

## **THYMUS SERVES AN IMMUNOLOGICAL FUNCTION THROUGHOUT LIFE**

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Thymus plays an important role in the differentiation and maturation of T-lymphocytes. Thymus undergoes involution with age. The morphological aspect of the aging thymus has been studied extensively. However, functional studies are scanty. Thus the aim of the present study is to investigate the functional alterations that could take place in the rat thymus with advancing age.

Three each of young age (9 wk) and old age (1 yr) DA rats were killed by exsanguinations under diethyl ether anesthesia. The thymus was removed and one part of it was processed for H & E staining and the other part was frozen and used for immunohistochemistry. The thymic sections were incubated with antibodies of MHC class I, MHC class II, p63, and ICAM-1. The sections were then overlaid with horseradish peroxidase-conjugated goat F(ab')<sub>2</sub> anti-mouse IgG. After incubation for 1 hour, the immuno-reactivity was visualized with 3,3'-diaminobenzidine tetrachloride and 0.02% hydrogen peroxide by light microscopy. The results showed that in the old-rats the thymic tissue quantitatively reduced to a great extent compared to the young rats. However, there were no differences in the quality of expression in the above molecules between the young- and old- aged rats.

These results indicate that the age-involuting rat thymus, though quantitatively reduced to a great extent, contains a remnant of lymphatic tissue, which is unchanged in its cellular composition and which presumably is able to serve its function in cell mediated immunological response. This study is clinically relevant, as this will in turn facilitate the design of strategies aimed at augmenting intrathymic T-cell production in conditions of immune deficiency and suppression.

*Financial assistance by Yamaguchi University, Japan is acknowledged.*