The expression of follicle-stimulating hormone receptor in ovary and testis

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Abstrak

Reseptor follicle-stimulating hormone (FSHR) hanya terekspresi pada sel granulosa ovarium dan sel Sertoli testis. Ekspresinya yang sangat spesifik menunjukkan adanya peristiwa-peristiwa traskripsi khusus pada kedua tipe sel tersebut yang bertanggung jawab untuk aktivasi gen reseptor FSH. Walaupun mekanismenya belum diketahui, namun telah dicapai beberapa kemajuan menyangkut mekanisme yang mengontrol proses transkripsi dan regulasi gen reseptor FSH. Sampai saat ini telah diidentifikasi beberapa elemen regulator penting yang bertanggung jawab untuk proses transkripsi gen reseptor FSH yang tidak mengandung TATA box tersebut seperti elemen E box (CACG(A)TG, –124/–119), elemen GATA (TATC, –88/–85), E2F (TTTCGCG, –45/–39), dan elemen regulator-3 (–197/–171). Studi fungsional menunjukkan bila mutasi terjadi pada elemen regulator tersebut akan menurunkan fungsi promoter secara bermakna dan dampak terbesar terdeteksi bila mutasi terjadi pada elemen E box. Metilasi pada situs CpG spesifik dalam daerah promoter inti tampaknya memegang peranan penting dalam regulasi transkripsi gen reseptor FSH tikus dan mencit. (Med J Indones 2003; 12: 187-93)

<hr>Follicle-stimulating hormone receptor (FSHR) is exclusively expressed in granulose cells of the ovary and Sertoli cells of the testis. The highly cell-specific of gene expression revealed that transcriptional events unique to these two cell types are responsible for activation of the FSHR gene. Even though its mechanisms are still unclear, several progress regarding the mechanism that control its basal transcription and regulation has been made. It has been identified several important elements that responsible for the transcription of the TATA-less FSHR gene such as: E box element (CACG(A)TG, –124/–119), an inverted GATA (TATC, –88/–85), E2F (TTTCGCG, –45/–39), and regulator element-3 (–197/–171). The functional studies shown that mutations through these regulatory elements significantly decrease the promoter function with greatest impact detected when mutation was done in E-box element. The site-specific CpG methylation within the core promoter seems play an important role in the regulation of rat and mouse FSHR gene expression. (Med J Indones 2003; 12: 187-93)