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[\[PDF \(977K\)\]](#) [\[References\]](#)**Involvement of cytoskeletal integrity in the regulation of Cl⁻ and amylase secretion from rat parotid acinar cells**Hiroyasu KONGO¹⁾, Chikara HIRONO¹⁾, Makoto SUGITA¹⁾, Yoshiko Iwasa¹⁾ and Yoshiki SHIBA¹⁾

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ABSTRACT

The cytoskeleton serves as a signal modulator for Ca²⁺ and cAMP-regulated cell functions including the secretion of ions and granule contents. The interaction between Ca²⁺ and cAMP signaling systems potentiates amylase secretion and suppresses Cl⁻ secretion in the parotid glands. In this study, we investigated the role of the cytoskeleton in the modulation of Cl⁻ and amylase secretion from rat parotid acinar cells upon activation of each intracellular signaling system and their interaction. Cytochalasin D markedly inhibited the Ca²⁺-activated outwardly rectifying Cl⁻ current at positive membrane potentials and carbachol (CCh)-induced Cl⁻ currents in the whole-cell configuration at -80 mV, whereas colchicine enhanced Cl⁻ currents. Cytochalasin D, but not colchicine, markedly inhibited CCh-induced Cl⁻ secretion. Synergistic actions of CCh and forskolin on Cl⁻ and amylase secretion were observed even in the presence of cytochalasin D. These results suggest that the synergistic effects of Ca²⁺ and cAMP signaling systems on amylase and Cl⁻ secretion do not require actin filament integrity but that secretion by the two signals themselves does require actin filament integrity.

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