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Unusual Telomere Structure in Insects

Haruhiko Fujiwara

Graduate School of Frontier Sciences, University of Tokyo Hongo, Bunkyo-ku,
Tokyo 113-0033, Japan.

Most eucaryotic telomeres consist of short telomeric repeats, which are synthesized by a reverse transcriptase activity of telomerase. The addition of telomeric repeats by telomerase is essential for cellular functions, such as compensating for telomere shortening and telomere crisis. However, in some insects, another type of telomere synthesis has been reported. *Drosophila melanogaster* seems to lose the telomeric repeats at all. In stead of telomerase, non-LTR retransposons, TART and HeTA, transpose on the chromosomal ends of *Drosophila* and rescue the telomere shoetening in this insect. Another insect, the silkworm *Bombyx mori*, however, has an intermediate type of telomere structure between most eucaryotes and *Drosophila*. The silkworm has penta-nucleotide telomeric repeats (TTAGG)_n on their chromosomal ends, where many non-LTR retrotransposons are inserted in the telomeric repeats. We named these retrrtranspososable elements as TRAS and SART. We have been studying about how these retransposons integrate into the telomeric repeats specially and whether these elements are involved in the telomeric meintenance and function. In this meeting, I would like to talk about

- (1) Unusual telomere structure and maintenance in insects
- (2) Distribution patterns of telomerase and (TTAGG)_n in insects
- (3) site specific retrotransposition of telomere associated retrotransposons.