Detection of Position-Specific Expression (POSE) Genes in *Drosophila melanogaster* by Dual-Tagging Gene Trap

Wei-Chou Tseng and Y. Henry Sun

Taipei Municipal Chung-Shan Girls’ High School and Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan, Republic of China

**Abstract**

- Gene trap (GT) is a powerful tool to detect genes and their functions (Sun et al. 2001). Detection of POSE genes depends on the detection of expression patterns. Previous studies mainly used the same gene trap (pGT1-ES) to detect POSE genes. In this study, we used a new gene trap (pGT1-ES2) to detect POSE genes in *D. melanogaster*. The different results indicate that the improved gene trap (pGT1-ES2) has advantages in detecting POSE genes. We mainly detected the expression pattern of *mini-w* in adult eyes with various genotypes.

**Figure 1.** Detection of POSE genes using pGT1-ES2. (A) Schematic representation of the steps of inverse PCR. (B) Detection of POSE genes using the method of inverse PCR. (C) Position-specific expression pattern of *mini-w* in adult eyes.

**Figure 2.** Dual-Tagging Gene Trap. (A) The structure of pGT1-ES2. (B) The sequence of pGT1-ES2. (C) Detection of POSE genes using dual-tagging gene trap.

**Figure 3.** Identification and characterization of trapped lines.

**Figure 4.** Schematic representation of the steps of inverse PCR.

**Figure 5.** Detection of POSE genes using pGT1-ES2. (A) Detection of POSE genes using the method of inverse PCR. (B) Detection of POSE genes using dual-tagging gene trap.

**Figure 6.** Detection of POSE genes using pGT1-ES2. (A) Detection of POSE genes using the method of inverse PCR. (B) Detection of POSE genes using dual-tagging gene trap.

**Conclusion**

- This gene trap system is not only to detect POSE genes but also to detect expression patterns. The POSE gene is inserted into one gene, and its expression is detected in different genotypes. This system is useful for expression pattern detection and gene function analysis.

**Reference**