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N-Glycan Patterns of Human Transferrin Produced in Insect Cells Expressing Stably Rat ß1,4-Galactosyltransferase and Human a2,6-Sialyltransferase

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The insect cell-baculovirus expression vector system (BEVS) is not ideal for pharmaceutical glycoprotein production due to the characteristics of the *N*-glycans in the expressed products. Insect cells lack several enzymes required for mammalian-type *N*-glycan synthesis. The BEVS was used to produce His-tagged human transferrin in a transformed insect cell line (Sf9-GalT,SiaT) that constitutively expresses a mammalian UDP-ß-1,4-galactosyltransferase and ß-galactoside a-2,6-sialyltransferase under the control of an immediate-early (*ie2*) promoter. This recombinant virus encoded the His-tagged human transferrin protein in conventional fashion under the control of the very late polyhedrin promoter. Detailed analyses by exoglycosidase digestion and two-dimensional HPLC revealed that the *N*-glycans on the purified recombinant human transferrin produced by this virus-host system included fully galactosylated and sialylated. Thus, this study describes a novel insect cell (Sf9-GalT,SiaT), which can be used to produce a recombinant glycoprotein with fully galactosylated and sialylated *N*-glycans.

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