



Functional chromaffin cell plasticity in response to stress: focus on nicotinic, gap junction, and voltage-gated Ca(2+) channels

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Auteur	Guérineau, Nathalie C [1], Desarmenien, M. G [2], Carabelli, V. [3], Carbone, E. [4]
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Résumé en anglais	<p>An increase in circulating catecholamines constitutes one of the mechanisms whereby human body responds to stress. In response to chronic stressful situations, the adrenal medullary tissue exhibits crucial morphological and functional changes that are consistent with an improvement of chromaffin cell stimulus-secretion coupling efficiency. Stimulus-secretion coupling encompasses multiple intracellular (chromaffin cell excitability, Ca(2+) signaling, exocytosis, endocytosis) and intercellular pathways (splanchnic nerve-mediated synaptic transmission, paracrine and endocrine communication, gap junctional coupling), each of them being potentially subjected to functional remodeling upon stress. This review focuses on three chromaffin cell incontrovertible actors, the cholinergic nicotinic receptors and the voltage-dependent T-type Ca(2+) channels that are directly involved in Ca(2+)-dependent events controlling catecholamine secretion and electrical activity, and the gap junctional communication involved in the modulation of catecholamine secretion. We show here that these three actors react differently to various stressors, sometimes independently, sometimes in concert or in opposition.</p>
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