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Comparison of normal adiponectin levels among animal population: Prospective health and metabolic physiology

ABSTRACT:

Background: Public health in animals is increasingly being recognized due to its role in elucidating metabolic and physiological disorders in different species. Adiponectin, a hormone secreted by adipocytes, is a significant marker of glucose and lipid metabolism and metabolic health. However, baseline serum adiponectin levels in different animal species are not well characterized.

Aim: This study aimed to measure and compare baseline serum adiponectin levels among nine animal species as a reference for physiological and metabolic investigations in veterinary science.

Methods: We analyzed 90 sera samples (10/species) from healthy fish, chicken, rabbit, cat, dog, goat, sheep, cow, and rat. Adiponectin levels were assessed using a validated enzyme-linked immunosorbent assay-based method.

Results: Large interspecies differences were observed. The highest adiponectin levels were found in rats (7.22 ± 0.25 ng/ml), followed by cows (6.94 ± 0.23 ng/ml) and goats (6.35 ± 0.25 ng/ml). Adiponectin levels were lower in rabbits (3.89 ± 0.18 ng/ml), chickens (2.43 ± 0.17 ng/ml), and fish (1.62 ± 0.11 ng/ml).

Conclusion: These findings highlight the role of species-specific metabolic adaptations in adiponectin secretion, with higher levels in mammals overall. This information provides a foundation for future research into metabolic health, animal husbandry, and the physiological functions of adiponectin.