Characterizing the Testicular Expression Pattern of DCAF Family Genes in Comparison to Other Organ Tissues

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Around the world, approximately 15% of couples suffer from infertility, of which male factors are responsible for half of these cases. Male factor infertility can be attributed to genetic defects, hormonal imbalances, environmental factors and lifestyle. A family of DDB1 and CUL4-associated factors (DCAF) genes are one of the components of multi-complex ubiquitination system. Results from previous studies indicate that Dcaf17, a member of DCAF family, is essential for normal spermatogenesis in mice. The purpose of this study is to characterize the expression pattern of 15 DCAF family genes in adult mouse testis in comparison to the genes found in brain, kidney, liver, lung, heart, muscle, ovary and uterus tissues. The RT-PCR technique will be used to determine the results. Total RNA of the specific tissues were collected, converted into cDNA and used in PCR with gene-specific primers. Subsequently, PCR amplification products were run using agarose gel electrophoresis and visualized by a gel imager. Expression of DCAF family genes was analyzed by the presence or absence of PCR fragments in the gel image. Results from this experimentation show that Ddb2, and Dtl are specifically expressed in the testis and ovary. Furthermore, Ercc8, Dcaf5, Dcaf6, Dcaf7, Dcaf8, Dcaf9, and Dcaf10 are highly expressed in testis with variable expression in other tissues. Studying the expression profile of different DCAF family genes will help in development of future research to better understand molecular mechanisms involving DCAF family genes in spermatogenesis and will hopefully pave the way to diagnose and treat male infertility.

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