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## Calcimimetic acts on CaSR on enterocytes and enteric neurons to reverse cholera toxin-induced intestinal electrolyte secretion

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Treatment of acute secretory diarrheal illnesses remains a global challenge. Enterotoxins produce secretion through direct epithelial action and indirectly by activating Enteric Nervous System (ENS). The extracellular Calcium-Sensing Receptor (CaSR) is a unique G protein-coupled receptor that is activated by extracellular calcium, calcimimetics and other nutrients. Using a microperfused colonic crypt technique, we show that R568, a calcimimetic that activates CaSR, can act on intestinal epithelium and reverse cholera toxin-induced fluid secretion. Using the Ussing chamber technique in conjunction with a tissue-specific knockout approach, we show that the effects of cholera toxin and CaSR agonists on electrolyte secretion by the intestine can also be attributed to opposing actions of the toxin and CaSR on the activity of the ENS. Our results suggest that targeting intestinal CaSR might represent a previously undescribed new approach for treating secretory diarrheal diseases and other conditions with ENS over-activation.

## **Biography**

Sam X Cheng has completed his MD from Tongji Medical University, China, PhD from Karolinska Institute, Sweden and Postdoctoral studies from Yale University School of Medicine. He is an Assistant Professor of University of Florida, School of Medicine and has published more than 60 papers in reputed journals. His current research focuses on developing novel therapies for childhood diarrheal illnesses.

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