

D-45 Reduced Transcription of Mitochondrial DNA
in the Senescent ICR Mouse

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Aging is a phenomenon which causes a variety of changes at each level of biological organization. A key role in the degenerative processes of senescence has been assigned to mitochondria by the oxygen radical - mitochondrial injury. Lipid peroxidation of mitochondrial membranes alters their permeability. Mutation of mitochondrial DNA can prevent its replication and expression. Mitochondrial damage may also affect mitochondrial transcription. Subunit III of cytochrome c oxidase(COXIII) has an important role of proton pumping. So the COXIII gene affects the electron transport system which gives the energy to the cell. Using the Northern analysis, we found the reduced transcription of mitochondrial DNA in senescent ICR mouse brain. The data reported here show that senescence induces a tissue-specific reduction of mitochondrial transcription which is related to mitochondrial DNA mutation.

D-46 Effects of 20-Hydroxyecdysone and Drugs on Neuronal Cell Death
in the Central Nervous System of Silkworm, *Bombyx mori*

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In holometabolous insects, dramatic changes in external morphology from crawling larvae to flying reproductive adults are accompanied with changes in internal organs such as central nervous system and muscles. Especially the central nervous system undergoes neurometamorphosis involving neurogenesis, respecification of neuronal connectivity, and cell death. In this study, total numbers of neuron from last instar larvae to adults in *Bombyx mori* abdominal ganglion(A3) were investigated to know the period of cell death. Two periods of cell death were present; the larval-pupal transition and the pupal-adult transition. To eliminate the ecdysteroid-secreting prothoracic glands in the thorax and interrupt descending neural pathway from the brain and thoracic ganglia, abdominal isolation was conducted. Neuronal cell death on abdominal ganglion(A3) was significantly delayed. To study the interaction between cell death and 20-hydroxyecdysone(20-HE), 20-HE was injected into lateral part of thorax every 12 hours for three days.