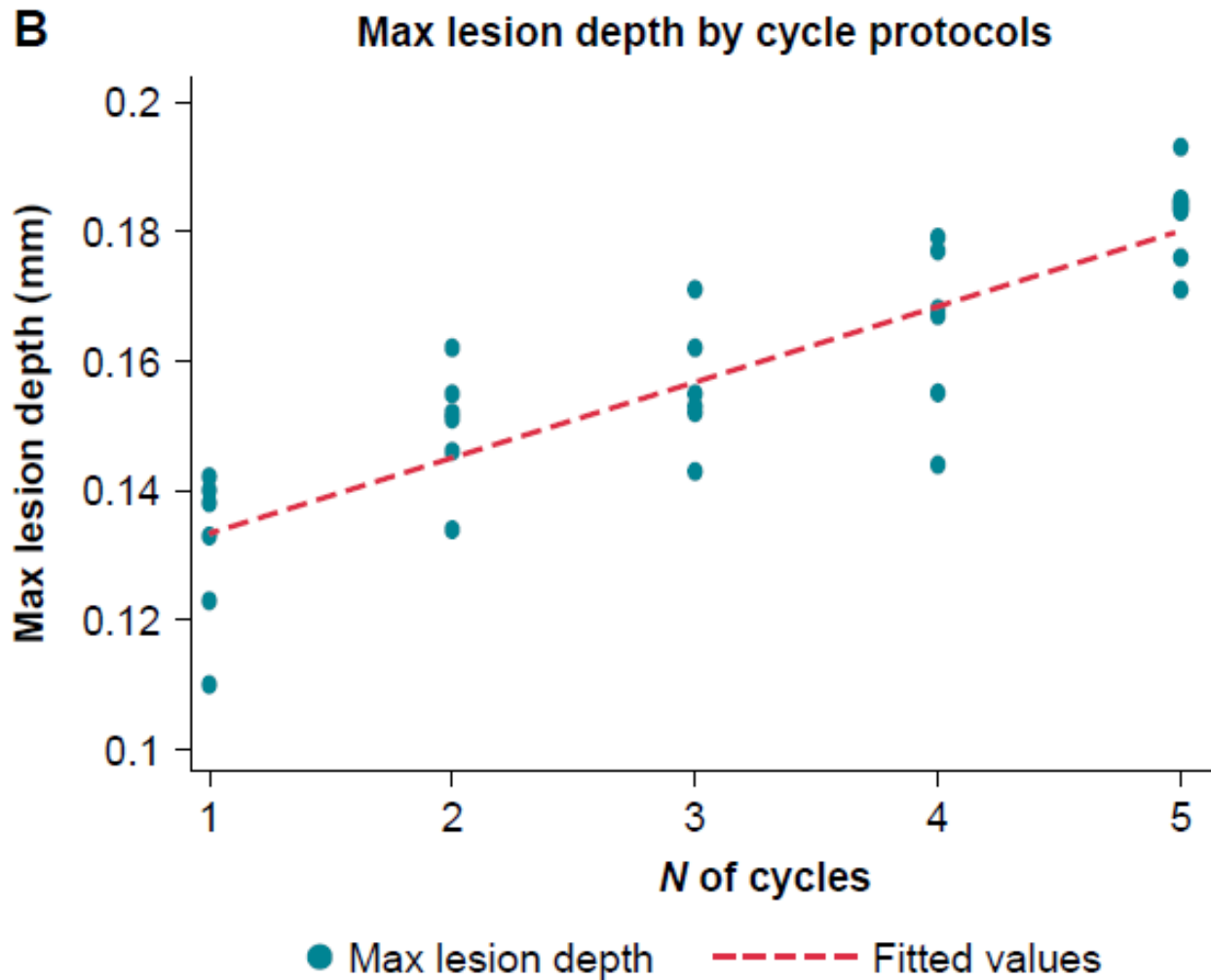




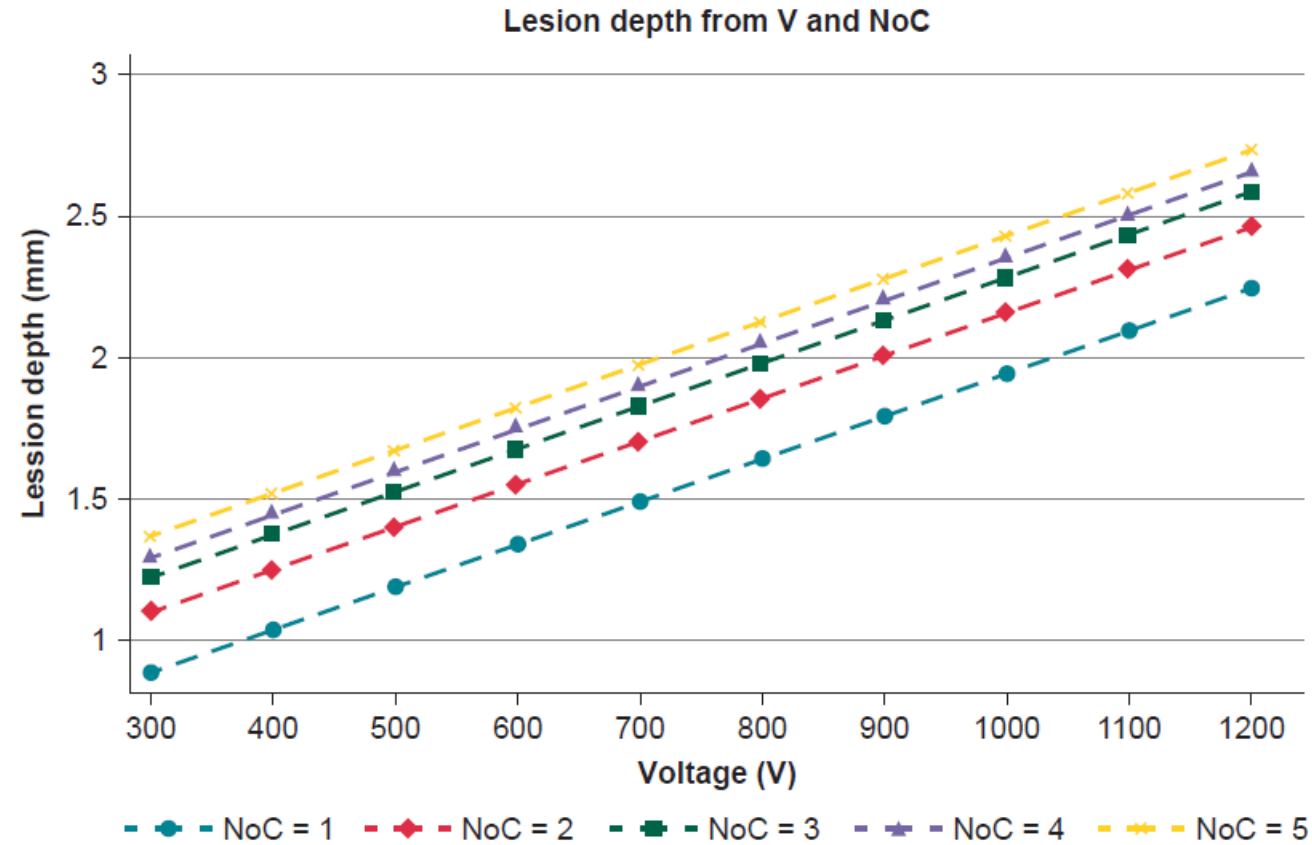
In a vegetal and animal model for IRE assessment, PFA lesion characteristics were found to be strongly dependent on voltage settings and the NoCs, with a quasi-linear relationship



