

## A NOVEL SCAVENGER RECEPTOR DOMAIN CONTAINING GENES DIFFERENTIALLY EXPRESSED IN THE EMBRYONIC MOUSE TESTIS

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Sex in mammals is determined by the constitution of the sex chromosomes: two X-chromosomes results in the development of ovaries and a female phenotype, while an X and a Y chromosome result in testis development and a male phenotype. The *SRY* gene on the Y chromosome has been identified as the genetic switch, which initiates testis formation. The importance of *SRY* and the related *SOX9* gene in sex determination has been well characterised in humans and mouse. Mutations in *SRY* and *SOX9* account for approximately 20% of sex reversed XY-female patients suggesting that other genes are required for normal testis development. The mouse model was used to identify and characterise differentially expressed genes in the embryonic testis/ovary that may represent new sex determining candidates.

A suppression subtraction hybridisation screen was conducted on testes/ovaries mouse cDNA between 12.0-12.5 *dpc*. Differential clones were sequenced, bioinformatic analysis was performed and expression patterns verified by whole mount *in situ* hybridisation (WISH) on 12.5 *dpc* mouse partial embryos.

We identified a novel gene (B7) containing a scavenger receptor domain of unknown function. B7 was expressed in the gonads of both sexes from 11.5-12.0 *dpc*. From 12.5 -13.5 *dpc*, B7 expression was present in the testis but not in the ovary. We termed B7 Testis Expressed Scavenger Receptor (Tesr). Expression of *Tesr* was also seen in the mouse brain, eye, head, heart, neural arch and cartilage primordium. Furthermore, *Tesr* expression was analysed in the chicken embryo. Low expression was seen in the male gonads and mesonephric tubules from day 3.5-7.5. *Tesr* was expressed in chicken embryo's heart, notochord, neural tube, dorsal aorta and the somites at day 3.5 and 4.5.

*Tesr* may play a role in phagocytosis of apoptotic cells and may be involved in scavenger, adhesion, defence functions and immune responses. Another possible role for *Tesr* in the developing testis may be cholesterol delivery for steroidogenesis.