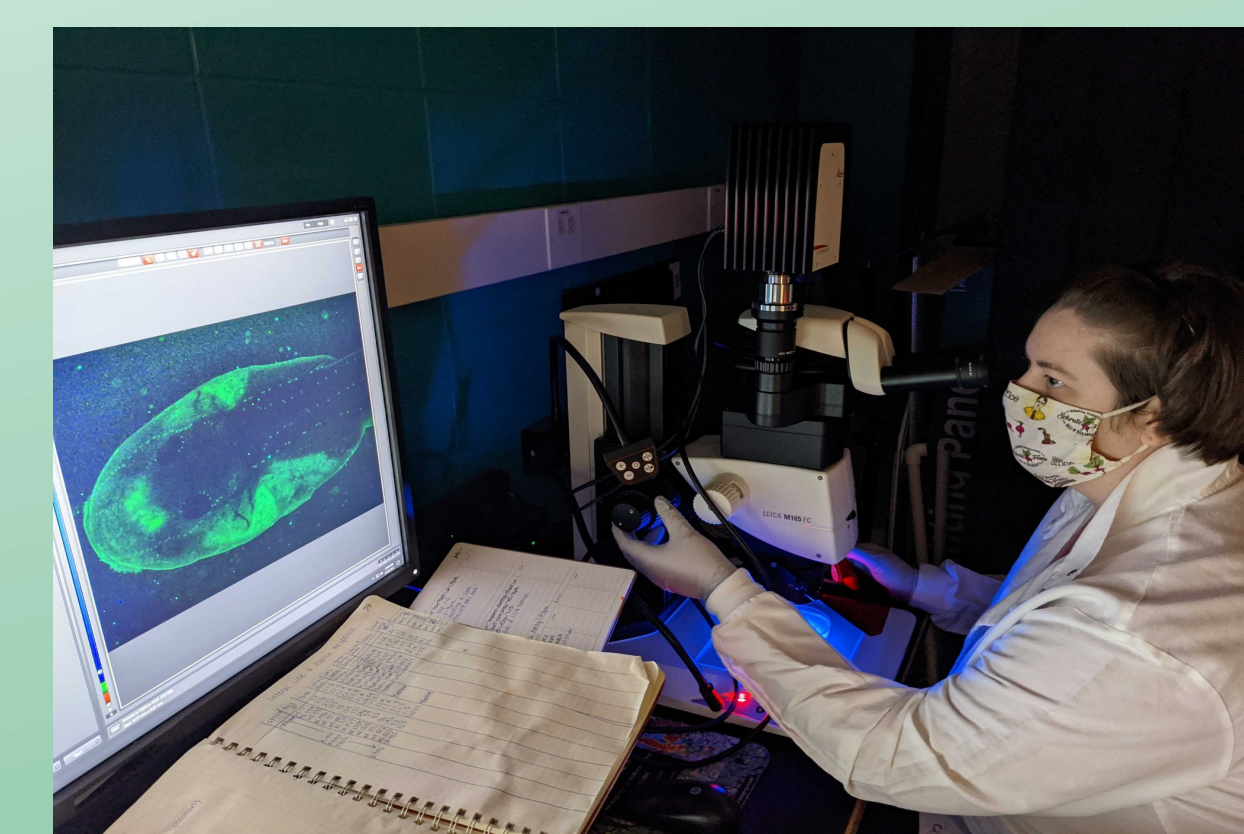


# Intra- and Interspecific Variation in Tadpole Lateral Line Cells

