

REPORT ON SHORT TERM PLACEMENT FELLOWSHIP 2008 (INCO)

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First of all I want to express my sincere gratitude and grateful thanks to SABRE for the financial support of my research fellowship to the Institute of Animal Science, Bonn University from Oct 31st to Dec 27th 2008. Special thanks to Prof. Karl Schellander for his invitation, kindness, continuous support and technical support during my visit to the Institute of Animal Science, Bonn University, it's my honor to work with someone like him. Also, many thanks to Dr. Dawit Tesfaye for his cooperation, guidance and technical assistance whilst conducting this work.

The main objective of my research fellowship was to investigate the differential expression of genes between the in vitro produced and parthenogenetically developed buffalo embryos using cDNA microarray analysis. It is well known that parthenogenetically developed embryos of mammals die during embryogenesis, the embryo itself often appears morphologically normal, whereas the surrounding trophoblastic tissue is extremely underdeveloped due to the absence of the paternally derived genome. Identification and analysis of novel genes involved in trophoctoderm formation in in vitro fertilized and parthenogenetically developed embryos may help us to explore the mechanisms that control trophoctoderm and placenta formation and clarifying why parthenogenetically developed embryos do not make them during perimplantation period.

For this work, in vitro fertilized and parthenogenetically developed buffalo embryos were produced in the Department of Animal Reproduction, National Research Centre of Egypt, transported to the Institute of Animal Science Bonn University on dry ice. Embryos from both groups were analyzed using cDNA microarray using BlueShip. We identified a total of 76 differentially expressed genes between the 2 groups using the cDNA microarray analysis. For the validation of candidate genes we need additional embryos batches from in vitro fertilized and parthenogenetically developed buffalo embryos. After my return I started to prepare these materials and I will return to Bonn University in March 2009 to complete the real time PCR validation of candidate genes and analysis of data and start to write a paper.

My stay at Bonn University was very fruitful; I became more acquainted with some recent equipment such as the nanodrop, Bioanalyzer, cDNA microarray, Real Time PCR, and DNA sequencer. Also the visit allowed me to rearrange my research approaches; we discussed the future cooperation through International projects.

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