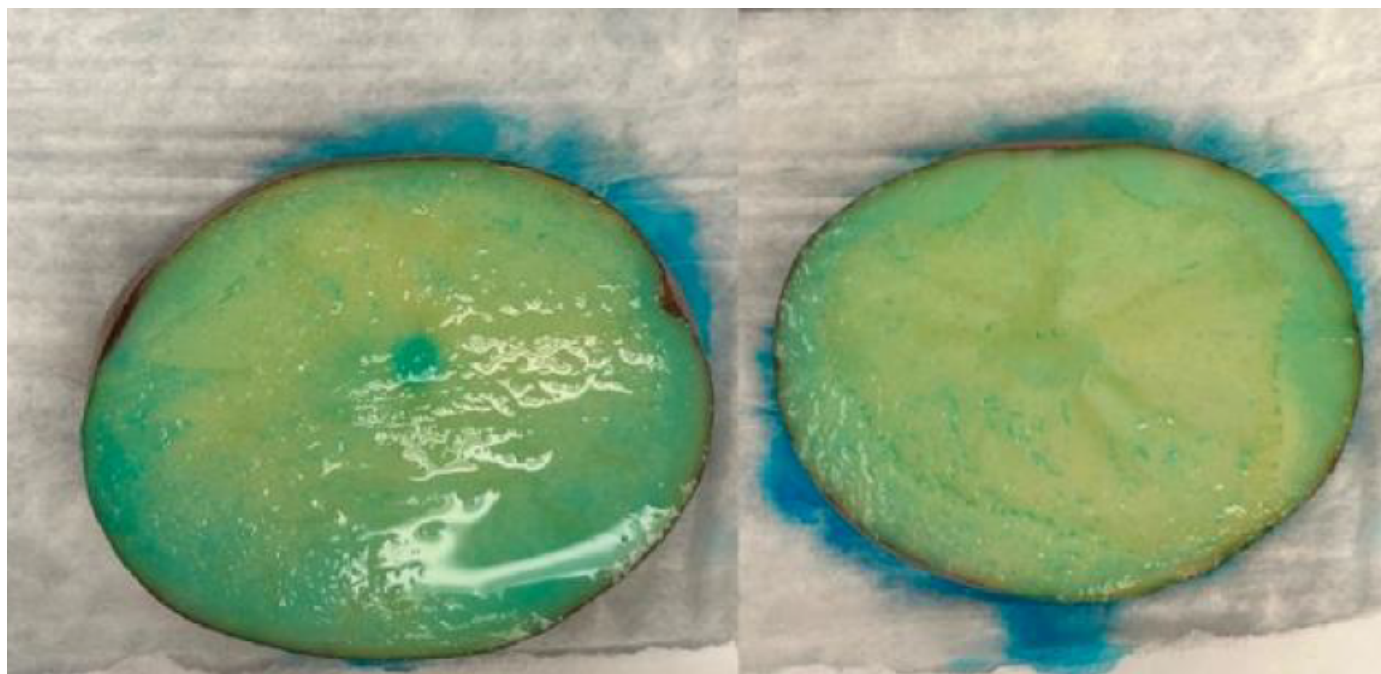
In a vegetal and animal model for IRE assessment, PFA lesion characteristics were found to be strongly dependent on voltage settings and the NoCs, with a quasi-linear relationship



