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A Specific, High-Affinity Inhibitor Of The Kv1.5 Channel To Suppress Atrial Fibrillation

Tech ID: 34650 / UC Case 2026-665-0

BRIEF DESCRIPTION

A novel high-affinity peptide selectively inhibits the human Kv1.5 channel to safely treat and prevent atrial fibrillation by targeting atrial electrophysiology.

FULL DESCRIPTION

This innovative therapy involves a peptide inhibitor, CmTx, designed to specifically block the human Kv1.5 potassium channel uniquely expressed in atrial myocardium. Unlike current invasive and less selective treatments, this peptide selectively modulates atrial electrophysiology without affecting ventricular function, thus minimizing systemic and ventricular toxicity. This peptide-based approach offers a novel, mechanistically targeted, and non-invasive pharmacotherapy alternative to standard treatments.

SUGGESTED USES

- » Treatment and prevention of atrial fibrillation and other atrial tachyarrhythmias.
- » Pharmaceutical development of peptide-based cardioselective antiarrhythmic drugs.
- » Non-invasive alternatives to invasive catheter ablation procedures.
- » Prophylactic management of high-risk cardiovascular patients.
- » Cardiac electrophysiology and rhythm control therapies in clinical cardiology.

ADVANTAGES

- » High specificity and nanomolar affinity for the atria-specific Kv1.5 channel.
- » Minimizes systemic and ventricular toxicity compared to current antiarrhythmic drugs.
- » Non-invasive pharmacological alternative to catheter ablation.
- » Prolongs atrial action potential duration to stabilize cardiac rhythm.
- » Novel peptide design overcoming previous electrostatic barriers for ion channel inhibition.
- » Potential for multiple administration routes: intravenous, subcutaneous, or targeted cardiac delivery.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- » **Materials & Chemicals**
 - » Biological
- » **Medical**
 - » Disease: Cardiovascular and Circulatory System
 - » Rehabilitation
 - » Therapeutics

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