



A Proof-of-Concept Study of Targeting on Cardiac Sodium

Channel Using

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Experience:

1. **Electrophysiologist and interventional cardiologist, Cardiovascular Center, National Taiwan University Hospital**
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An interesting **photo** related to your technology (be careful not to disclose key technology)

Market Needs:

Pharmacological treatment for atrial fibrillation (AF) is not satisfactory. Class I and III anti-arrhythmic drugs (AADs) for rhythm control may predispose to sudden death. Rate control agents such as beta blocker and verapamil can cause myocardial suppression and digoxin is also proarrhythmic. Antibody-based target therapy has become a powerful treatment for cancers and its use in the treatment of cardiac arrhythmia or AF has never been reported. We provide the feasibility of targeting on cardiac sodium Nav1.5 channel using polyclonal antibodies to treat atrial arrhythmia which meets substantial market needs.

Our Technology:

Peptides with the sequence around the Nav1.5 pore forming region (KNYSELRRHRISDSG) were synthesized and used as the immunogen to generate polyclonal antibodies in rabbits that bound to the pore-forming region of sodium channel and blocked sodium entry.

Strength:

Western blot showed that our generated Nav1.5 polyclonal antibodies bound to native sodium channel from cardiomyocytes. Systemic administration of Nav1.5 antibody also significantly prolonged atrioventricular conduction and induced atrioventricular block. Pretreatment of Nav1.5 polyclonal antibodies prevented asphyxia-induced atrial arrhythmia and prolonged atrial and ventricular intervals. We first provide the concept of targeting on cardiac sodium channel using polyclonal antibodies as a potential strategy to prevent and treat atrial arrhythmia and may also prolong atrioventricular conduction during rapid atrial arrhythmia.

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Competing Products:

Nil

Intellectual Properties:

1. Antibody binding to peptide with the sequence around the Nav1.5 pore forming region (KNYSELRHRISDSG) can block sodium entry via the cardiac sodium channel.
2. Antibody binding to peptide with the sequence around the Nav1.5 pore forming region (KNYSELRHRISDSG) can block sodium entry via the cardiac sodium channel and prevents atrial arrhythmia and prolongs atrioventricular conduction

Contact (do not need to fill out):

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