Struktur gen dan analisa sebaran jaringan defensin beta 42 pada epididimis mencit = Gene structure and tissue distribution analysis of defensin 42 in the mouse epididymis

Marco Christian Michael, author

Abstrak

Epididimis adalah saluran berbelit yang terletak antara testis dan vas deferens. Epididimis telah lama dikenal sebagai tempat proses pematangan sperma, yang merupakan interaksi antara sperma dan protein-protein yang disekresikan oleh sel-sel epitel epididimis. Salah satu protein yang diduga berperan penting dalam proses pematangan sperma adalah gen Defb42. Tujuan penelitian ini adalah untuk mengetahui struktur gen dan analisis sebaran jaringan dari gen Defb42. Data struktur gen Defb42 diperoleh dari database Unigene danUCSC Genome Bioinformatics, dimana cDNA, ekson, intron, dan sekuens asam amino diperoleh. Isolasi RNA dilakukan untuk jaringan dari 4 segmenepididimis (initial segment, caput, corpus, cauda) disertai dengan beberapa organ viseral lainnya. Real time RT-PCR dari RNA yang terelusi dilakukan untuk mengukur ekspresi relative Defb42 terhadap gen aktin beta. Hasil penelitian menunjukkan bahwa Defb42 termasuk dalam keluarga beta defensin karena memiliki 6 residu sistein. Ekspresi Defb42 relatif terhadap aktin ditemukan paling tinggi di initial segment dariepididimis, diikuti dengan caput, cauda, dan vas deferens. Disimpulkan bahwa gen Defb42 adalah gen beta defensin dan diekspresikan terutama di initial segment dari epididimis.

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Epididymis is a convoluted duct that is located between the testis and vas deferens. Epididymis has been known as the site of sperm maturation, which occur via interaction between the sperm and the proteins secreted by the epididymal epithelial cells. One of the proteins that is believed to play a major role in sperm maturation process is encoded by Defb42 gene. The objective of this research is to know the gene structure and tissue distribution analysis of Defb42 gene. Gene structure data was obtained from Unigene database and UCSC Genome Bioinformatics, in which cDNA, exons, introns, and amino acid sequence of Defb42 gene were received. RNA isolation was done for tissues of the four segments of epididymis (initial segment, caput, corpus, cauda) along with other visceral tissues. Real time RT-PCR of the isolated RNA was then performed in order to measure Defb42 relative expression to beta actin. The result showed that Defb42 gene belongs to the beta defensin family due to its conserved six cysteine residues. Defb42 expression relative to actin was highest in the initial segment of the epididymis, followed by caput, cauda, and vas deferens. In conclusion, Defb42 is a beta defensin gene and is mainly expressed in the epididymis and showed region-specific expression in the initial segment.