LILIANA ADAMO and CONOR W. SIPE, Dept. of Biology, Shepherd University, Shepherdstown, WV 25443. Uncontrolled neural stem cell proliferation affects larval survival during dietary nutrient withdrawal.

Regulated stem cell proliferation during development is critical to produce and organize all the cell types required in the adult organism. In some developing organisms that experience intermittent periods of starvation, stem cell physiology adapts dynamically, presumably to ensure optimal development. In the developing *Drosophila* brain, there are two populations of neuroblasts (neural stem cells) that respond differently to dietary nutrient starvation: one subtype is sensitive to systemic nutrient levels and ceases dividing, while the other continues to divide regardless of dietary nutrient availability. Previous work has shown that this behavior is mediated by a cell-intrinsic genetic program involving the *Eyeless* and *myc* transcription factors. We set out to understand whether arrest of neuroblast proliferation plays a role in larval survival during starvation. We forced all neuroblasts in the developing brain to continue to proliferate during dietary nutrient withdrawal by overexpressing *myc* and *Eyeless* and measured larval survival over time. Larvae with abnormal enforced neuroblast proliferation died at a faster rate than control larvae, suggesting that the arrest of neuroblast proliferation is critical for larval survival during periods of starvation. Our results are consistent with the idea that neuroblasts which arrest their proliferation are involved in reallocating nutrients to the other persistently dividing neuroblast subtype in a form of nervous system sparing.