Z609 Molecular Cloning and Characteristics of cDNA Encoding a Mosquito Lipophorin Receptor

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We report here the identification and cloning of a cDNA encoding the mosquito lipophorin receptor (LpR). The cDNA has a length of 2673 bp coding for a 891 residue protein. The deduced amino acid sequence bears 62 and 33% homology with the locust LpR and human low-density lipoprotein receptor (LDLR) gene, respectively. The overall structure of mosquito LpR is similar to that of human LDLR but shows even greater homology to the locust LpR, which shows eight-fold ligand binding repeats. Like the LDL receptor, the mosquito LpR consists of the following five domains : 326 NH_2-terminal amino acid domain including a seven-fold repeat of ~40 amino acids, 399 residues homologous to the epidermal growth factor precursor, a region immediately outside of the plasma membrane rich in serines and threonines, 22 hydrophobic amino acids spanning the plasma membrane and 58 COOH-terminal amino acids including the NDVY sequence that is required for clustering of the LDL receptor in coated pits.

Northern blot analysis revealed a mRNA of approximately 5.8 kb which expression in fat body is highly restricted only at late stage of vitellogenesis (30, 36, and 48 h PBM).

Distance-based phylogenetic analyses suggest that the insect LpR diverged from the vertebrate LDLR long before LDLR/VLDLR divergence. This attainment of a fully developed receptor structure in the mosquito suggests that earlier forms of the receptor may exist in animals that are older than insects.

Z610 Tissue-Specific Interference of Calsequestrin Expression Mediated by Double Strand RNA in *C. elegans*

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Calsequestrin is a calcium binding protein originally identified from sarcoplasmic reticulrum of vertebrates. Immunostaining revealed that the putative calsequestrin protein was expressed in the body-wall muscle. In order to study body-wall muscle specific regulation of calsequestrin gene expression, approximately 2 kilobase upstream sequences of calsequestrin gene were analyzed. Expression of green fluorescent protein was observed in body-wall muscle. Several possible binding sites for transcription factors were identified including sites for YY1 and NF-W2, a muscle specific zinc finger transcription factor and a ubiquitous enhancer binding protein, respectively. RNA mediated interference (RNAi) blocked calsequestrin protein expression in the body-wall muscle but not in the pharyngeal muscle or vulval muscle. Additionally, tissue specific non-interference property of RNAi, particularly in vulval muscle and pharyngeal muscle, not only confirmed the site specific expression of calsequestrin, but also identified the cis-regulatory elements of calsequestrin upstream sequence.