Sarah Porth,<sup>1</sup> Lisa Surber,<sup>2</sup> and Eva Fischer<sup>2</sup>

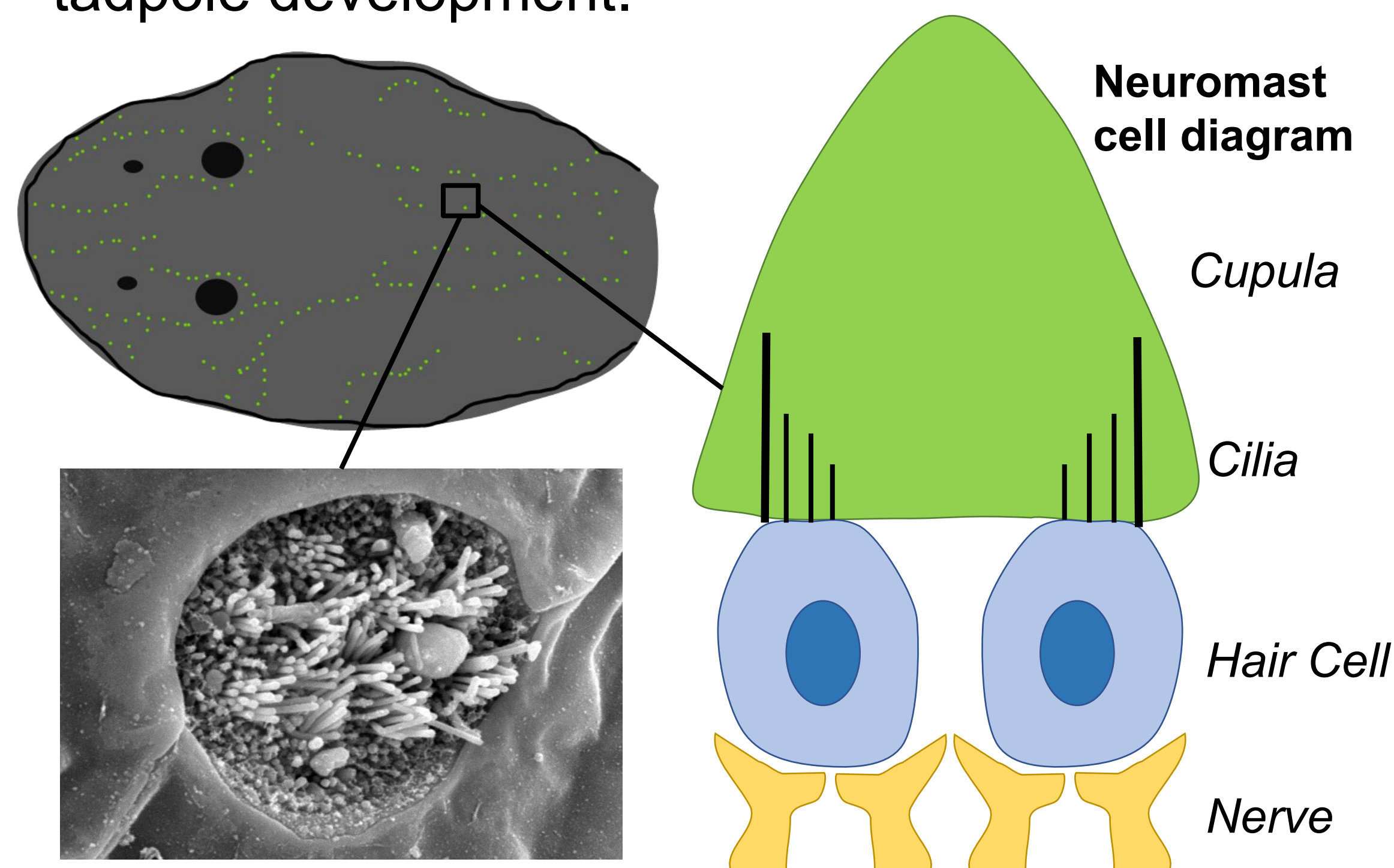