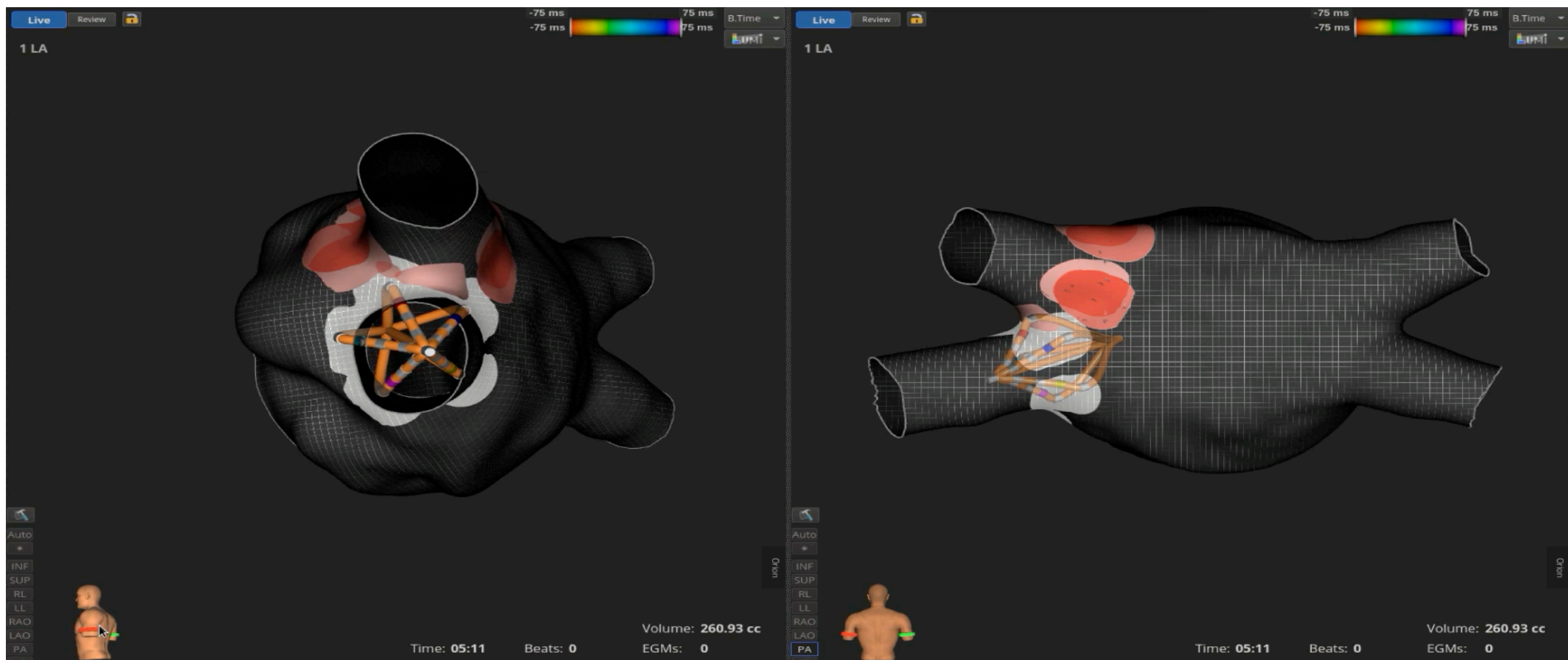
In a vegetal and animal model for IRE assessment, PFA lesion characteristics were found to be strongly dependent on voltage settings and the NoCs, with a quasi-linear relationship



In a vegetal and animal model for IRE assessment, PFA lesion characteristics were found to be strongly dependent on voltage settings and the NoCs, with a quasi-linear relationship



Lesion obtained at 0.5 mm (left panel and lower panel) and at 1 mm (right panel) catheter-specimen distance



