

Z505 Interaction of Nek2 with a Novel ER/Golgi Protein, NIP1, Suggests Its Function In Behavior of Subcellular Organelles during Mitosis

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Nek2 is a mammalian protein kinase, structurally homologous to *Aspergillus* NIMA. Since NIMA was known to function as a cell cycle regulator by controlling chromatin condensation during mitosis, it was proposed that Nek2 may also play a similar role in mammalian cells. To define biological functions of Nek2, we decided to identify Nek2-interacting proteins (NIPs) using the yeast two-hybrid screening method. Here, we report cloning and characterization of NIP1 that was isolated as a candidate Nek2-interacting protein. NIP1 encodes a novel protein with 362 amino acids in size. NIP1 expression was observed abundantly in skeletal muscle, testis, and prostate among tissues tested, and in most human cell lines. In vivo interactions of Nek2 with NIP1 was confirmed with co-immunoprecipitation experiments. We identified that NIP1 interacted directly with the kinase domain of Nek2, suggesting that NIP1 may be a substrate of Nek2. NIP1 was localized in ER/Golgi and co-localized with Nek2 within cells. This suggests that Nek2 may be involved in mitotic processes occurred in cytoplasm as well as in nucleus, possibly in duplication and/or segregation of subcellular organelles.

Z601 Molecular Characterization of Apolipoprotein-III in Fall Webworm, Hyphantria cunea Drury

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We sequenced a cDNA clone corresponding to apolipoprotein-III (apoLp-III) from the fall webworm, *Hyphantria cunea* (*H. cunea*). The cDNA for apoLp-III (564 base pair) codes for a 188-residue protein with a predicted molecular mass of 20 kDa. The calculated isoelectric point is 8.76. Multiple alignment analysis of the amino acid sequence revealed that apoLp-III is most similar to *Spodoptera litura* (70.2% identity) and *Manduca sexta* (68.1% identity). They share five amphipathic-helices that are proposed to play a critical role in the binding of apoLp-III to lipoprotein. The developmental profiles of apoLp-III transcript obtained by Northern blot shows the relative abundance in adult, compared to 7th instar larvae. A Northern blot of various tissues shows positive signal only from fat body.