

## ABSTRACT

On-going studies in the PI's laboratory employ various fish species as non-mammalian, vertebrate models for studying various aspects of human health and disease. The first of two current projects is exploring how heat can induce cell cycle arrest in fish liver cells, with the goal of understanding the role that heat might play in human cancer therapy. The second project is focused on the effect that heating males prior to fertilization has on embryonic development and birth defects in the offspring. It has been shown in humans that paternal heat stress, such as the use of spas or hot tubs, prior to conception is a risk factor for the second most common form of childhood brain tumor. While both projects are showing great promise, the lack of genetic information on the study species represents a barrier to progress. Therefore, the current proposal would support the acquisition of the equipment required for rearing the zebrafish *Danio rerio* – the primary genetic fish model species for the study of human development and genetically-based diseases. The ability to move our studies into this model species would transform our research and would greatly improve our competitiveness for external funding at the state and local levels.