Multiple Protein Expression Platform for *Drosophila* S_2 Cells Using Baculovirus System

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We sought to develop a platform for simultaneous, regulatable expression of multiple foreign protein types in cell culture. *Drosophila melanogaster* Schneider line 2 (S_2) insect cells that stably express human erythropoietin (hEPO) were infected with several recombinant baculoviruses containing each fluorescent protein type (green, yellow, and cyan). Since baculovirus cannot replicate in nonpermissive S_2 cells, baculovirus infection did not affect cell growth or viability. Expression of each foreign protein was under the control of the inducible metallothionein (MT) promoter. Addition of copper sulfate to infected, stably transfected cells resulted in simultaneous expression of hEPO and fluorescent proteins. Induced hEPO expression profile and levels were similar in both control and infected cells, indicating that baculovirus infection also did not affect expression of stably introduced foreign gene. Fluorescent protein levels were regulated by the infection dose of recombinant baculovirus, while hEPO expression remained constant. Such a system appears to be very attractive as a multiple protein expression platform for engineering metabolic pathways in cell culture.