Biology Seminar

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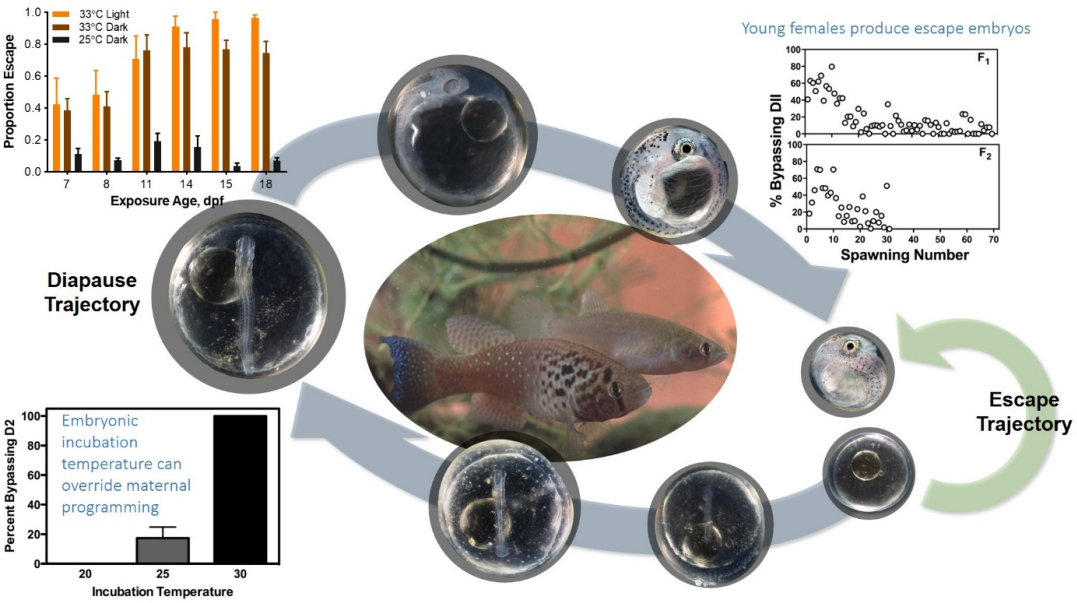
Vitamin D Signaling and the Regulation of Metabolic Dormancy in Animals

Annual killifishes survive in ephemeral ponds by producing drought-tolerant embryos that survive the dry season by entering into a state of metabolic dormancy known as diapause. Entrance into diapause is programmed by maternal cues and can be regulated by environmental factors experienced by the developing embryos. For example, exposure to light and elevated temperatures fuels active development or causes diapause to be terminated. We have recently discovered that vitamin D signaling regulates entrance into diapause in annual killifishes. This mechanism allows for environmental factors such as light and heat to directly alter the developmental program. Thus, vitamin D acts as an environmentally responsive hormone that can regulate the life history of annual killifishes. This pathway is homologous to hormonally regulated life history pathways in a variety of invertebrates and may represent an ancient mechanism for integrating environmental cues into the developmental program of animals.



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