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Molecular Cloning of a cDNA Encoding the Putative Family of the Larval Midgut Serine Protease from the Firefly, *Pyrocoelia rufa*

Kwang Sik Lee[1], Hung Dae Sohn[1], Sang Mong Lee[2] and Byung Rae Jin[1]

[1]College of Natural Resources and Life Science, Dong-A University, Busan 604-714, Korea, [2]Department of Sericultural and Entomological Biology, Miryang National University, Miryang 627-130, Korea

Serine proteases are major insect gut enzymes involved in digestion of dietary proteins, and in addition they have been implicated in the process of pathogen establishment in several vector insects. Here, we have cloned and characterized a cDNA encoding the putative serine protease from the firefly, *Pyrocoelia rufa*. The 771 base cDNA sequence codes for a 257 amino acid protein, which encodes a putative mature protein of 228 amino acid with a molecular mass of approximately 25 kDa. The deduced protein had the six-conserved cysteine residues to form the three-cysteine bonds typically present in invertebrate serine proteases. Alignment of the deduced protein was performed with known insect serine proteases. The amino acid identity among insect serine proteases ranged from 32.1% to 51.6%. Northern blot analysis confirmed that the serine protease is specifically expressed in the midgut of *P. rufa* larvae