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A Post-Genomic Project: Comprehensive Study on Human Glycogenes

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One hundred ten genes for human glycosyltransferases had been cloned and analyzed at the beginning of April, 2001 after the first mammalian glycosyltransferase gene was cloned in 1986. The term glycogene includes the genes for glycosyltransferases, sulfotransferases adding sulfate to carbohydrates and sugar-nucleotide transporters, *etc*. In April 2001, we started the Glycogene Project (GG project), which was a comprehensive study on human glycogenes. One hundred five novel glycogenes were identified as candidates with the aid of bioinformatic technology. All of them were cloned and expressed as recombinant enzymes, and their substrate specificities were then examined using various acceptors. Thirty-eight glycogens among the 105 candidates were determined to be glycosyltransferases, sulfotransferases and sugar-nucleotide transporters. One hundred sixty-five glycogenes were subcloned into a Gateway entry vector, and prepared as a human glycogene library. These cloned glycogens can be easily expressed as recombinant enzymes in various expression systems.

Key words: glycogene, glycogene project, glycosyltransferase, sulfotransferase, sugar-nucleotide transporter

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