

### 3-4-2. A Transgenic Giant Silkworm, *Bombyx mori*, That Sustained Fifth Instar Larval Period

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We have constructed and characterized a transgenic silkworm, *Bombyx mori*, that sustained fifth instar larval period. The ecdysteroid UDP-glucosyltransferase (*egt*) gene from *B. mori* nuclear polyhedrosis virus Korean strain (BmNPV-K1) was inserted under the control of immediate early 1 (*ie1*) promoter from *Autographa californica* NPV (AcNPV) to produce transfer vector. The transfer vector was directly introduced into silkworm (NB18) larvae by liposome-mediated gene transfer. One-day-old fifth instar female silkworm larvae were injected with the transfer vector containing *egt* gene and then mated with normal male moths. Genomic DNA from their progenies was individually extracted and screened the *egt* gene for the desired transgenesis by using PCR and Southern blot analysis. The F3 larvae carrying the *egt* gene were sustained approximately 26 hours during the 5th instar larval stage, suggesting that expression of *egt* was prevented larval-pupal ecdysis. The pupa and cocoon weights of the silkworm sustained 5th instar larval period were increased approximately 13.15% and 12.33% compared to control, respectively, indicating that arrest of 5th instar larval period was prolonged the feeding time, with a resultant increase in the weight gain of the pupa and cocoon. From F4 larvae mated between the screened F3 female and F3 male, we show that the F4 larvae carrying the *egt* gene are approximately 37.5%. These results suggest that the transgenesis by use of *egt* gene will be possible for the production of giant silkworm.