IL-4 Transgenic Mouse Model for Human Bone and Immune Disorders

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Biomaterial – Mouse

Biomaterial Description

This transgenic mouse model is engineered to overexpress Interleukin-4 (IL-4) in specific tissues, enabling researchers to study the dual role of IL-4 in immune modulation and bone metabolism. The model exhibits:

-Altered thymocyte development due to localized IL-4 expression in the thymus.

-Osteoporotic phenotypes resulting from systemic IL-4 overproduction, including reduced bone density and impaired osteoblast function.

This model is ideal for dissecting the molecular and cellular mechanisms underlying immune-bone interactions, particularly in diseases where IL-4 dysregulation is implicated.

Applications

-Bone disease research: Study of IL-4–induced osteoporosis and bone remodeling.

-Immunology: Investigation of thymocyte development and T-cell lineage commitment.

-Autoimmune and inflammatory disorders: Modeling diseases with IL-4–mediated immune dysregulation.

-Drug development: Preclinical testing of IL-4–targeted therapies for bone and immune conditions.

Advantages

-Dual phenotype: Simultaneous modeling of immune and skeletal pathologies.

-Mechanistic insight: Enables study of IL-4's role in osteoclast/osteoblast balance and thymocyte maturation.

-Therapeutic testing: Suitable for evaluating IL-4 inhibitors or bone anabolic agents.

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References

1. Lewis, D. B., Yu, C. C., Forbush, K. A., Carpenter, J., Sato, T. A., Grossman, A., Liggitt, D. H., Perlmutter, R. M.(1991) , https://rupress.org/jem/article/173/1/89/24333/Interleukin-4-expressed-in-situ-selectively-alters, https://rupress.org/jem, 173, 89-100
2. Lewis, D. B., Liggitt, H. D., Effmann, E. L., Motley, S. T., Teitelbaum, S. L., Jepsen, K. J., Goldstein, S. A., Bonadio, J., Carpenter, J., Perlmutter, R. M.(1993) , https://www.pnas.org/doi/abs/10.1073/pnas.90.24.11618, https://www.pnas.org/, 90, 11618-11622