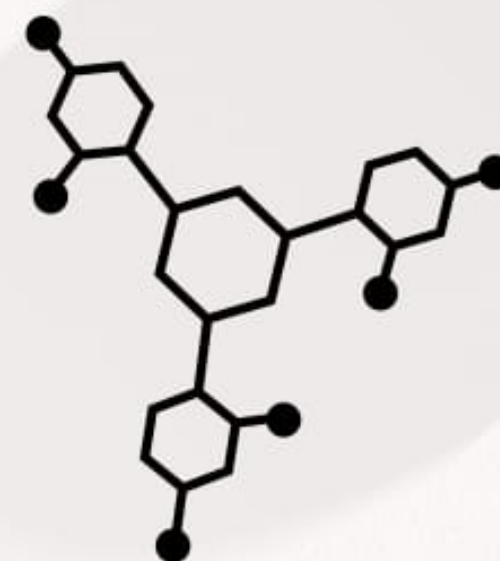

EXPERIENCES & CAREER INTERESTS



Zihan Ye



AGENDA

1. Self introduction
 2. Career exploration
 - Feminine Empower Movement (FEM)
 - Science Olympiad
 - Melder Lab
 3. Reflection
 4. Thank you + Questions
-





Zihan Ye

- Senior at Francis Lewis High School
- First generation immigrant college student & women in STEM
- Part of schools JROTC program
- New York University: Chemical & biomolecular engineering



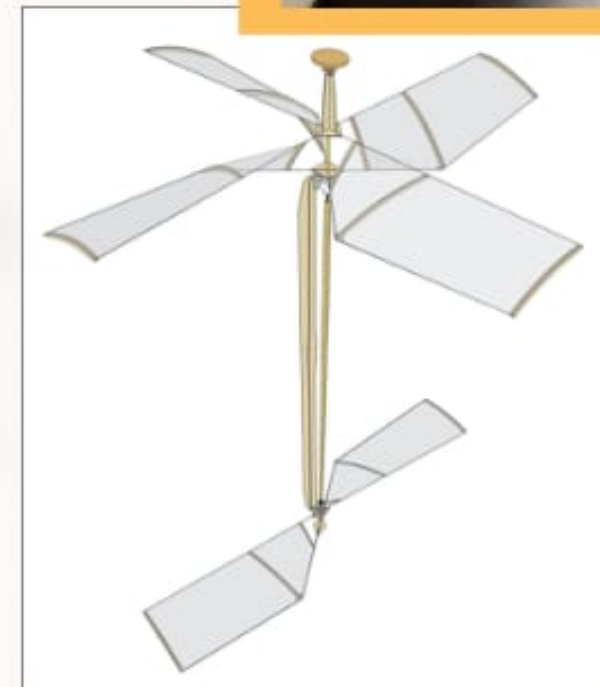
1. Feminine Empower Movement (FEM) - Founder/CEO



2. Science Olympiad - Inquiry Captain

Favorite event: Helicopter

- Optimization, research, & connections
- Discovered my love for experiential learning
- Medaled in Regionals



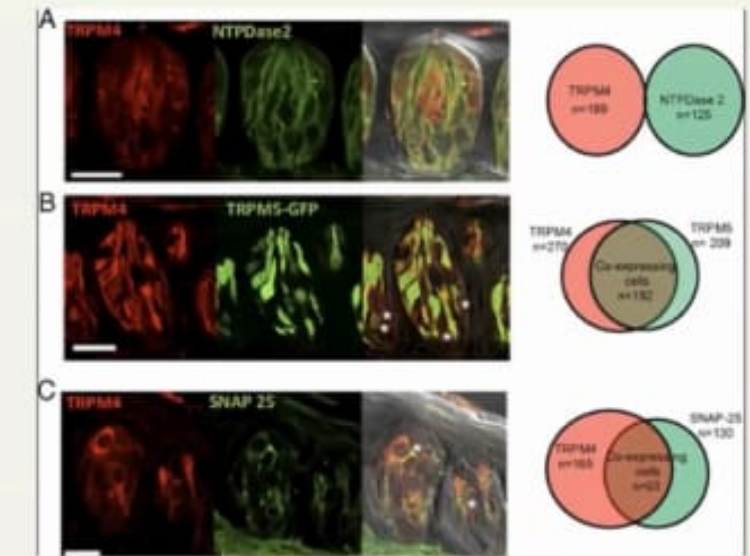
3. Melder Lab - Mentee

- Researched biomedical engineering on taste bud cells.
- Ability to show impact through hands on activities.
- Enhanced my writing and analytical skills.



TRPM4 and TRPM5 are both required for the normal detection of bitter, sweet and umami stimuli in taste receptor cells.

- 71% of TRPM4 cells also expressed TRPM5 cells tagged with Green Fluorescent Protein (GFP), and 92% of TRPM5-GFP cells expressed TRPM4.
- Mice with TRPM4/5-DKO did not react to taste stimuli.
- TRPM4 and TRPM5 work together to complete taste signal transduction through overlapping functions.



Dutta Banik, D., Martin, L.E., Freichel, M., Torregrossa, A.M. and Mueller, H.J. (2018) TRPM4 and TRPM5 are both required for the normal detection of bitter, sweet and umami stimuli in taste receptor cells. *PLoS*, doi: 10.1371/journal.pone.0198021. This paper was highlighted in multiple news outlets. I was also invited to write up this work in The Conversation and Baking Europe. I gave interviews to the Institute of Food Technologies and Food Processing Technology that resulted in publications in their magazines. This article was also written up for the Faculty of 1000 Prime.

Abstract

This study is a literature review based on the patterns and findings of previous research. Scholarly articles and studies were utilized from Google Scholar, ScienceDirect, and PubMed, focusing on the role of transient receptor potential melastatin subfamily member 4 (TRPM4) and transient receptor potential melastatin subfamily member 5 (TRPM5) in taste signal transduction. TRPM4 and TRPM5 are ion channels that are part of the transient receptor potential family (TRPM). Found in many different tissues, this study will focus only on the function they play in taste signaling.

Due to their high level of homology, showing a 40% similarity at the amino acid level, they have very similar functions, such as the ability to detect bitter, sweet, and umami taste stimuli. Because of this, there is not enough information on why both are needed for normal taste transduction. This study will focus on the similarities and differences of both components and how they play distinctive roles in taste signaling. A study by Banik, D.D., et al. (2018) showed the similarities of both components: calcium-activated, voltage-dependent, permeable to monovalent cations, but not permeable to calcium. However, it is suggested that they are related to different signaling pathways or cell structures that give them unique contributions to taste signaling.

REFLECTION

- Desire to improve community health and hygiene accessibility.
- Love experimental learning.
- Felt motivated solving problems I see firsthand.





Thank You
QUESTIONS?