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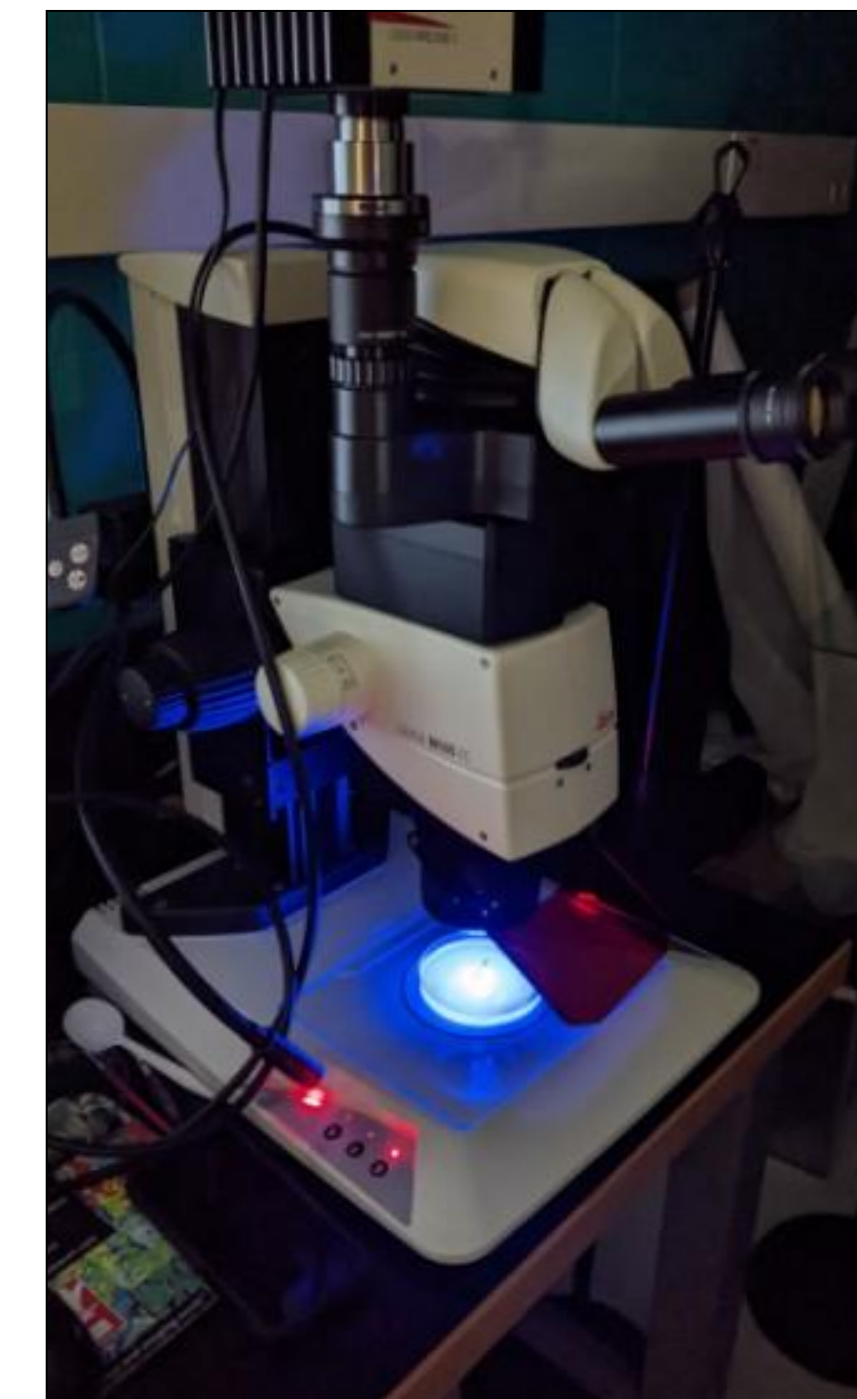
## Background

