Autism Spectrum Disorder: genes -> neural networks -> behavior

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- Student:
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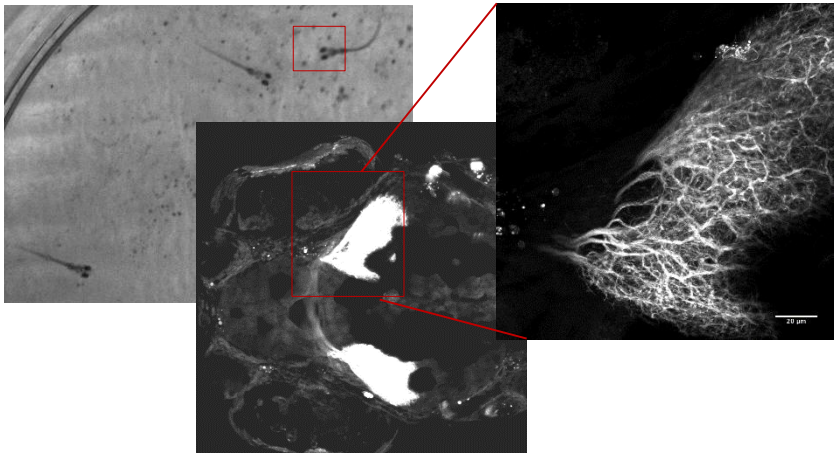


Goals:

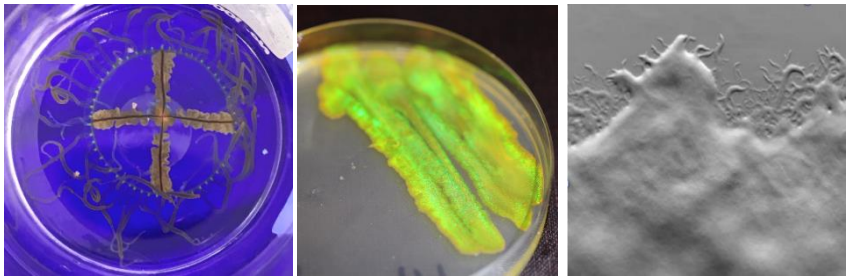
- Determine the impact of key gene mutations in Autism Spectrum Disorder (ASD) on neural circuits and behavior.
- Determine molecular pathways responsible for some forms of ASD.
- Elucidate strategies to restore synaptic health in ASD models.

Specific Research Aims:

- Determine the impact of blocking translation of PTEN protein on synapse number and developing neural circuits within the brain.
- Determine how PTEN impacts social cognition.
- Determine if restoring PTEN expression rescues behaviors of established neural circuits in ASD zebrafish models.

Iridescent marine *Tenacibaculum* from the Clinging Jellyfish

PI: Andrew Wier, Ph.D.
Student: Morgan Kelly

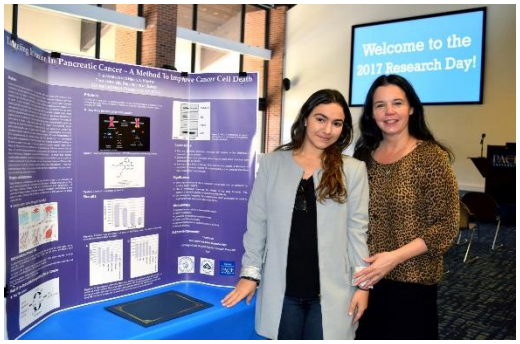


Goals:
To understand why specific bacteria colonize invertebrate hosts and the role of these epibiotic bacteria on their invertebrate hosts
Present research at 7th Beneficial Host Microbe Conference in Madison, Wisconsin

Research Foci:

