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Pages 26*a*–27*a*.

Abstract No. 70 was inadvertantly omitted and an earlier revision of Abstract No. 68 was incorrectly printed in its place. The correct Abstract No. 70 reads as follows:

70. Apical I_{sK} (min K) Channels Carry Transepithelial K^+ Current in Strial Marginal Cell Epithelium of the Inner Ear DANIEL C. MARCUS,* ZHIJUN SHEN,* HIROSHI SUNOSE,* TOSHIHIKO CHIBA,* and PHILINE WANGEMANN,‡ **Biophysics and ‡Cell Physiology Laboratories, Boys Town National Research Hospital, Omaha, Nebraska*

Stria vascularis and vestibular dark cells are known to secrete K^+ by electrogenic transport sensitive to loop-diuretics such as bumetanide. A K^+ selective electrodiffusive pathway in the apical membrane of strial marginal cells and vestibular dark cells has been described which activates slowly upon membrane depolarization and which has been suggested to be due to the presence of I_{sK} channels. It was therefore of interest to more fully characterize this conductive pathway and determine its contribution to electrogenic K^+ transport. Both on-cell macro-patch and perforated-patch whole-cell recordings were made on gerbil strial marginal cells in order to measure macroscopic cell currents. Under normally transporting conditions (on-cell configuration) the macroscopic voltage-activated apical current was found to be K^+-selective, to have a cation permeability sequence of $K^+ \sim Rb^+ > Cs^+ >> Li^+ = Na^+$, activated with a time constant of 1764 ± 413 ms at +40 mV, deactivated with a time constant of 324 ± 57 ms (n = 14) at −40 mV, and to be inhibited 84 ± 5% (n = 5) by bumetanide (10^{-5} M). The current was clearly carried by Rb^+, in contrast to the maxi-K^+ channel earlier found in low density in the same membrane. On-cell and whole-cell recordings of this current were found to be *stimulated* by the putative I_{sK} channel "blocker" clofilium (10^{-4} M), but this apparently anomalous effect was shown to be specific for marginal cells from gerbil. By contrast, clofilium inhibited the same currents in rat marginal cells as has been shown for rodent I_{sK} channels expressed in *Xenopus* oocytes. The more potent inhibitor of I_{sK} channels, chromanol 293B, inhibited the currents in gerbil marginal cells. The single-channel conductance was estimated by steady-state fluctuation analysis of the apical currents in the homologous dark cell epithelium to be 1.6 pS. Taken together with previous findings, these results establish the slowly activating, voltage-dependent conductance in the apical membrane of strial marginal cells as the I_{sK} channel. (Supported by NIH grant 5R01-DC000212.)