3-4-14. Cloning, Expression and Functional Assay of a cDNA Encoding the Luciferase from the Firefly, *Hotaria unmunsana*

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We have cloned and characterized a cDNA encoding the luciferase from the firefly, *Hotaria unmunsana.* The cDNA encoding the luciferase of *H. unmunsana* was isolated by RT-PCR with gene specific primers. Sequence analysis of the cDNA encoding the luciferase of *H. unmunsana* revealed that the 1,644 bp cDNA has an open reading frame of 548 amino acid residues. The deduced amino acid sequence of the luciferase gene of *H. unmunsana* showed 98.0% homology to that of *H. parvula.* Phylogenetic analysis further confirmed the deduced amino acid sequences of the *H. unmunsana* luciferase gene to belonged to the same subfamily, Luciolinae. Southern blot analysis suggested possible presence of the *H. unmunsana* luciferase gene as a single copy and Northern blot analysis confirmed light organ-specific expression pattern at the transcriptional level. The cDNA encoding the luciferase of *H. unmunsana* was expressed as approximately 64 kDa band in baculovirus-infected insect cells and the recombinant baculovirus-infected cell extracts emitted luminescence in the luciferase activity assay.