

Endoplasmic reticulum narrative essay



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The primary purpose of this research paper is to find out whether the endoplasmic reticulum in the eggs of animals undergoes any structural or morphological changes during fertilization. The experiment studies this phenomenon by microinjecting a dye in unfertilized egg and then visualized using a confocal microscope to detect any alterations in structure.

Eventually, this paper tries to explain the role played by the endoplasmic reticulum in fertilization. The research question that is being tested in this paper was about the Endoplasmic reticulum and how it plays a role in the fertilization which can be evidenced by structural changes that taking place during the fertilization process.

The most important aspect of this experiment in the paper is the microinjection of eggs with soya beans oil saturated with Dil solution which enables visualization of the endoplasmic reticulum using the confocal microscope. The dye then spreads through the ER only in 30 minutes during which the cisternae and tubules of the ER can be identified.

This method of staining is also utilized to stain the plasma membrane which is also a bilayer membrane. This experiment, therefore, teaches that the ER is a complex organelle, bilayer membrane with lipophilic layers. The weakness of this paper shows the changes in calcium levels in the fertilized eggs of Sea Urchin during the first few minutes when ER structural changes are thought to take place.

The ER has an internal compartment that is involved in regulation of calcium. There is evidence that calcium is produced during fertilization. Is this calcium

from the ER? Does calcium generation cause the structural changes in ER? These questions have not been answered by this research paper.

Also, the control experiment for this would include a repeat of the tests under similar temperature conditions as previously conducted research experiments to compare the calcium levels. If this was my experiment, I would conduct similar research (ER changes) on large mammal animal models using unfertilized eggs incubated and fertilized at room and atmospheric temperature (conditions).