

25th Annual Congress on

Cardiology and Medical Interventions

July 16-17, 2018 | Atlanta, Georgia, USA

Kv4.3 modulates the distribution of hERG

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This study examines the interaction between hERG and Kv4.3. The functional interaction between hERG and Kv4.3, expressed in a heterologous cell line, was studied using patch clamp techniques, western blot, immunofluorescence and co-immunoprecipitation. Co-expression of Kv4.3 with hERG increased hERG current density (tail current after a step to +10 mV: 26 ± 3 versus 56 ± 7 pA/pF, $p < 0.01$). Kv4.3 co-expression also increased the protein expression and promoted the membrane localization of hERG. Western blot showed Kv4.3 increased hERG expression by Hsp70. hERG and Kv4.3 co-localized and co-immunoprecipitated in cultured 293T cells, indicating physical interactions between hERG and Kv4.3 proteins in vitro. In addition, Hsp70 interacted with hERG and Kv4.3 respectively, and formed complexes with hERG and Kv4.3. The α subunit of Ito Kv4.3 can interact with and modify the localization of the α subunit of IKr hERG, thus providing potentially novel insights into the molecular mechanism of the malignant ventricular arrhythmia in heart failure.

Biography

Kunlun He is the Vice President of Chinese PLA General Hospital and his main Research Direction is Heart Disease. He has published more than 126 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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