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A novel plasma membrane regulator of Calcium homeostasis in yeasts

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H omologous to the vertebrate solute carrier SLC10A7, Rch1 is a novel regulator of *calcium homeostasis* in the plasma membrane of the budding yeast *Saccharomyces cerevisiae* and the human yeast pathogen Candida albicans. ScRCH1 is a functional homolog of CaRCH1. ScRch1 and CaRch1 negatively regulate the calcium uptake in response to high levels of extracellular calcium in *S. cerevisiae* and *C. albicans*, respectively. However, CaRch1 is constitutively expressed, while *ScRch1* is induced by a high level of calcium ions. Transcriptional expression of ScRCH1 is positively regulated by calcium/calcineurin signaling through the sole CDRE element in its promoter. Furthermore, distribution of ScRch1 proteins in the plasma membrane changes in a dynamic way, from multiple foci prior to cell division, accumulation at the bud neck during bud growth, and dispersion along the plasma membrane immediately prior to cytokinesis. Rch1 is a novel member regulating calcium homeostasis in yeasts.

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