

论著

低渗透诱导高分化鼻咽癌细胞CNE-1容积激活性氯电流

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摘要 目的: 研究细胞外低渗透诱导的高分化鼻咽癌细胞CNE-1的容积激活性氯电流。方法: 全细胞膜片钳记录氯电流, 通过应用氯通道阻断剂、离子置换和改变细胞容积方法研究该电流的特性。结果: 当细胞在等渗环境中背景电流微弱且稳定, 细胞外给予47%低渗刺激后电流迅速增大, 呈外向优势, 对阴离子通透性的大小为: I- > Br- > Cl- > 葡萄糖酸。氯通道阻断剂ATP和NPPB可逆性地抑制此电流, ATP的抑制作用在外向电流显著强于内向电流。此电流对细胞容积改变敏感, 细胞肿胀时被激活, 细胞发生皱缩时则被抑制。结论: 细胞外低渗透诱导CNE-1 细胞产生氯电流, 此电流对细胞容积的改变敏感, 在CNE-1细胞容积调节中起重要作用。

关键词 [鼻咽肿瘤](#); [CNE-1细胞](#); [氯化物通道](#); [膜片钳术](#)

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Volume-activated chloride currents in highly differentiated nasopharyngeal carcinoma CNE-1 cells

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Abstract

AIM: To characterize the induction of volume-activated chloride currents by extracellular hypotonic stress. METHODS: Whole cell recording was used to detect the Cl- currents. The properties of the currents were clarified by applying the blockers of chloride channel, substitution of anions and changing cell volume. RESULTS: Under isotonic conditions, background currents were tiny and stable. However, large currents were induced rapidly by perfusing the cells with 47% hypotonic solution. The currents showed weak outward rectification. The permeability sequence of the 4 anions was I- > Br- > Cl- > gluconate. Chloride channel blockers, NPPB and ATP, inhibited the currents reversibly. Moreover, the inhibition of ATP on the outward currents was stronger than that on the inward currents. The currents were sensitive to the changing of cell volume, which can be activated by cell swelling and be inhibited by cell shrinkage. CONCLUSION: Extracellular hypotonicity induces chloride currents, which are sensitive to the changing of cell volume and play an important role in cell volume regulation.

Key words [Nasopharyngeal neoplasms](#) [CNE-1 cells](#) [Chloride channels](#) [Patch-clamp techniques](#)

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