epithelium from implantation (IM) and interimplantation (INTER) sites using Laser Captured Microdissection (LCM) and analyzed the gene expression profiles by Microarray analysis.

Materials and Methods: ICR female mice were mated with fertile males to induce pregnancy (day 0.5 = vaginal plug). On day 4.5, uteri were divided to IM and INTER sites and immediately frozen with OCT compond, sectioned (5 μm), and stained with hematoxyline and eosin. RNA was extracted from captured cells, amplified with the RiboAmp RNA Amplification Kit, labeled and hybridizes to the Murine 6K GeneChip Expression Arrays (Digital Genomics, Seoul, Korea). Four replicates of hybridization were performed and results were statistically analyzed by Significance Analysis of Microarrays (SAM, Tusher et al., 2001).

Results: Comparison of IM and INTER sites by SAM identified 73 most highly ranked genes at IM, while 13 genes at the INTER sites, with an estimated false discovery rate (FDR) of 0.163. Differentially expressed genes were categorized based on the best available information regarding their biologic functions. Among 73 genes at IM, 20 were EST/unknown function, and the remain 53 were related to structure (24, 45.3%), metabolism (6, 11.3%), signal transduction (7, 13.2%), immune reaction (6, 11.3%), cell cycle (4, 7.5%), gene/protein expression (4, 7.5%), and oxidative stress (2, 3.8%). Of the 24 structural genes, 14 were related especially to expracellular matrix and tissue remodeling. Meanwhile, among 13 genes at INTER, 8 genes were EST/unknown function, and the rest 5 were related to metabolism (3), signal transduction (2), and gene/protein expression (1). Among these 58 (53+5) genes with known functions, 13 genes (22.4%) were related with Ca^{2+} for their function.

Conclusions: We demonstrated that gene expression profile of the IM and INTER can be successfully obtained with the small amount of purely isolated luminal epithelium by integrating the technologies of LCM with cDNA microarrays. Results of the present study revealed that 1) at the IM sites, active tissue remodeling is occuring during embryo apposition while the INTER sites are relatively quiescent than IM sites, and 2) the Ca^{2+} may be a vital regulatory factor for apposition process. Identification of unique gene expression profiles for the onset of implantation signifies that genome-wide analysis coupled with functional assays is a promising approach to resolve the molecular markers and pathways required for the successful implantation.

This work was supported by Korea Research Foundation Grant (KRF-2001-003-F00126).

P-27 The Effects of Yi-Jin Tang on Body Weight and Ovarian Reaction in Obesity Mice

Choi JE(최정은), Cho JH, Chang JB, Lee KS

College of Oriental Medicine, Graduate School, Kyung Hee University, Seoul, Korea,

Objectives: In order to study the effect of Yi-Jin Tang (二陳湯) on body weight and ovarian reaction in obesity mice. We observed the effect of changes of body weight, ovulation rate, in vitro fertilization and early embryonic development of oocytes.

Matrials and Results: In obesity group we administrated 0.3 ml of Yi-Jin Tang (二陳湯) high density protein, high density lipid & breeding in high density. Between them, Control group is below 22 g in body weight and sample group is over 27 g in body weight. In normal group we administrated 0.3 ml of water, general feeding & breedng in low density. Between them, Control group was below 22 g in body weight and sample group was over 23 g in body weight.

Results:

1. Compared with the control group, the body weight was significantly decreased totally in the sample group of obesity and normal group.

2. Compared with control group, mean number of oocytes per mice ovulated & mean number of normal oocytes per mice ovulated were significantly increased totally in the sample group of obesity and normal group.

3. Compared with control group, the rate of in vitro embryonic development of oocytes was significantly increased totally in the sample group of obesity and normal group.

Key Words: Yi-Jin Tang, Obesity, Body weight, Ovarian reaction

P-28 인간배아줄기세포의 확립과 그 특성 분석

서울대학교 의학연구원 인구의학연구소[1], 의과대학 산부인과학교실[2]

김희선[1] · 이기주[2] · 안희진[1] · 오선경[1] · 서창석[2] · 김석현[2] · 최영민[2] · 문신용[1,2]

목 적: 줄기세포 (stem cell)는 미분화된 상태로 무한히 증식하면서 환경에 따라 다양한 세포로 분화할 수 있는 능력을 가진 세포이다. 특히 배아줄기세포 (embryonic stem cell)는 원시적인 미분화 상태의 특성을 지닌 세포로써 성체의 모든 세포로 분화할 수 있는 배아세포의 특성, 즉 전발생능 (pluripotency)을 유지하고 있다고 보고되고 있다. 이에 인간배아줄기세포를 확립하고 확립된 배아줄기세포의 미분화 특성을 알아보고자 하였다.

대상 및 방법: 본 연구에 사용된 배아는 서울대학병원 산부인과에서 시험관 아기 시술 시 냉동보존시킨 수정난 (2PN stage)을 환자의 동의를 얻어 사용하였다. 융해시킨 수정난을 포배기까지 배양하였고, 포배기에 이른 배아는 pronase (5 μg/ml)를 처리하여 투명대를 제거하였다. 투명대가 제거된 포배를 미리 준비된 STO feeder layer위에 직접 얹어 배양하거나 (whole embryo culture) 또는 anti-human polyvalent immunoglobulins와 guinea pig complement를 이용한 immunosurgery를 시행하여 영양세포층을 제외한 순수한 내세포괴 (inner cell mass)를 획득하여 준비된 STO feeder layer위에서 배양하였다. 배양 7일째에 크게 자란 덩어리만을 골라 새로 준비된 feeder layer위로 옮겼다. 배양 2일째에 옮겨준 세포들의 부착을 확인하고 배양액을 다음 계대배양 때까지 매일 전체양의 1/2만 새 배양액으로 교체하였다. 배양 5~7일째에 크기가 커진 colony를 200개의 배아줄기세포들로 이루어진 덩어리로 절개하여 다음 계대배양을 하였다. 확립된 배아줄기세포들의 미분화 특성을 알아보기 위해 alkaline phosphatase 활성도, SSEA-1, 3 & 4의 발현여부, Oct-4 mRNA 발현, telomerase의 활성도 그리고 핵형분석을 시행하였다.

결 과: Immunosurgery 방법을 통해 SNUhES1과 2를 확립하였고 whole embryo를 배양하여 SNUhES3를 확립하였다. 세 개의 배아줄기세포주 모두 세포질에 비해 핵이 커서 세포의 대부분을 차지하며 뚜