

## Comparative histological and immunological studies on young and aged inbred and outbred mice

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**Background:** Using of experimental animal as models to mimic human pathological conditions has facilitated understanding the mechanisms of different processes involved in these diseases. Among the experimental animals, mice are the mostly widely used animals in different experimental biology since it has a small size, easy breeding, low cost, high fertility rate, and the extensive knowledge of its genome. The differences in the immune cell complements between young and adult mice, however, have not been well investigated. **Aim:** The present study aimed to compare aging on the immune cell components in outbred and inbred mice as well as to evaluate the their responses to the inflammatory stimuli Polyinosinic:polycytidylic acid (poly(I:C)). **Results:** The study investigated whether the aging or the poly(I:C) has the more damaging effect on the cell histology of the thymus gland and spleen. This study confirms that the alteration in the histology of the spleen of aged mice as compared to young mice. Furthermore, poly(I:C) had more tendency to induce alteration in the architecture and cellular components in the thymus and spleen of old mice than those in young mice. **Conclusion:** Immune compartments in old mice are more susceptible to inflammation than those in young mice.

**Keywords:** Aging; Poly I:C; Spleen; Thymus gland

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