

Fabiola C. Sotomayor Reinat

Abstract

Characterization of a mosaic genetic system to delineate intricate cell-cell crosstalk in cancers and normal organs

Electroporation allows the incorporation of drugs, DNA, and small molecules by emitting small electric pulses briefly opening the pores of the cell membrane. Although electroporation has been used to introduce agents that are not able to penetrate the cell, it is thought that electroporation induces a dedifferentiation effect indistinguishable to the process after regeneration. The process of regeneration can be studied on the sea cucumber *Holothuria glaberrima*, since it has the capacity to regenerate most of its internal organs. Our aim is to determine if electroporation induces cell dedifferentiation on the intestinal tissue explants of the sea cucumber. In order to analyze if cell dedifferentiation is indistinguishable after electroporation, sea cucumbers were collected from the coast of Puerto Rico, eviscerated and placed in aquaria. After 4 days, intestinal tissue explants were dissected, electroporated and placed in culture for 3 days. Our results indicated that electroporated and non-electroporated explants presented a similar amount of spindle-like structures (SLSs), but the muscle fibers of the explants submitted to electroporation were disorganized, while the structure of the muscle fibers of non-electroporated could be visualized. Therefore, indicating that the process of electroporation is having some effect on the muscle fibers, although it is not significant.