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Novel Development-Related Alternative Splices in Human Testis Identified by cDNA Microarrays

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Alternative splicing of premessenger RNA is an important regulatory mechanism that increases the diversity of proteins transcribed from a single gene. This is particularly important in the testis because germ cell expansion and differentiation require many cellular changes and regulatory steps. To investigate novel development-related alternative splicings in the human testis, complementary DNA microarray studies were conducted with the use of probes from human fetal testes, adult testes, and human spermatozoa. Of a total of 386 Unigene clusters found to be related to the development of the testis, 67 clusters showed a total of 74 novel alternative spliceforms. Developmental stage-dependent expression was also performed for a novel Unigene, NYD-SP20 (Hs.351068), which had 4 possible novel spliceforms and another Unigene, CRISP2 (cysteine-rich secretory protein 2, Hs.2042), which had 3 possible novel spliceforms. These results indicate that alternative splicing plays an important role in the complicated processes of testis development and spermatogenesis.

Key words: Alternative splicing, spermatogenesis, regulatory mechanism, protein diversity, spliceforms

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