

IMPACT OF CULTURE AND TRANSFER OF EMBRYOS IN MICE: ASSESSMENT OF MICROARRAY

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The aim of the present project was to test whether or not in vitro culture of mouse zygotes under atmospheric oxygen concentrations has any different effects on the expression different genes. Two control groups and one experimental group were included in the project. Control group consisted of fetuses obtained through mating of female mice that were not super-ovulated. The experimental group consisted of fetuses generated by transfer of in vitro-developed blastocysts obtained through in vitro culture of zygotes. In both groups, fetuses obtained on day 18 of gestation were weighed and expression genes in fetal lung tissue samples were determined using micro-array analysis. Results indicated that fetal weight was significantly reduced in experimental groups. Micro-array and qRT-PCR analyses demonstrated that when compared to fetuses in the Control-1 group, the level of 13 mRNA transcripts were significantly reduced in Experimental group. Taken together, data gathered from the present study indicates that in vitro embryo culture and embryo transfer leads to reduced fetal weight, delayed lung development. Evidence gathered from these studies is important as it leads to a better understanding of cellular/molecular mechanisms underlying increased susceptibility of newborns with low birth weight to various allergic/infectious diseases.