

Distinguished Lecture Series in Physiology

Department of Physiology & Membrane Biology
University of California Davis



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Multitasking voltage-sensing domains as proton channels

Biological processes as diverse as neuronal signaling, muscle contraction, the immune response, and the heart beat depend on the proper function of proteins containing voltage-sensing domains (VSDs). In recent years, our view on these domains has changed dramatically. Once regarded as simple modulators of pore domains in voltage-gated sodium, potassium, and calcium channels, they are now recognized as structural units that perform different tasks in different proteins, as they control the activity of enzymatic domains in voltage-sensitive phosphatases, act as gated pores in voltage-gated proton channels, and sense chemical signals in thermosensitive TRP channels. VSD malfunction, or misregulation, is the cause of neurological disorders, cardiac arrhythmias, and cancer. In this talk I will focus on the structure and function of the voltage-gated proton channel Hv1 as a model for ion permeable VSDs.

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Genome and Biomedical Sciences Facility, Auditorium 1005

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