## Aging Oral Health: Exploring Mitochondrial-Encoded Immunity and Therapeutic Innovations

**Alexandria, VA** – A study identifying a novel mitochondrial-encoded microprotein that can reverse physical decline and improve metabolic homeostasis and healthspan in mice was presented at the 54th Annual Meeting of the AADOCR, which was held in conjunction with the 49th Annual Meeting of the Canadian Association for Dental Research, on March 12-15, 2025 in New York, NY.

The abstract, "Aging Oral Health: Exploring Mitochondrial-Encoded Immunity and Therapeutic Innovations" was presented by Changhan Lee of the University of Southern California during the "Oral Immunology and Cellular Microbiology" Poster Session that took place on Thursday, March 13, 2025 at 11 a.m. EDT (UTC-4).

With age, people experience a decline in immune function and an increase in chronic low-grade inflammation. Both immunity and aging are significantly influenced by metabolic pathways, with mitochondria as the main metabolic organelle. Though mitochondrial DNA (mtDNA) can trigger immune responses, it has not been known to encode active immune factors, typically thought to be nuclear-encoded. In this study, researchers identified a novel mitochondrial-encoded microprotein, MOTS-c (MitochondrialORF within the Twelve S rRNA), which epigenetically programs macrophages to restore functional capacity. Notably, it was observed that MOTS-c can reverse physical decline in older mice and improve metabolic homeostasis and healthspan.

The study suggested that mitochondrial-encoded microproteins have potent immunometabolic regulatory roles, offering a novel layer to cellular regulation during aging, including oral health.

## About AADOCR
The American Association for Dental, Oral, and Craniofacial Research is a nonprofit organization with a mission to drive dental, oral, and craniofacial research to advance health and well-being. AADOCR represents the individual scientists, clinician-scientists, dental professionals, and students based in academic, government, non-profit and private-sector institutions who share our mission. AADOCR is the largest division of the International Association for Dental, Oral, and Craniofacial Research. Learn more at www.aadocr.org.