

## FUNCTIONAL REGULATION OF BK CHANNEL DEPENDED ON AKAP SIGNALING CASCADE IN DIABETES MELLITUS

**Dai-Min Zhang, Shao-liang Chen, Yan-Rong Zhu, Peng Ye**

Nanjing First Hospital, Nanjing Medical University, China

**D**iabetes mellitus is a chronic disease which seriously endangers human health. The incidence of the adults with diabetes is as high as 8%. It has become an important risk factor of acute myocardial infarction. Large conductance calcium activated big potassium channel (BK Channel) was active by intracellular  $Ca^{2+}$  and expanded blood vessel. Therefore, it is of great significance to study the underlying mechanism of BK channel in diabetic coronary artery. A kinase anchoring protein 150 (AKAP150) plays an important role in targeting and regulating PKA mediated phosphorylation, cell functions, and signaling transduction. The dysfunction of BK channel leads to coronary artery contraction, so the abnormal signal transduction between AKAP150 and BK channels may be an important reason for the occurrence of myocardial infarction. In this study, we investigated the signal function of KAP150-BK channel and its regulation effect on coronary artery tension in diabetic mellitus by using patch clamp techniques and molecular biology. Our results indicated that the expression of BK- $\beta$  decreased while the expression of BK- $\alpha$  did not change significantly in diabetic state. In AKAP knockout animal model with diabetic state, BK channel current has no obvious damage. In conclusion, the impaired function of BK channel in diabetic vessels depends on the downregulation of BK- $\beta$  subunits mediated by AKAP. These results are of great theoretical significance and practical value for guiding the screening of new targets for the treatment of coronary artery disease.

### Biography

Dai-Min Zhang has completed his MD in 1994 and went on to earn his PhD in Biophysics and Cardiac Physiology from Suzhou University. He completed his Post-doctoral training at Mayo Clinic (in Cardiovascular Diseases) and at UC Davis (in Cardiology, Physiology and Membrane Biology). His research is to understand the functional regulation of ion channels in the cardiovascular system. Currently, he is an interventional Cardiology Physician in the Department of Cardiology of Nanjing First Hospital, affiliated to Nanjing Medical University, China.

daiminzh@126.com