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Computational Cardiac Electrophysiology • Substrate Mapping • Translational Electrophysiology

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Ventricular Tachycardia (VT)

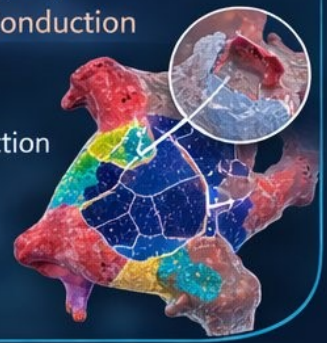
Isthmus Formation & Reentry

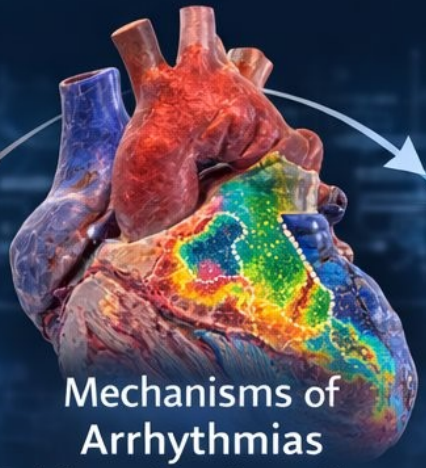
- Source–sink mismatch
- Lateral block boundaries
- Electrogram instability
- Sinus rhythm signatures

Atrial Tachycardia (AT)

Bottlenecks & Slow Conduction

- Low voltage core
- Uniform slow conduction
- Predictive targets
- Ablation guidance





Mechanisms of Arrhythmias

Modeling → Mapping → Therapy

Atrial Fibrillation (AF)

Rotors, Fibrosis & Reentry

- Dispersion of refractoriness
- Fibrosis-driven rotors
- Wavefront drivers
- Circuit mechanisms

Celiac Disease Research

Inflammation & Symptom Onset

- Inflammatory load
- Biomarkers & onset
- Quantitative models
- Translational insights

Data Acquisition → Mathematical Modeling → Computational Analysis → Clinical Translation

Integrating Biology, Physics, Imaging & AI to Improve Arrhythmia Diagnosis and Therapy

Open Science — Robust Models — Predictive Mapping — Better Outcomes