FW Spline

Live: 1 RV

V: V3

R: V3

CS 1-2

CS 5-6

CS 9-10

FW SPLINE A3-A124

FW SPLINE B3-B124

FW SPLINE C3-C124

FW SPLINE D3-D124

FW SPLINE E3-E124

200 mm/s

137 138 139 140 141 142 143 144 145 146

✓ Show Beat Acceptance Criteria

CL 18.8ms

ΔR 25.0ms

FAV 0.01

✓ RSP 22.6uV

M 0.2mm

✓ All

S 0.01

TR 0.0

■ Update Anatomy

Freeze

AutoTag Farawave

LS Map: 1 RV Play 3

1 2

Live Review

Ready

Total: 0

1 RV

FW31

Orion

Time: 00:17

Volume: 5.61 cc

FARAVIEW

2 mm/s

Resp

CL

Live Review

Ready

Total: 0

1 RV

FW31

Orion

Time: 00:17

Volume: 5.61 cc

FARAVIEW

100 mm/s

CS 1-2

CS 3-4

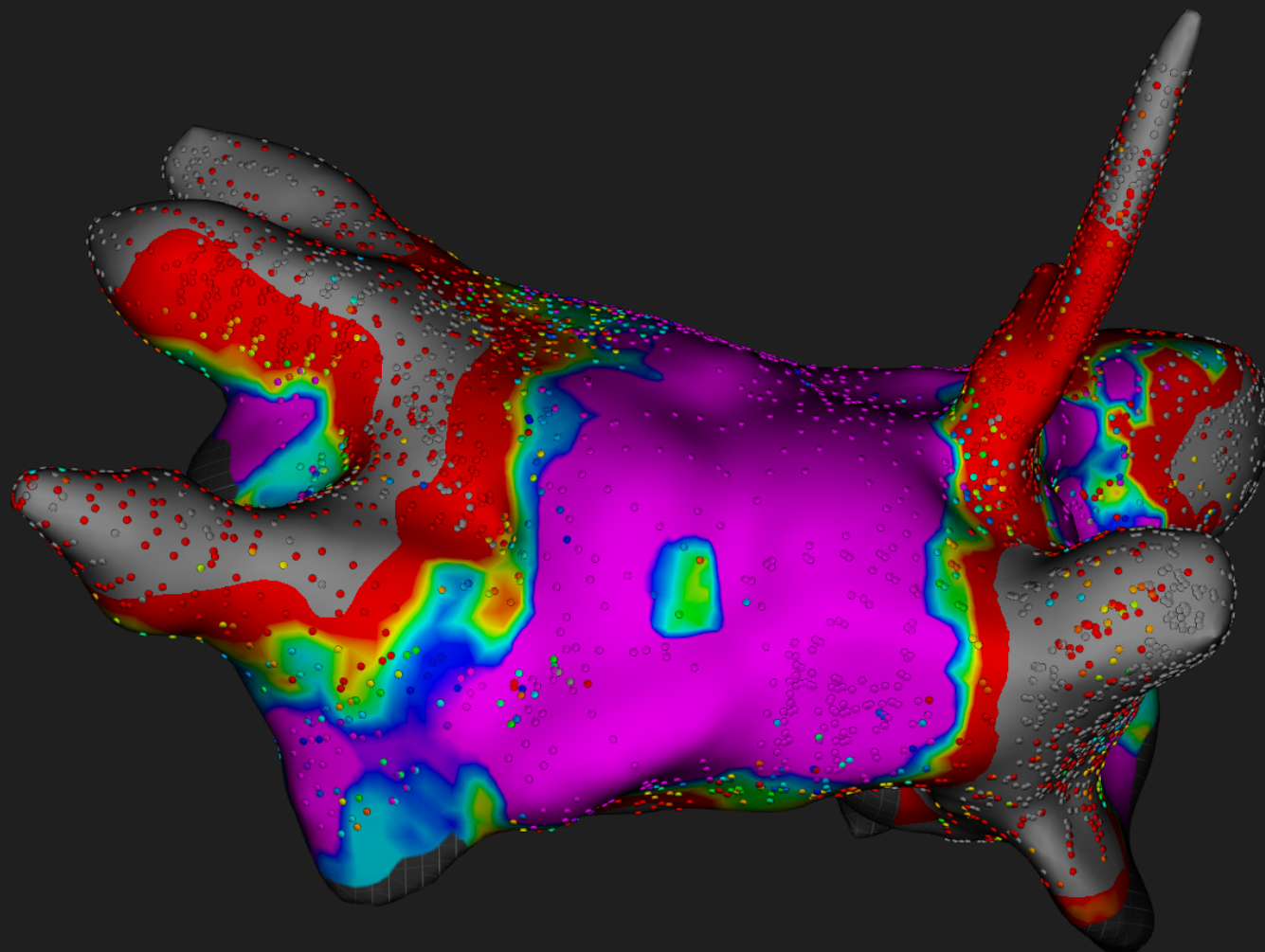
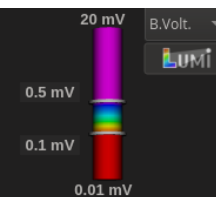
CS 5-6

