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Physiological roles of Na⁺/HCO₃⁻ – Co-transporters in intracellular pH regulation

The solute carrier 4 family (SLC4), which includes the products of ten genes, plays critically important roles in the regulation of acid-base homeostasis. Among the ten SLC4 members, eight are well established HCO₃⁻ transporters, including three Na⁺-independent anion exchangers (AE1–AE3) and five Na⁺-coupled HCO₃⁻ transporters (NCBTs). The NCBTs consist of two electrogenic NBCe1 and NBCe2 as well as three electro neutral NBCn1, NBCn2, and NDCBE. NCBTs are broadly expressed in diverse tissues in the body. The pathological significance of the NCBTs has been well established with the demonstrated association of dysfunctions of NCBTs with a series of human diseases, such as severe metabolic acidosis, epilepsy, migraine, mental retardation, visual abnormalities, bone formation defects, breast cancer, cardiovascular diseases, etc. In the present talk, I will discuss the structure and function of NCBTs. I will also discuss the latest progress in our study about the physiological roles of NCBTs in the kidney.

Biography

Li-Ming Chen received his BSc (1997) and PhD (2002) from Peking University. He then received his Postdoctoral training at Yale University under the mentorship of Dr. Walter F Boron. He obtained his first faculty position at the level of Instructor at Case Western Reserve University in 2008 and currently holds a faculty position at the level of Associate Professor at Huazhong University of Science & Technology in China. He has published a series of papers in top-tier journals, including PNAS, *Journal of Physiology*, *Biology of Reproduction*, *FASEB J*, *Am J Physiol*, *Neuroscience*, *Genomics*, *PLOS ONE*, etc.

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