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## **BIOCHEMICAL AND FUNCTIONAL CHARACTERIZATION OF A POTENTIAL 2', 3'-CYCLIC-NUCLEOTIDE 3'-PHOSPHODIESTERASE (CNPase) FOUND IN TUMORIGENIC FISH RETROVIRUSES**

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Tumorigenic retroviruses cause seasonal cancer in fish. Many of these retroviruses contain an interesting unknown gene of cellular origin. Computational programs predict that this gene encodes a CNPase (2',3'-Cyclic-nucleotide 3'-phosphodiesterase). In mammals, the natural function of CNPase is unknown. The purpose of the experiment is to isolate and characterize the potential viral CNPase. Utilizing a vector from zebrafish endogenous retrovirus (ZFERV), the potential CNPase genetic sequence will be isolated and analyzed. Thereafter, the potential CNPase protein will be expressed and purified, and characterization will include enzymatic activity assays, inhibition activity studies, and NMR studies. Future studies involve functional characterization of the potential CNPase, including binding and transformation studies. Potential CNPase is predicted to function as an oncogene that promotes tumorigenesis in fish. Exploring this potential CNPase may aide in the treatment of affected fish as well as provide insight into the function of this enzyme in humans.