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**C6****Measuring of Na<sup>+</sup>-Ca<sup>2+</sup> Exchange Current in Cerebellar Purkinje Cells**Chung-Hyun Cho\*, Daejong Jeon<sup>1</sup>, Hee-Sup Shin<sup>1</sup>, and Chin O. Lee\*Department of Life Science, Division of Molecular and Life Science, Pohang University of Science and Technology; <sup>1</sup>National CRI Center for Calcium and Learning, Korea Institute of Science and Technology

The Na<sup>+</sup>-Ca<sup>2+</sup> exchanger (NCX) is known to play a critical role in the regulation of intracellular Ca<sup>2+</sup> in many tissues and cells. Three isoforms have been cloned (NCX1, NCX2, NCX3). Among the isoforms, NCX2 and NCX3 are expressed at high levels in brain and in a few other tissues. But the differential properties of the isoforms are not yet clearly established. In present study, we aimed to measure NCX2 current in cerebellar purkinje cells by using NCX2 knockout mice. To quantify the activity change of NCX2, whole cell currents in both mutant and wild-type cerebellar purkinje cells were measured. At a holding potential of 0mV, the inward current induced by abrupt replacement of extracellular Na<sup>+</sup> was reduced from  $-2.8 \pm 0.4$  pA/pF (n=5) in wild type to  $-1.7 \pm 0.2$  pA/pF (n=5) in mutant purkinje cells, a decrease of about 40%. This result suggests that NCX2 may be predominant in cerebellar purkinje neurons and play an important role in cerebellar purkinje cells.