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Author	本間, 浩(Honma, Hiroshi) 川合, 博幸(Kawai, Hiroyuki) 久保田, 三保(Kubota, Miho) 松井, 道夫(Matsui, Michio)
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Large deletion of androsterone UDP-glucuronosyltransferase gene in the inherited deficient strain of Wistar rats*

Hiroshi Homma, Hiroyuki Kawai, Miho Kubota and Michio Matsui

本間 浩,川合博幸,久保田三保,松井道夫

LA Wistar rats have a deficiency of androsterone UDP-glucuronosyltransferase (UDPGT) and are present in Wistar rat colonies around the world. In order to clarify the molecular mechanism of the deficiency, androsterone UDPGT cDNA clone, pGT2 was isolated from rat liver cDNA library and was digested with restriction enzymes to afford 3 probes for Northern and Southern blot analyses in HA (normal), heterozygous LA and LA Wistar rats. In Northern blot analysis, androsterone UDPGT mRNA was totally absent in LA wistar rat liver. Southern blot analysis suggested a large deletion of androsterone UDPGT gene in the rats. Genomic DNA amplifications with synthetic primers which have nucleotide sequences corresponding to the 5'-region of androsterone UDPGT cDNA, suggested that androsterone UDPGT gene has exon I with a length of some 700 bp and that this exon is deleted in LA Wistar rats. Based on these lines of evidence, it is concluded that the large portion of androsterone UDPGT gene is deleted in LA Wistar rats, which results in the absence of androsterone UDPGT mRNA and consequently the corresponding enzyme protein.

^{*} 本報告は Biochim. Biophys. Acta., 1138, 34-40 (1992) に発表.