- The **lateral line** is a sensory system that detects motion and pressure in fish & larval amphibians.
- The sensory end organs are called **neuromasts**.
- A **gosner stage** describes the 46 stages of tadpole development.



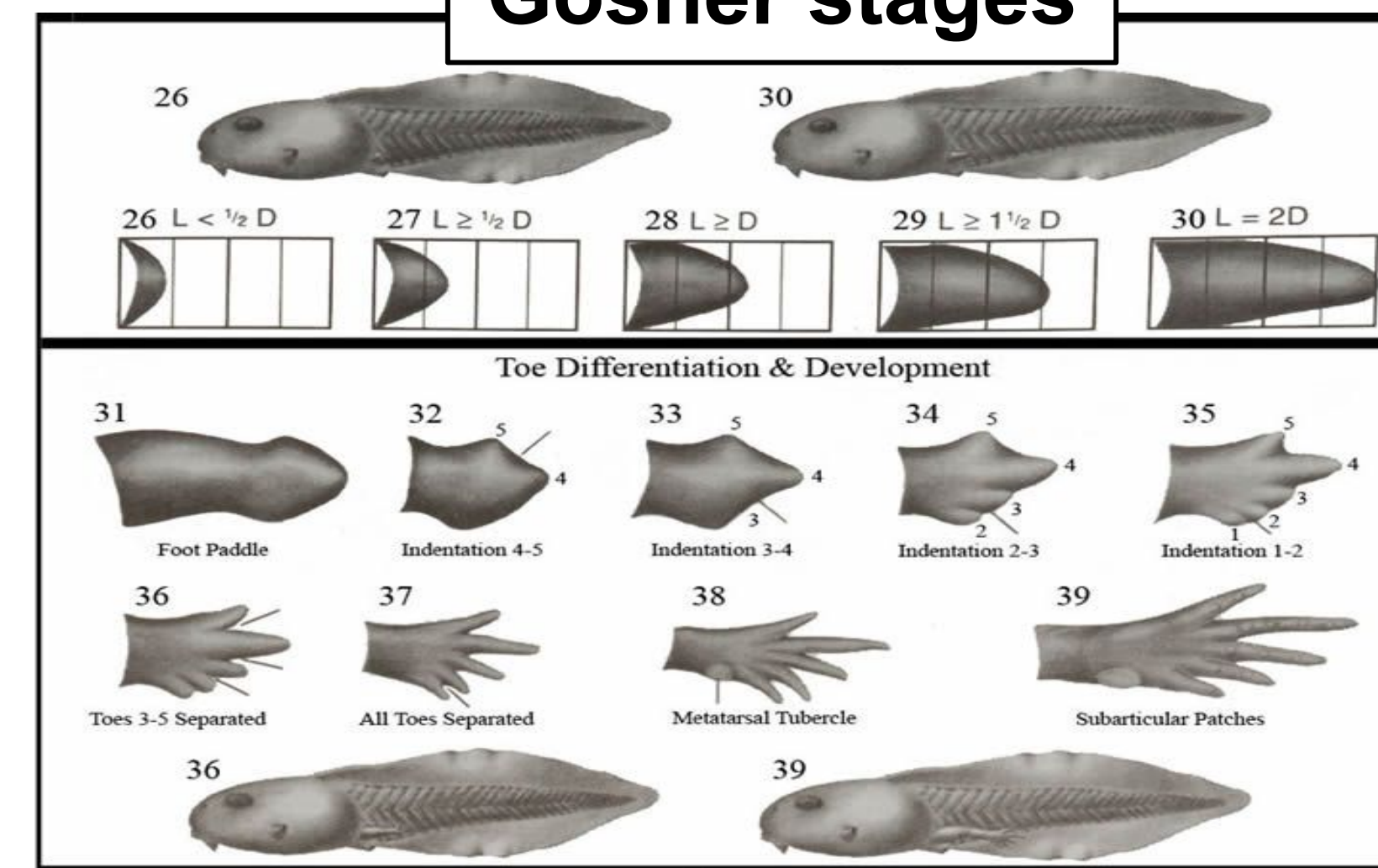
**Hypothesis:** We hypothesize that the number of neuromasts will vary more between species than within a species.

