1-12. Diapause-associated transcription of Dopa decarboxylase in *Bombyx mori* and evolutionary relationship to other species

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DOPA decarboxylase (DDC), which converts DOPA to dopamine, is important for many biological event such as cuticular melanization, sclerotization and neurotransmission in insects. Recently, it has been also shown that DDC activity is correlated with pupal diapause in M. brassicae. The silkworm, *Bombyx mori* is a typical insect diapausing at early embryonic stage. Example, in that it enters diapause at an early stage of embryogenesis. Embryonic diapause in the silkworm(bivoltine race) is predetermined by the diapause hormone secreted from the subesophageal ganglion. As a first step to understanding a molecular basis of gene expression at the on set of embryonic diapause, we examined expression pattern during embryogenesis. Northern blot analysis confirmed that artificially activated eggs from the diapausing state by heat-HCl treatment were observed abundantly at 3 to 5 days after the acid treatment and later at 9 days just before hatching. Whereas, inactivated eggs from the diapause state were clearly detectable until 30 days after oviposition. On the other hand, Elevation of dopamine levels induced by feeding Dopa and dopamine to last larvae made the non-diapause destined insects lay diapause destined eggs at 70% and 63% frequencies, respectively.

When the deduced amino acid sequence of *Bombyx mori* DDC was aligned with those of *M. sexta*, *Drosophila melanogaster*, *Ceratitis capitata* and *Aedes aegypti*, the amino acid identity was 88%, 73%, 70%, and 73%, respectively.