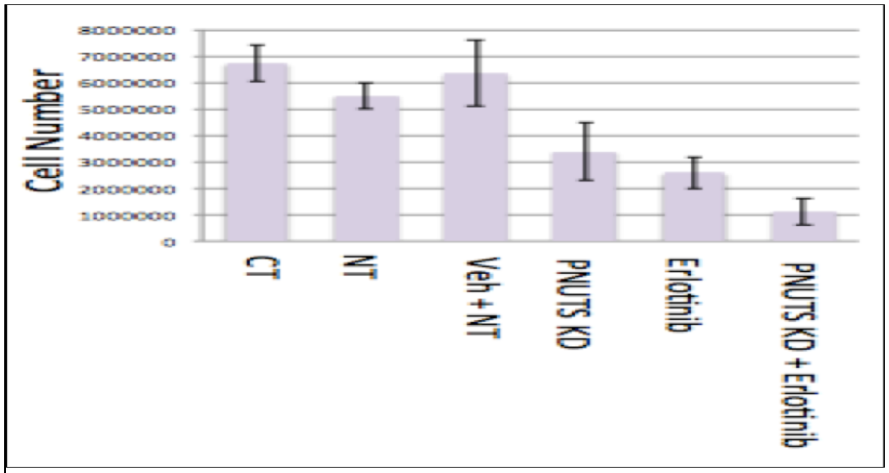
- What genes are involved in gliding motility and iridescence in *Tenaciaculum*?
- Do gliding motility and iridescence mutants prevent host colonization?

Targeting the RB tumor suppressor in pancreatic cancer

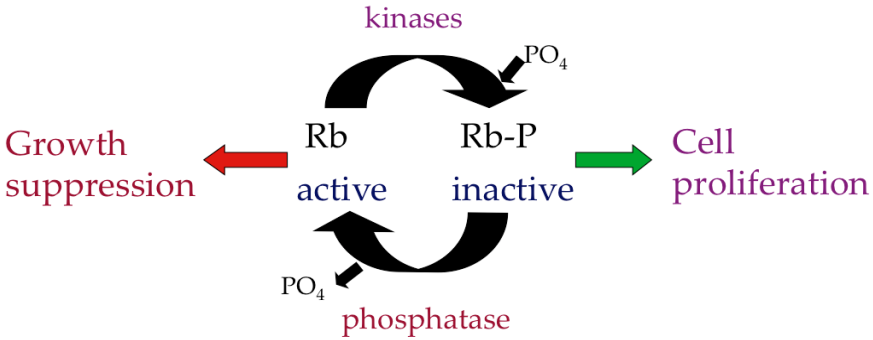


PI:
Nancy Krucher,
Biology, PLV

Students: Rita Abraham, Biology, 2017
Brixhilda Dedi, Biology, 2017



The RB tumor suppressor is inactivated by phosphorylation in most human cancer cells.



Using our previously developed method of siRNA mediated gene knockout to activate phosphatase toward the tumor suppressor gene, RB, we determined whether using this method could improve upon treatment with Erlotinib, a pancreatic cancer drug used clinically. As shown above, in Panc1 pancreatic cancer cells, combination treatment results in a greater reduction in cell number than either treatment alone or compared to controls.

Signaling Behavior of Treefrogs

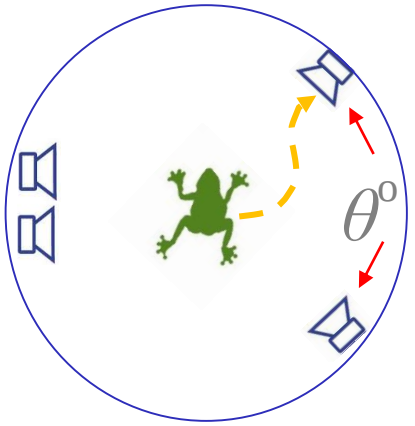
Participants

PI:
Dr. Joshua Schwartz – Pace University

Students:

Rebecca Kravtsov	**Morgan Troncone**
Diana Djurasevic	**Maddie May**
David Johnson	**Norman Sanchez**
Katherine Cordero	**Christina Elezaj**

– Pace University



Goals

Objective:
To understand how treefrogs successfully communicate under the extremely noisy and competitive conditions within choruses.

Funding: National Science Foundation, Scholarly Research & Kenan Awards

Research Foci

Idea #1

Changes in calling improve the ability of males to transmit critical structural features of calls to females.

Idea #2

Use of aggressive calls facilitates inter-male spacing and reduced call interference. However, use of aggressive signals may impose costs on males.

Idea #3

Males choose calling sites to help compensate for structural degradation of calls during transmission .

Idea #4

Vibrations created by calling can help females detect and localize males under noisy circumstances.