



Universität
Basel

Research Project

Jane Coffin Childs Fellowship Award - Dr. Emily Bayer

Third-party funded project

Project title Jane Coffin Childs Fellowship Award - Dr. Emily Bayer

Principal Investigator(s) [Schier, Alexander](#) ;

Co-Investigator(s) [Bayer, Emily](#) ;

Organisation / Research unit

Departement Biozentrum / Cell and Developmental Biology (Schier)

Department

Project start 01.01.2021

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Status Completed

The neuronal regulation of internal organs has been historically considered to be 'self-contained' and autonomous. However, it is increasingly appreciated that brain-body communication modulates not just the target organs, but also the brain itself. I'm combining the incredible specificity of the *C. elegans* pharyngeal nervous system with a study of the less-described visceral innervation in zebrafish, a system still compact enough that it can be detailed comprehensively. In *C. elegans*, I am using inducible neuronal silencing of pharyngeal neurons in combination with behavioral assays for somatic neuron function to identify novel behavioral outputs modulated by internal sensation. In zebrafish, the genetic identities, modalities, and functions of visceral neurons (from both the vagus nerve and cranial sensory ganglia) are still largely undescribed. I have used scRNAseq approaches to collect transcriptomic data on these cell types in adult animals, and will complement this approach with spatial transcriptomics to resolve the anatomical organization of molecular cell types. This will allow me to examine what kinds of information are passed between organs and the CNS (based on the nature of sensory receptors expressed), and what the circuits responsible for this look like (based on the anatomical properties and signaling capabilities of the involved neuron types).

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