CS 7-8

CS 9-10

Slow/Fast Graph

1 LA



Auto



INF

SUP

RL

LL

RAO

LAO

PA

AP



FARAVIEW

Time: 07:38

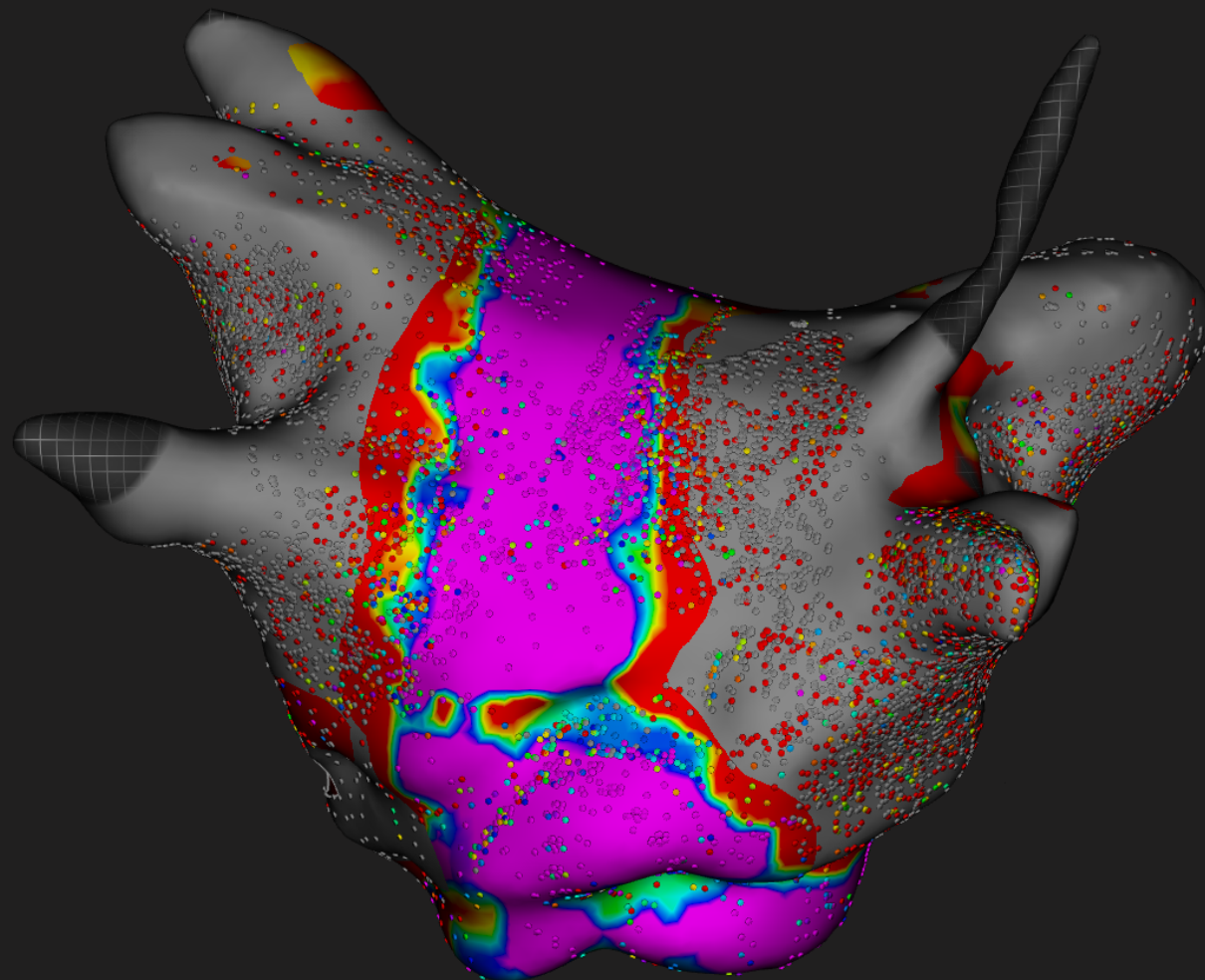
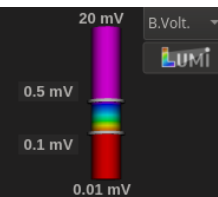
Volume: 94.37 cc

Beats 196

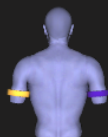
EGMs: 5186

Slow/Fast Graph
Study Log

2 LA



- Auto
- INF
- SUP
- RL
- LL
- RAO
- LAO
- PA
- AP

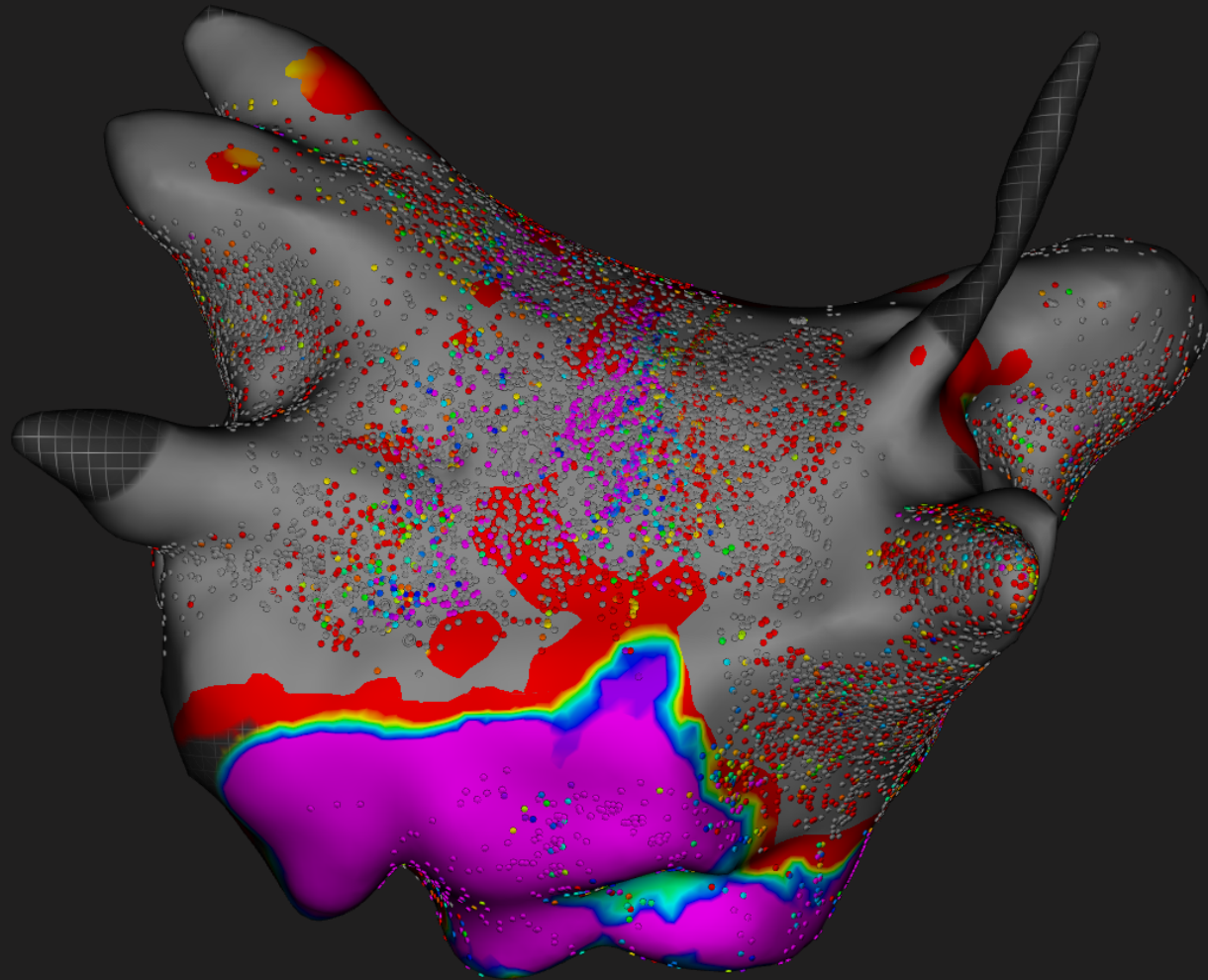
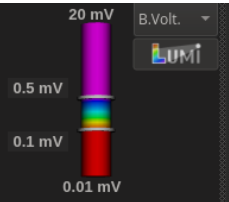


