Salty taste, one of the five taste qualities recognized in the mammalian peripheral gustatory system is thought to be mediated by an ion channel receptor. The epithelial sodium channel, ENaC, is thought to be the channel for salt taste transduction. ENaC is crucial in regulating salt reabsorption, helps control overall salt and water homeostasis in an organism, and contributes to blood pressure. While ENaC plays an important role in salt taste perception, it is responsible for only part of the total sodium transduction pathway in humans, suggesting that there may be another component in the salt transduction mechanism. We have been investigating a novel sodium-permeable channel involved in the resting leak permeability of Na⁺ that may contribute to salt transduction in the mammalian taste system. Understanding the salt taste transduction pathway in animals would improve our ability to diagnose and advise people who suffer from high blood pressure or heart disease.

To test for the role of this other channel in salt taste, both a behavioral assay to determine how it is involved in innate salt preference and a molecular biological approach to determine what type of taste cell this putative salt transduction channel is expressed in will be used.

**RESULTS**

**ABSTRACT**

There is another mechanism in salt taste reception; it is an amiloride-insensitive channel.

**HYPOTHESIS**

There is another mechanism in salt taste reception; it is an amiloride-insensitive channel.

**RESEARCH PLAN**

**48h Preference Tests**

1. First 24 hours
   - Water
   - NaCl
   - NaCl
   - Water

2. Second 24 hours
   - Water
   - NaCl+GdCl₃
   - NaCl+GdCl₃
   - Water

3. 75 mM NaCl
   - Water
   - NaCl+GdCl₃
   - NaCl+GdCl₃
   - Water

4. 10 µM gadolinium ion (novel channel inhibitor)
   - Water
   - NaCl+GdCl₃
   - NaCl+GdCl₃
   - Water

5. 30 µM amiloride ion (ENaC inhibitor)
   - Water
   - NaCl+GdCl₃+Amiloride
   - NaCl+GdCl₃+Amiloride
   - Water

**Molecular Assay**

It is believed that there are 3 types of taste cells. GFP labeled cells will be collected from transgenic mice and assayed for expression of ENaC and the novel sodium channel.

**PLCβ-2 GFP cells**

**REFERENCES**

