

**Identification and isolation of differentially expressed genes from mouse oviduct in early pregnant stage and the discovery of a novel gene**

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**PURPOSE:**

Identification and isolation of differentially expressed mouse oviduct genes as a preliminary study to elucidate the fetus-maternal interaction at the molecular level.

**MATERIAL AND METHODS:**

The oviducts of naturally ovulating mice after mating, in a 14 to 10 hours light-dark cycle, were collected 10 hours latter after dark period, and eggs were removed by flushing (these were denoted as experimental oviducts). Fertilization was confirmed by observing the pronucleus in the egg. The control oviducts were under the same treatment but were from mice mating with the vasectomized sterile male. Oviduct RNA was purified (QIAGEN RNA purification kit), and then reversed-transcribed to cDNA (Clontech SMART cDNA Synthesis kit). Subtraction hybridization was performed (Clontech cDNA subtraction kit) with experimental oviduct cDNA as driver, and control oviduct cDNA as tester (forward subtraction) and *vice versa* (reverse subtraction). Subtracted cDNA were subcloned into pGEM-T vector and examined by dot hybridization with both experimental and control oviduct RNA as probes. The positive clones were subject to nucleotide sequencing and Northern blotting verification.

**RESULT:**

Of 2000 forward subtracted cDNA clones, one hundred and six theoretically early-pregnant related clones were sequenced and the sequencing results were compared to the GenBank database with BLAST program. We found that about 8% clones were novel, 30% were only found in EST and the others were the known full length cDNA. Seven hundred and sixty eight clones were screened for differential expression by DNA dot blotting hybridization. One positive clone was found differentially expressed, and then verified by Northern blotting.

**DISCUSSION:**

The maternal response toward pre-implantation embryos can be studied by investigating the differentially expressed genes at the oviducts. When compared to the BLAST program of the GenBank database, this differentially expressed clone was found novel. This clone might be regarded as a candidate gene involved in the fetus-maternal interaction at early pregnant stage, but its role in the interaction remain to be characterized.