

**Construction of a Transgenic Silkworm, *Bombyx mori*,
Carrying the Fibroin Gene of the Oak Silkworm, *Antheraea
yamamai***

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We have previously cloned and characterized the complete fibroin light chain gene from the silkworm Baekok-Jam, *Bombyx mori*, and the complete fibroin gene from the oak silkworm, *Antheraea yamamai*. The 444 bp repetitive sequence of *A. yamamai* fibroin gene was inserted into exon 6 of *B. mori* fibroin light chain gene to produce chimeric fibroin gene. The chimeric gene that inserted the partial *A. yamamai* fibroin gene into exon 6 of complete *B. mori* light chain gene was cloned into the polyhedrin gene site of *Autographa californica* nuclear polyhedrosis virus (AcNPV) to yield recombinant baculovirus AcNPV as a fibroin gene targeting vector. One-day-old fifth instar female silkworm larvae were injected with the recombinant baculovirus harboring chimeric fibroin gene and then mated with normal male moths. Genomic DNA from their progenies was individually extracted and screened for the desired targeting event by using PCR and Southern blot analysis. From F₂ larvae mated between the screened F₁ female and F₁ male, we show that the F₂ larvae carrying the chimeric fibroin gene are approximately 43.2%. This result suggests that the construction of silkworm producing hybrid silk will be possible by fibroin gene targeting. The transgenic silkworm that produces hybrid silk is under screening from F₃ progeny.