FARAVIEW

Time: 09:33 Volume: 157.94 cc
Beats 1334 EGMs: 27563

Slow/Fast Graph
Study Log

4 LA 2 LA cl...



Auto



INF

SUP

RL

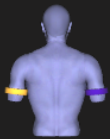
LL

RAO

LAO

PA

AP



FARAVIEW

Time: 12:26

Volume: 168.56 cc

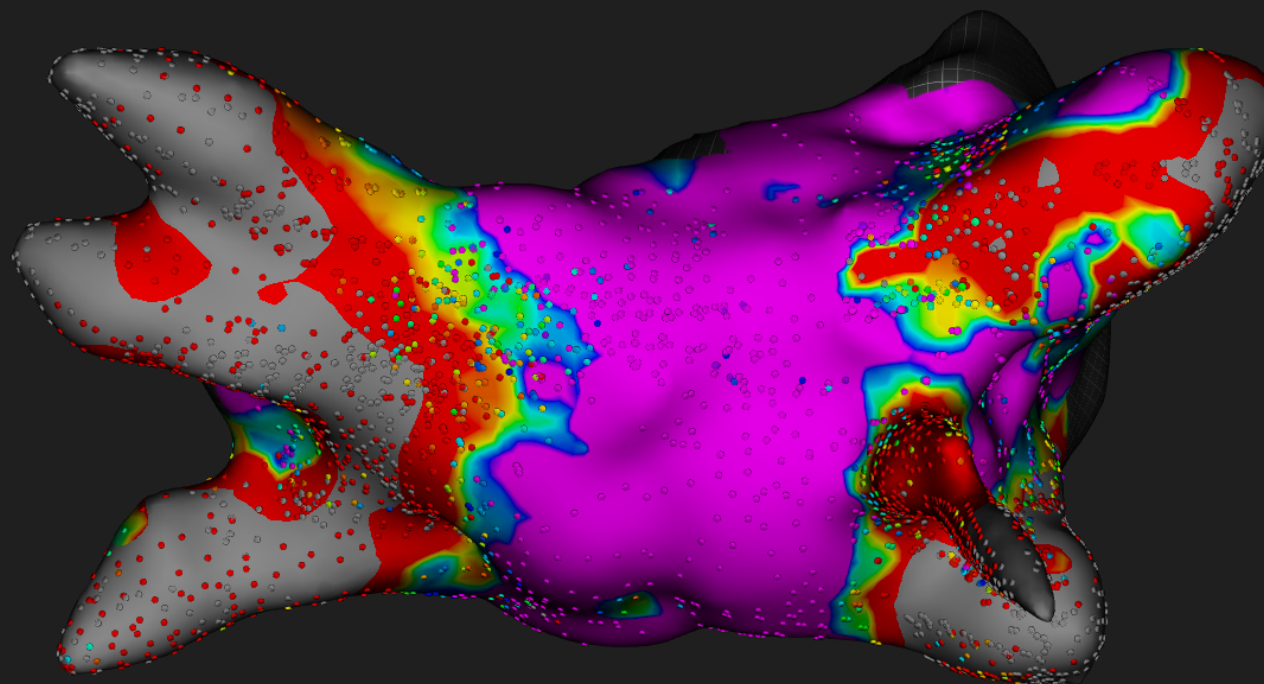
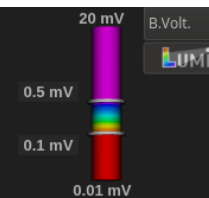
Beats 1445