## Methods



1. DASPEI (staining dye)
2. Rinse in RO water
3. Anesthetize
4. Fluorescent stereomicroscope to capture images of neuromasts
5. Determine tadpole gosner stage
6. ImageJ to count number of cells

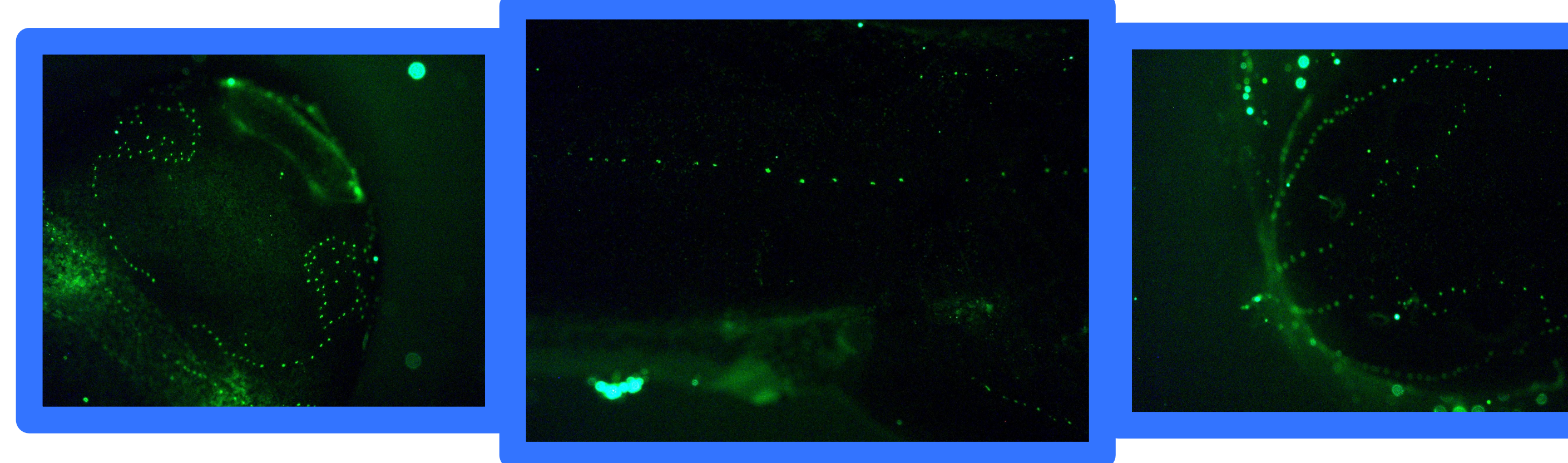
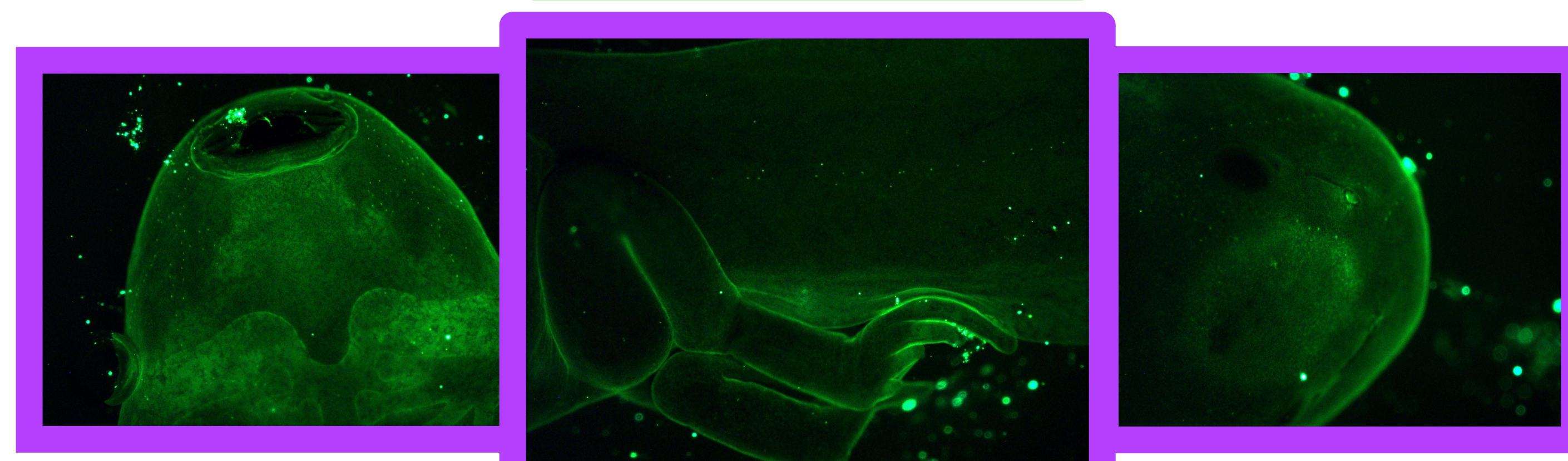
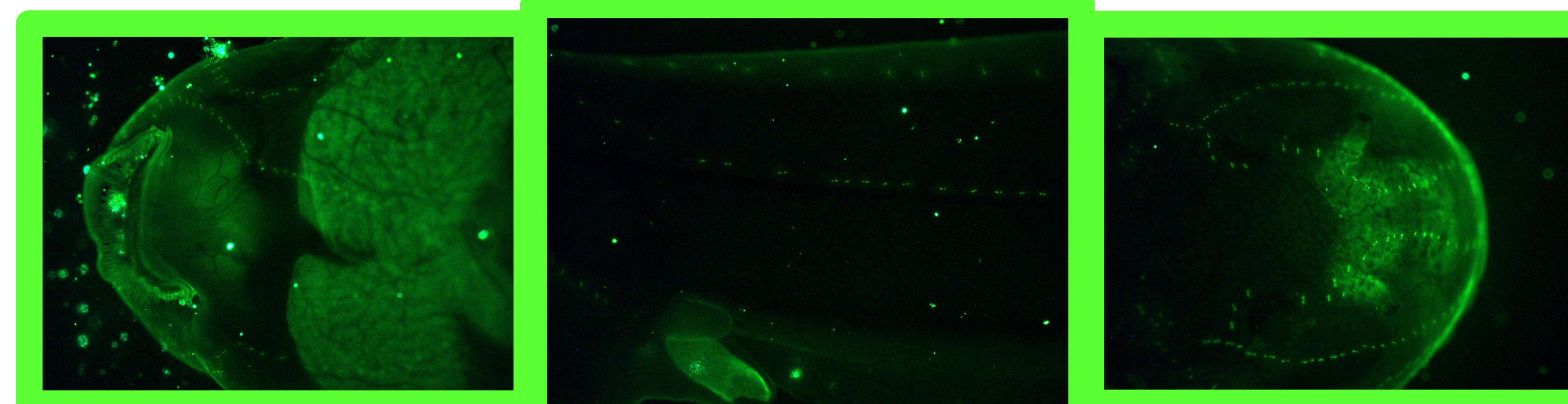
### Gosner stages



