

## **50. FSH-REGULATED GENES IDENTIFIED BY MICROARRAY ANALYSIS OF AN ACUTE FSH WITHDRAWAL MODEL IN JUVENILE RATS**

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Follicle stimulating hormone (FSH) affects testicular development and function, acting through receptors on Sertoli cells. We are interested in events that occur during the first wave of spermatogenesis, as during this period, adult sperm output is fixed by factors, including FSH, that influence the total number of Sertoli cells available to support developing germ cells. Acute FSH withdrawal was achieved by immunoneutralisation of FSH in rats for 4 days, and testes were collected from animals at 18 days postpartum (dpp). We previously observed that Sertoli cell proliferation and apoptosis were unaffected by this treatment, as was germ cell proliferation. However, a significant increase in apoptotic germ cell numbers was revealed by TUNEL staining. To identify genes regulated by FSH at this developmental interval, we isolated RNA from these samples and performed microarray analysis on Affymetrix rat genomic U34A chips. Two individual animals were examined for both control and FSH neutralised samples. Genes with at least a 1.5-fold level of expression difference between groups (using GeneSifter analysis program) were considered as significant candidates. Our study identified genes found in a similar analysis of cultured Sertoli cells  $\pm$  FSH from 20 dpp rats (McClellan 2003 *Mol. Endocrinol.*). The steroid acute-regulatory (STAR) protein and endothelin genes were down- and up-regulated, respectively, in the absence of FSH. We will next examine other time points following *in vivo* FSH withdrawal and during other stages of testis development when the cellular response to FSH is known to differ.