EGMs: 30283

Slow/Fast Graph
Study Log

3D View

1 LA



- Auto
- INF
- SUP
- RL
- LL
- RAO
- LAO
- PA
- AP

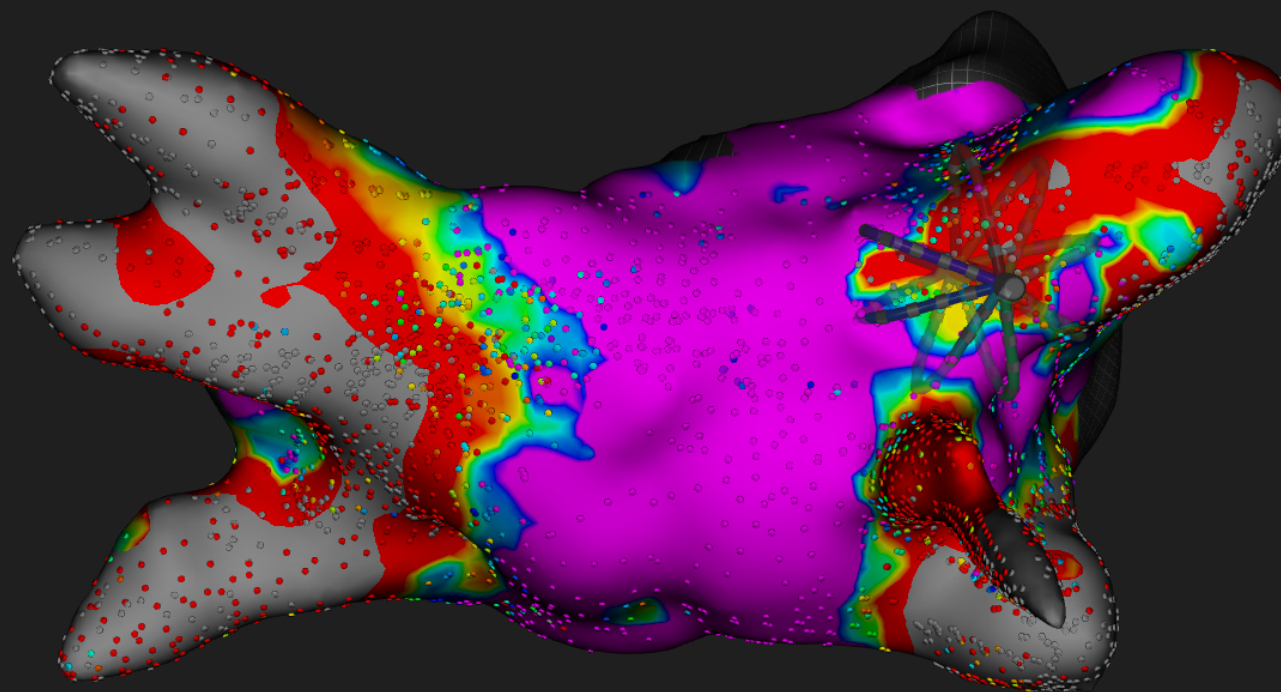
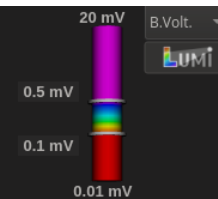


FARAVIEW

Time: 07:38 Volume: 94.37 cc
Beats 196 EGMs: 5186

Slow/Fast Graph
Study Log

1 LA



Auto

*

INF

SUP

RL

LL

RAO

LAO

PA

AP



FARAVIEW

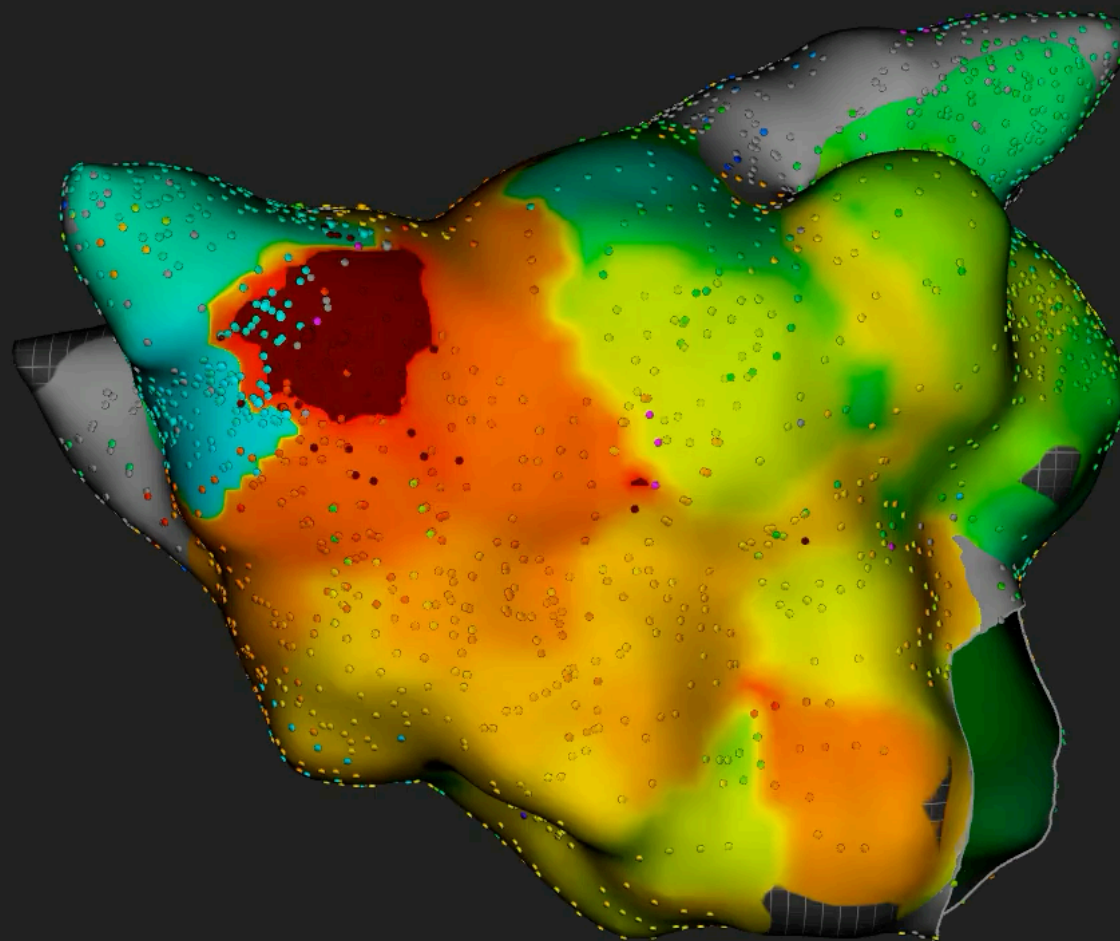
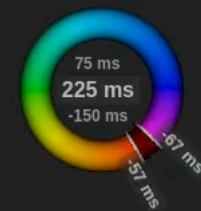
Time: 07:38

