Bio

My expertise is in the areas of regeneration, evolution, the nervous system and cell biology. I use a marine colonial tunicate, Botryllus schlosseri, characterized by having robust regenerative capabilities and an assayable and frequent (weekly) CNS (Central nervous system) tissue regeneration and loss throughout adult life. I believe that comparative studies on a simple chordate can help us elucidate the principal mechanisms that are the foundation of regeneration and aging. I use a multidisciplinary methodology that integrates advanced single cell RNAseq, imaging, multi-parameter flow cytometric isolation of cellular populations and transplantation assays to elucidate the cellular and genetic changes associated with neuronal degeneration process in young and old colonies.

STANFORD ADVISORS

- Irving Weissman, Postdoctoral Faculty Sponsor
- Ayelet Voskoboynik, Postdoctoral Research Mentor

Research & Scholarship

LAB AFFILIATIONS

- Irving Weissman (9/1/2019)

Publications

PUBLICATIONS

- Sexual and asexual development: two distinct programs producing the same tunicate. Cell reports
  2021; 34 (4): 108681

- Stem Cells and Innate Immunity in Aquatic Invertebrates: Bridging Two Seemingly Disparate Disciplines for New Discoveries in Biology. Frontiers in immunology
  2021; 12: 688106

- Sixty years of experimental studies on the blastogenesis of the colonial tunicate Botryllus schlosseri DEVELOPMENTAL BIOLOGY
  2019; 448 (2): 293–308

- A Notch-regulated proliferative stem cell zone in the developing spinal cord is an ancestral vertebrate trait DEVELOPMENT
  Lara-Ramirez, R., Perez-Gonzalez, C., Anselmi, C., Patthey, C., Shimeld, S. M.
  2019; 146 (1)
• Differentiation and Induced Sensorial Alteration of the Coronal Organ in the Asexual Life of a Tunicate
  Manni, L., Anselmi, C., Burighel, P., Martini, M., Gasparini, F.
  OXFORD UNIV PRESS INC. 2018: 317–28

• High-precision morphology: bifocal 4D-microscopy enables the comparison of detailed cell lineages of two chordate species separated for more than 525 million years
  BMC BIOLOGY
  Stach, T., Anselmi, C.
  2015; 13: 113