

## **Genomic Insight into the Sea Cucumber *Holothuria Glaberrima* Intestinal Regeneration**

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Disrupted cellular processes and faulty repair mechanisms are the main characteristic of aggressive diseases that millions worldwide fight against every year. Some examples are digestive tract and neurodegenerative diseases, such as inflammatory bowel disease and Alzheimers. Thus, novel regenerative biomedical therapies could greatly benefit patients, even after surgical interventions. For a long time, scientists have been seeking to understand advanced regeneration capacities that allow organisms to grow whole bodies, regrow limbs and internal organs. For example the sea cucumber *Holothuria glaberrima*, which is capable of fully regenerating its whole intestine after evisceration. There have been many findings related to the step by step process of intestine and neural regeneration, comparisons of wound healing and regeneration processes, and discoveries of extracellular matrix molecules. However, most studies have been restricted to descriptive cellular and morphological events and superficial molecular studies using expressed sequence tag (EST) databases. At present the system is limited by the lack of an *H. glaberrima* genome and only few in-depth genetic analyses. For these reasons, the objective of this project is to gain deeper genomic understanding of regeneration through the analysis of the sea cucumber genome and determination of the regulatory network that act during early stages of regeneration.