Volume: 94.37 cc

Beats 196

EGMs: 5186

Slow/Fast Graph
Study Log



Time: 17:25

Volume: 114.59 cc

Beats 412

EGMs: 5603

slow/fast Graph
Study Log

2 LA

Best Review Graph | AutoTag Parameters Review

3D View



Auto

*

INF

SUP

RL

LL

RAO

LAO

PA

AP



FARAVIEW

CL: 1194ms BPM: 50

2 LA

B.Time

LUMI

Page 2

Live: 2 LA

200 mm/s

V: V5

R: CS 5-6

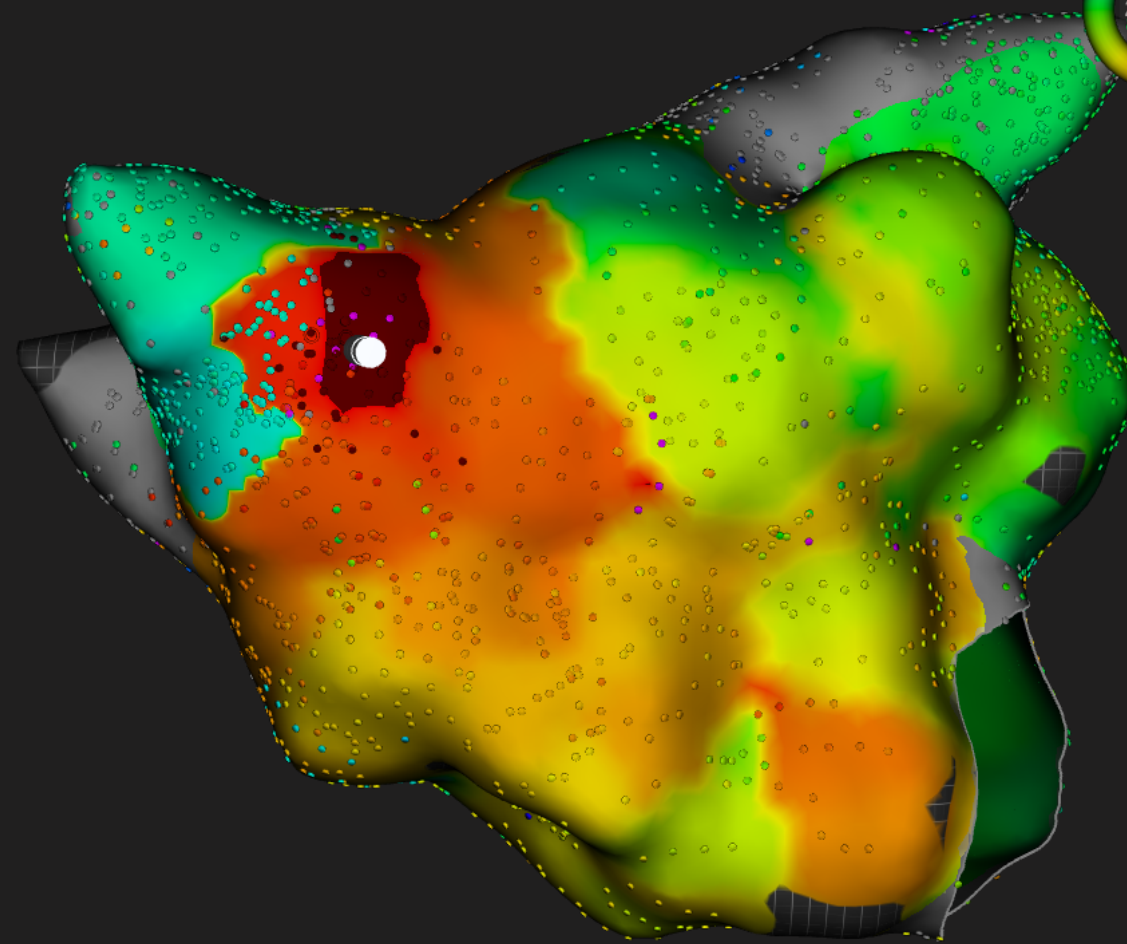
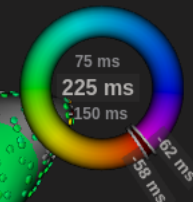
U1: A4

U2: A5

B: A4-5

-59 ms

Trend



SKYLINE

Show Beat Acceptance Criteria

All

Reject

Accept

No AutoTag selected



Auto

*

INF

SUP

RL

LL

RAO

LAO

PA

AP



FARAVIEW

Time: 17:25

Volume: 114.59 cc

Beats 412

EGMs: 5603

Slow/Fast Graph

Study Log

CONCLUSIONS

- Pulsed field ablation is a promising energy source, offering excellent safety and efficacy
- Optimization of energy delivery and lesion creation will come from a deeper understanding of the technology and its interaction with cardiac tissue
- Further advances are expected with the development of next-generation catheters
- Contact matters!