Ferritin Subunits of the Mulberry Longicorn Beetle, *Apriona germari*: cDNA Cloning, Expression and Characterization

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Insect secreted ferritins are composed of subunits which resemble heavy and light chains of vertebrate cytosolic ferritins. We describe here the cloning, expression and characterization of cDNAs encoding the ferritin heavy-chain homolohue (HCH) and light-chain homologue (LCH) from the mulberry longicorn beetle, *Apriona germari* (Coleoptera, Cerambycidae). The LCH and HCH cDNA sequences comprised of 672 bp and 636 bp encoding 224 and 212 amino acid residues, respectively. The HCH sequences have ferroxidase residues and iron responsive element (IRE) at its 5' -untranslated region (UTR), whereas the LCH has no ferroxidase residues and IRE. Phylogenetic analysis confirmed the deduced protein sequences of *A. germari* ferritin HCH and LCH being divided into two types, G type (LCH) and S type (HCH). Southern blot analysis suggested the possible presence of each *A germari* ferritin subunit gene as a single copy, respectively, and Northern blot analysis confirmed higher expression pattern in midgut than fat body. The cDNAs encoding the *A. germari* ferritin subunits were respectively expressed as approximately 30 kDa (LCH) and 26 kDa (HCH) polypeptides in baculovirus-infected insect cells. Western blot analysis and iron staining assay confirmed that *A. germari* ferritin has a native molecular mass of approximately 680 kDa.