CONGENITAL SODIUM DIARRHEA
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Figure 1. Normally sodium ions (Na$^+$) move from the intestine to the blood in exchange for protons (H$^+$) via a protein in the membrane (left). This is one way that sodium content in the blood can be maintained as well as preventing the blood from accumulating to much acid. In congenital sodium diarrhea, the sodium-proton exchange is defective (X) causing sodium ions to be trapped in the intestine and protons in the blood. The lowering of sodium in the blood (hyponatremia) can lead to severe reduction in blood pressure and loss of fluid as the body tries to maintain the sodium ion concentration. Large amounts of fluid is lost to the intestine leading to life-threatening watery diarrhea. The excess protons in the blood leads to profound metabolic acidosis that can alter enzyme activities and decrease the flux of metabolic pathways thus disrupting energy metabolism.