

# UPDATE FROM THE CUTTING EDGE

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The abstracts of the recent research information appeared on the Vol.6 No.4–No.6 of "AIST TODAY" are introduced and classified by research area. For inquiry about the full article, please contact the author directly.

Life Science & Technology

## Novel reporter assay system using color differences luciferases reveals multiple gene expression in the mammalian cells

We developed a revolutionary tricolor reporter *in vitro* assay system, in which three gene expressions are monitored simultaneously using green-, orange- and red-emitting beetle luciferases. The technique was used to analyze biological clock mechanisms, which are generated by complicated transcription-translation feedback loops of clock genes, and two clock gene transcriptions were monitored simultaneously. This technique, furthermore, could be utilized for fine analysis in new field of transcriptome and promoterome, as well as pharmacological or toxicological technologies.

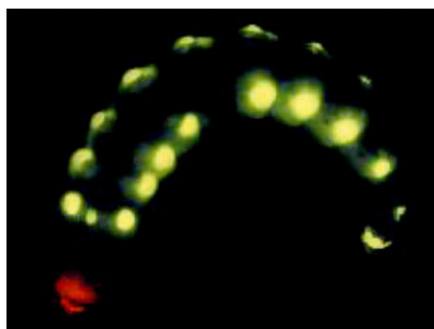


Figure 1: Railroad-worm, *Phrixothrix hirtus* larviform female by its own bioluminescence.

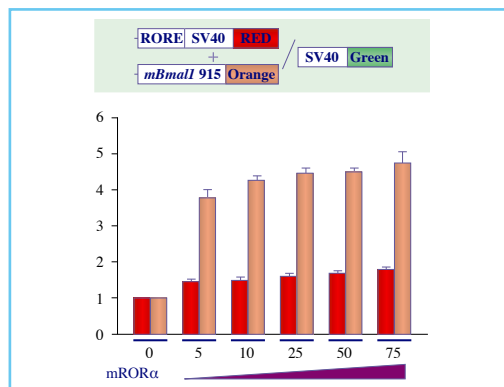


Figure 2: Simultaneous monitoring of mRORα4-dose-dependent induction of RORE-mediated (red bars) and mBmal1 promoter fragment-driven (orange bars) transcription.

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