Baculovirus infection reduced UDP-galactose level in *Spodoptera frugiperda* insect cells

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Incomplete glycosylation is always an issue in the expression of recombinant glycoprotein in Baculovirus-Insect Cell Expression System (BEVS). The factors that ensure successful glyosylations are the presence of sufficient amount of glycosyltransferases, sugar nucleotides as the substrate donor and the recombinant protein as the substrate acceptor. Insect cell lines have been reported to produce small amount of β-1,4galactosyltransferase (β -1,4GalT) and thus insufficient for effective galactosylation. In our approach, recombinant β-1,4GalT is being introduced during protein expression by the co-infection with baculovirus carrying bovine β-1,4GalT. In this paper, we report our finding on native UDP-Galactose level at normal and upon baculovirus infection in *Spodoptera frugiperda* (Sf-9) insect cells. We established and monitored native UDP-Galactose content in Sf-9 insect cells using Reverse Phase High Performance Liquid Chromatography. It was found that UDP-Galactose concentration decreased gradually once infected with the recombinant baculovirus. Although UDP-Galactose content was at 0.009 mg/ml prior infection, the level dropped to almost zero upon five days of infection and thus insufficient for effective galactosylation. This interesting finding suggests that the introduction of β-1,4GalT alone is not sufficient for successful galactosylation.