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Comparison of *Notophthalmus viridescens* Transposon Expression in the Dorsal and Ventral Iris during Lens Regeneration



Glenna Knappe

Advisor: Dr. Panagiotis Tsonis

Biology Department

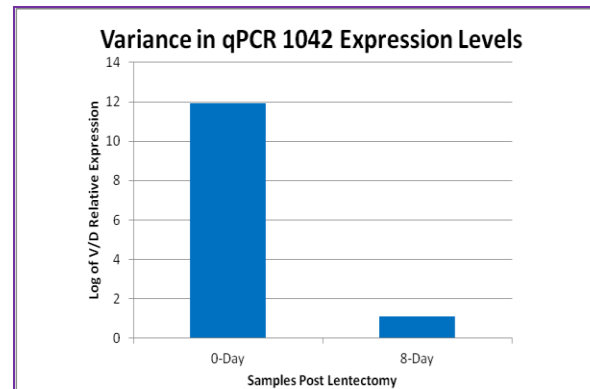
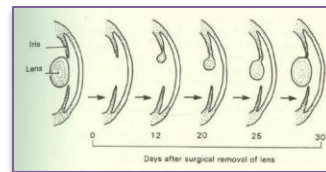
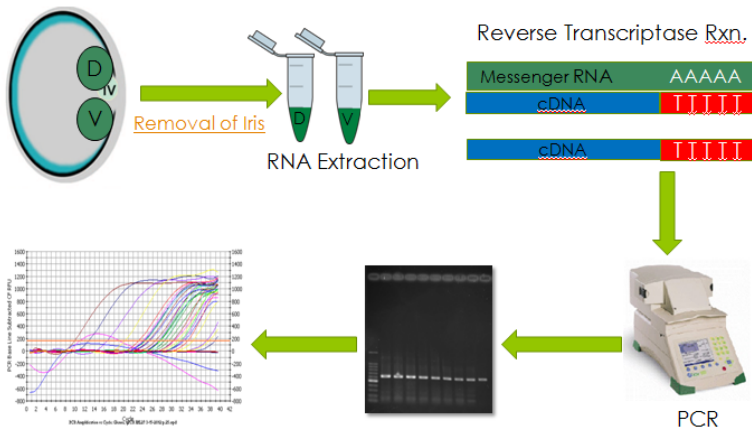
Abstract

The Eastern Newt, *Notophthalmus viridescens*, has regenerative abilities. This study delved into the ability of the newt to regenerate the lens of its eye from the iris following a lentiectomy surgery. To regenerate, the dorsal and ventral regions of the iris dedifferentiate and proliferate, yet only the dorsal iris transdifferentiates to regenerate a new lens.

Introduction

Several retrotransposons were selected from a transcriptome of 4 and 8 day postlentiectomy iris samples as candidate genes for this study. In order to compare the differences between the dorsal and ventral irises, the candidate genes' expression levels were monitored in regenerating lens at 0, 4, and 8 day time points following the surgery

Materials and Methods



The only detectable 4- day expression was in the ventral iris.

Results

The results corroborate the findings of the transcriptome. The transcriptome suggested that the expression of transposon 4841 would be higher in the dorsal iris sample. The transposons 75758 and 1042 were expected to be expressed to a greater degree in the ventral iris samples. All of this data was confirmed by either a brighter band in the 1% agarose gels following electrophoresis or by qPCR.

Recommendations

Further exploration should be conducted to determine more quantitative expression levels of other proteins categorized in the transcriptome. A further understanding of the newt's regenerative abilities as a model organism could lead to groundbreaking advances in human medicine.

