Inquiro, the UAB undergraduate science research journal

Volume 2009 | Number 3 Article 13

2009

Artificial Germ Cells May Hold the Key to Studies of Early Human Development

Timmy Wang

Artificial Germ Cells May Hold the Key to Studies of Early Human Development

Timmy Wang

Recently at Stanford University, researchers have been able to control and differentiate embryionic stem cells into germ cells. In certain cases, the germ cells were able to mature even further into spermatids. Previously, the research had only produced immature versions of germ cells, but researchers at Stanford were able to push the differentiation process into the creation of viable germ cells through a complete meiosis. The research team hopes that these germ cells will be a great help in the study of meiosis in human cells as well as in the early development of the human embryo since the only research conducted in this area has been mice embryos. This sets a limitation regarding the knowledge of what humans know about their own reproduction as the reproductive genes in humans are unique, according to Dr. Reijo Pera, professor of obstetrics and gynecology at Stanford University of Medicine. The team plans on continuing research in order to produce a human oocyte. If this becomes possible, the team hopes that the research will be able to further help infertile couples, who make up 10 to 15 percent of all infertile couples, that are unable to produce their own sperm or eggs. This will allow couples to have their own children as well as help prevent the possibility of birth defects, such as Down's Syndrome, that may arise due to incorrect meiosis of the germ cells. However, this does not mean that the purpose of this research is to make artificial children as the current germ cells do not contain human DNA but rather foreign DNA, known as transgenes. It would be considered unethical to make children who have foreign DNA. Due to this concern, Dr. Pera says that the research team is still "waiting for guidelines and regulations regarding how to go about using artificial germ cells." Yet she remains hopeful that these germ cells will be able to accelerate research in future projects.