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Project: The effect of dedifferentiation on cellular dedifferentiation in *Holothuria glaberrima*

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Abstract:

Electroporation allows the incorporation of drugs, DNA, and small molecules by emitting small electric pulses briefly opening the pores of the cell membrane; it is thought that electroporation induces a dedifferentiation effect indistinguishable to the process after regeneration. The process of regeneration can be studied in *Holothuria glaberrima*, since it has an amazing regenerative capacity. Our aim is to determine if electroporation has an effect on cell dedifferentiation in the regenerated intestinal tissue explants of the sea cucumber. Sea cucumbers were collected, eviscerated and placed in seawater aquaria for four days after which the regenerated intestine explants were dissected, electroporated and placed in media culture for four days. Our hypothesis is that electroporation causes the intestinal rudiment cells to dedifferentiate, which duplicates the initial cellular response of the regenerative process. Electroporated tissue presents higher percentage regarding the dedifferentiation response, when compared to the control. There is no statistical difference regarding the effect of this technique on the cell proliferation response. These results will be able to provide important information regarding the cellular signals that induce cell dedifferentiation and that contribute to the regeneration process.