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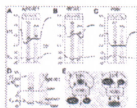
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## Abstract

## Keywords

1. Introduction
  2. Materials and methods
  3. Results
  4. Discussion
  5. Specific contributions of authors
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## Figures and tables



## Slc4-like anion transporters of the larval mosquito alimentary canal

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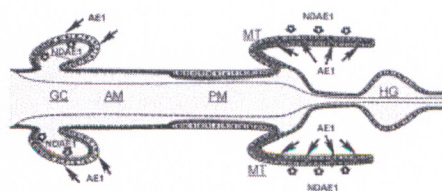
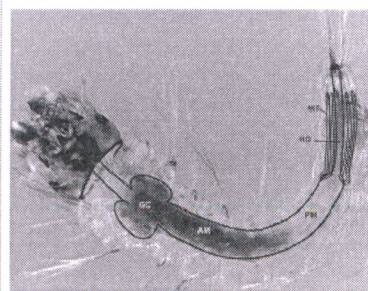
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## Abstract

Mosquito larvae exhibit luminal pH extremes along the axial length of their alimentary canal that range from very alkaline (pH > 10) in the anterior midgut to slightly acid in the hindgut. The principal buffer in the system is thought to be bicarbonate and/or carbonate, because the lumen is known to contain high levels of bicarbonate/carbonate and is surrounded by various epithelial cell types which express a variety of carbonic anhydrases. However, the precise mechanisms responsible for the transport of bicarbonate/carbonate into and out of the lumen are unclear. In the present study, we test the hypothesis that SLC4-like anion transporters play a role in bicarbonate/carbonate accumulation in the larval mosquito alimentary canal. Molecular, physiological and immunohistochemical characterizations of Slc4-like transporters in the gut of larval mosquitoes (*Aedes aegypti* and *Anopheles gambiae*) demonstrate the presence of both a Na<sup>+</sup>-independent chloride/bicarbonate anion exchanger (AE) as well as a Na<sup>+</sup>-dependent anion exchanger (NDAE). Notably, immunolocalization experiments in Malpighian tubules show that the two proteins can be located in the same tissue, but to different cell types. Immunolabeling experiments in the gastric caecae show that the two proteins can be found in the same cells, but on opposite sides (basal vs. apical). In summary, our results indicate that the alimentary canal of larval mosquitoes exhibits robust expression of two SLC4-like transporters in locations that are consistent with a role in the regulation of luminal pH. The precise physiological contributions of each transporter remain to be determined.

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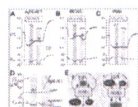
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## Keywords

Anion exchangers; Mosquito larvae; Alimentary canal; Malpighian tubule; Gastric caeca

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