Ventral

Tail

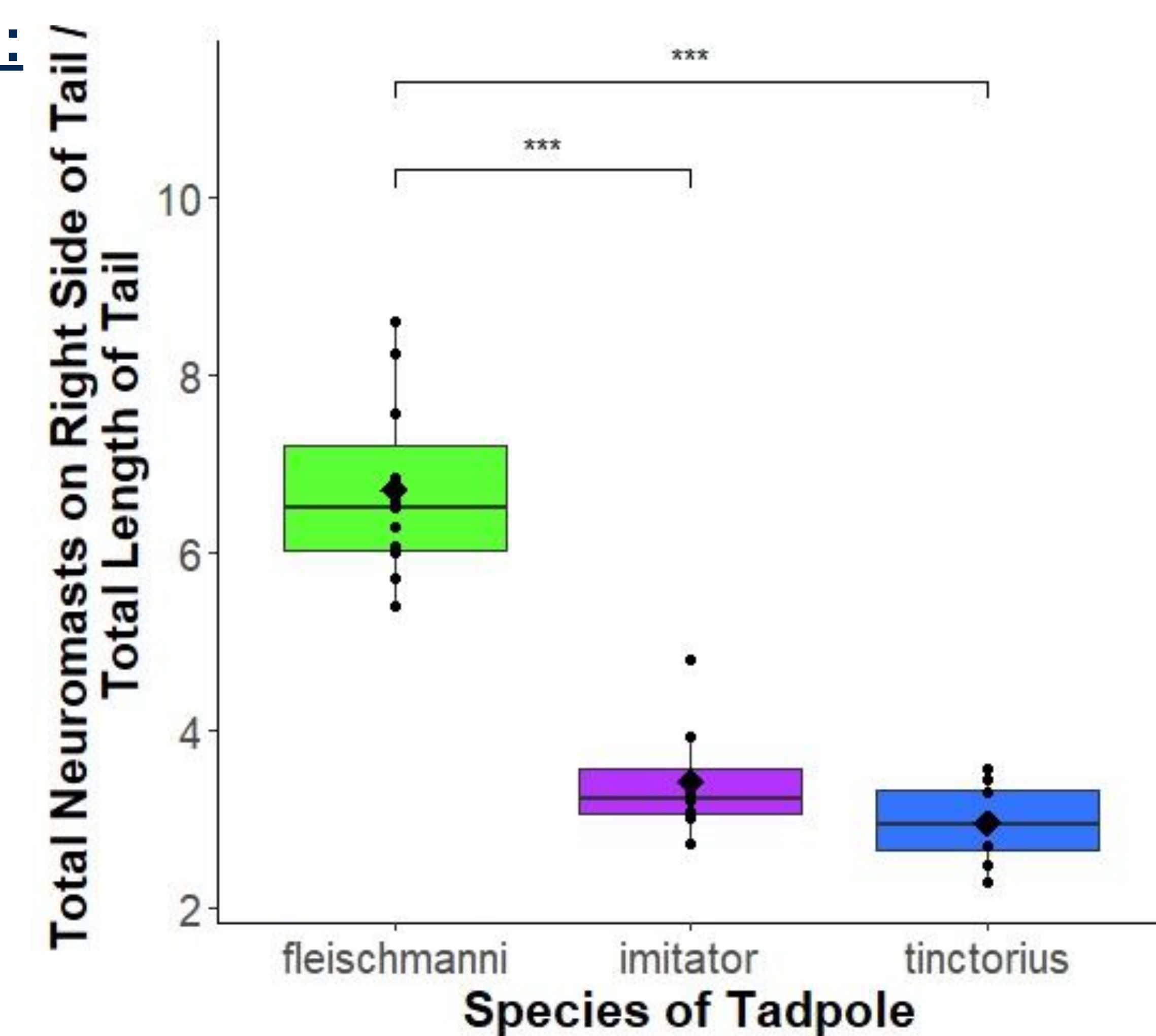
Dorsal



## Preliminary Results: Tail Neuromasts

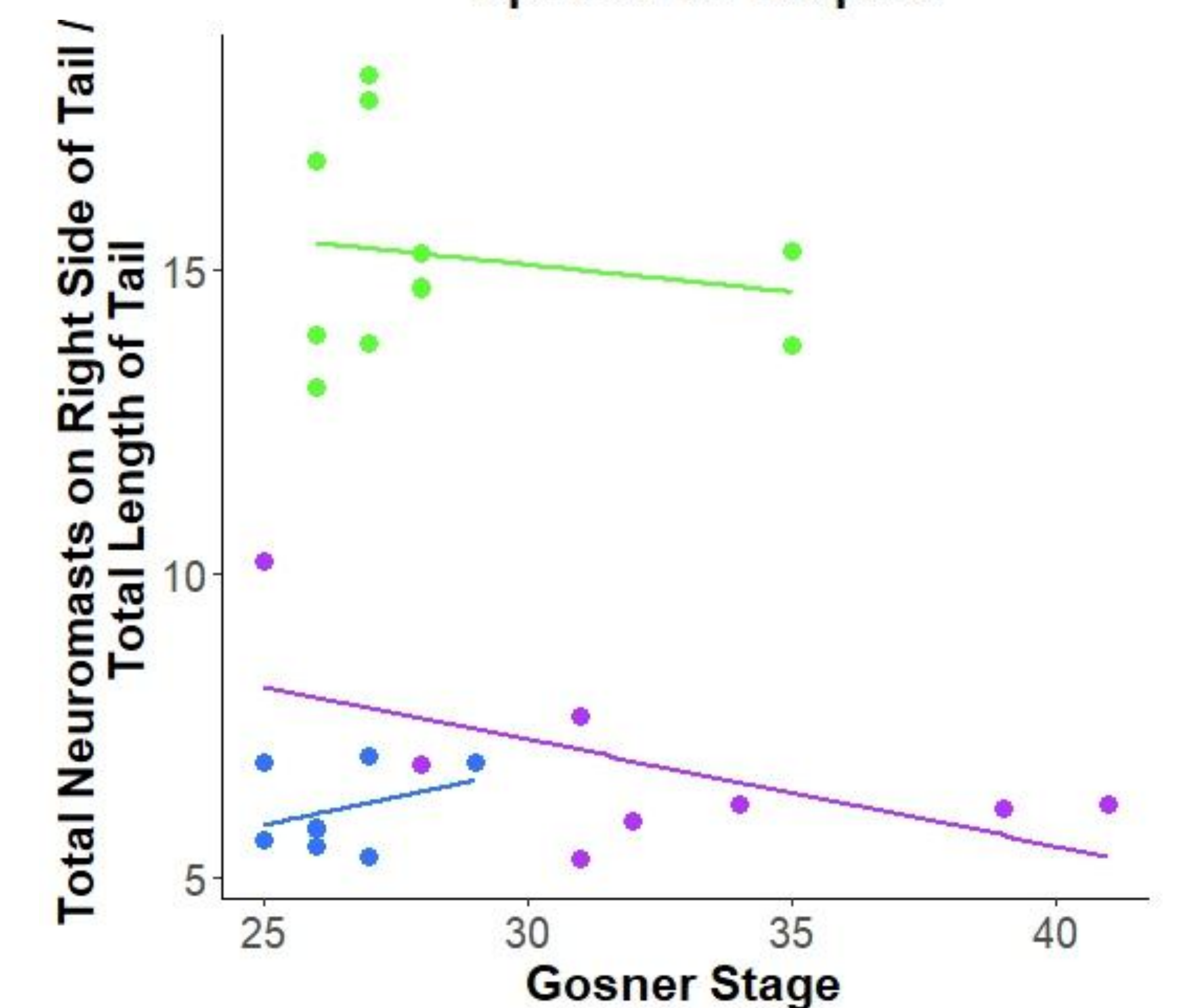
Glass frog tadpoles have more and a higher density of neuromasts compared to the poison frogs.

( $F_{2,24}=64.77, p<0.0001$ )



Density of neuromasts in the tail changes across development.

( $F_{1,2}=7.40, p<0.05$ )



## Future Work

- Dorsal & ventral neuromast analysis
- Later stage *D. tinctorius* & *H. fleischmanni* tadpoles
- Compare terrestrial species with fully-aquatic *Xenopus laevis* tadpoles
- Analyze if startle behavior is correlated with number of neuromasts

## Acknowledgments

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