

***Bombyx mori* DOPA Decarboxylase cDNA Cloning and Expression Analysis**

Jae-Sam Hwang¹, Seok-Woo Kang¹, Tae-Won Goo¹, Kwang Ho Choi¹, Eun-Young Yun¹, Jin-Sung Lee¹, O-Yu Kwon², Yuriko Suzuki³ and Haruhiko Fujiwara³

¹*Department of Sericulture and Entomology, National Institute of Agricultural Science and Technology, RDA, Suwon 441-100, South Korea,* ²*Department of Anatomy, College of Medicine, Chungnam National University, Taejeon 305-600, South Korea, and* ³*Department of Integrated Biosciences, Graduate School of Frontier Sciences, University of Tokyo, Hongo, Bunkyo-ku 113-0033, Japan*

DOPA decarboxylase (DDC), which converts DOPA to dopamine, is important for many biological events such as cuticular melanization, sclerotization and neurotransmission in insects. In this study, complete cDNA sequence of silkworm (*Bombyx mori*) DOPA decarboxylase (DDC), and its expression pattern were identified and fully characterized. Silkworm DDC gene contains an open reading frame of 1437 bp encoding 478 amino acids, similar to those of other insects. Expression of silkworm DDC mRNA transcript was detected abundantly in testis and epidermis but rarely in ovary, silk gland, and fat body. Further analysis revealed that cells expressing DDC in suboesophageal ganglion (SG) were surrounded by the diapause hormone (DH) and pheromone biosynthesis activating neuropeptide (PBAN) producing cells, indicating that the dopamine producing cells are involved in the regulation of synthesis. Moreover, we found that *Bombyx mori* DDC expression in cultured epidermis was induced by a 20-hydroxyecdysone (20-HE) removal from the medium. In overall, these results support the idea that expression of insect DDC is controlled by ecdysteroid action in tissue- and stage-specific manners.