Dr. Elaine Wan

The proposed K08 Mentored Career Development Award will enable me to develop into an established and independent researcher with expertise on the role of vascular ion channels in heart failure and other cardiovascular diseases associated with vascular dysfunction, such as hypertension and diabetes. I have previously published the finding that resistance vessels in heart failure undergo electrical remodeling of the vasculature; specifically, the vascular smooth muscle (VSM) cell membrane potential is depolarized, cytosolic [Ca2+] is elevated, and the expression and activity of vascular large conductance, Ca2+ activated potassium channels (BK channels) are markedly reduced compared to mice without heart failure. I plan to elucidate the ion channels responsible for this vascular dysfunction. The central hypothesis of this application is that abnormal vascular ion channel activity may be one of the molecular mechanisms that causes vascular dysfunction. I plan to use data and skills acquired during this award to develop new therapies to treat heart failure and vascular disease.