

Enhanced stability of tristetraprolin found to promote bone health and reduce frailty

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A study used a novel transgenic mouse model (TTP knock-in—TTPKI) that has a moderate elevation of TTP systemically to understand if there is a long-term benefit for bone health, thus contributing towards healthy aging. The research was presented at the [102nd General Session of the IADR](#), which was held in conjunction with the 53rd Annual Meeting of the American Association for Dental, Oral, and Craniofacial Research and the 48th Annual Meeting of the Canadian Association for Dental Research, on March 13-16, 2024, in New Orleans, LA, U.S..

The abstract, "Enhanced Stability of Tristetraprolin Promotes Bone Health and Reduces Frailty," was presented during the "Systemic Conditions and Diseases and Oral Health Status" Poster Session on Thursday, March 14, 2024, at 11 a.m. Central Standard Time (UTC-6).

The study, by Lixia Zhang of the University at Buffalo, NY, U.S., performed [body composition](#), physical performance assessments, and frailty assessments on the 6- and 22-month-old TTPKI and C57BL/6N wild-type male and female mice. Microcomputed tomography (μ CT) and decalcified sections of the tibia were used to determine static bone histomorphometric parameters and bone histomorphometry, respectively.

Immunophenotypic analysis of bone marrow (BM), spleen, and mesenteric lymph nodes were analyzed by [flow cytometry](#) for myeloid and lymphocyte populations. Myeloid population BM osteoclastogenic potential was assessed.

Body composition with aged control and TTPKI mice revealed significant sex and genotype differences. Aged TTPKI mice displayed decreased frailty scores and increased quality of life compared to control similarly aged mice. The tibia from aged TTPKI mice exhibited higher BMD than aged control mice.

Age-related decline in immune cell composition was partially reversed in aged TTPKI mice. In an osteoclast differentiation assay, BM myeloid progenitors from TTPKI mice exhibited fewer osteoclasts with reduced eroded bone surface area. Improved functional capacity, BMD, and immune cell composition indicate that enhanced expression of TTP can promote a healthier phenotype during aging.

Provided by International Association for Dental, Oral, and Craniofacial Research

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