Title: Modeling behavioral and endocrine phenotypes of epilepsy in adult zebrafish.

Tulane University School of Medicine, Department of Pharmacology, New Orleans, Louisiana

Previous studies of epilepsy in zebrafish have been limited to the use of larval models. Due to less developed organ systems, larval organisms may be hindered in the analysis of complex behavioral and endocrine symptoms. As these symptoms may be more accurately modeled in the adult animals, our study aimed to develop adult zebrafish models of epilepsy. Adult fish were treated with different chemoconvulsant agents (caffeine, PTZ, and picrotoxin) and demonstrated increased seizure behaviors (hyperactivity, spasms, circular and corkscrew swimming), along with significant increases in whole body cortisol levels (emerging as an additional phenotype of epilepsy). Together, our data suggest that the use of adult zebrafish may represent a valid and translational experimental model in epileptic research.