

# Tetracoding increases with body temperature in Lepidosauria

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Codons expanded by a silent position (quadruplet or tetracodons) may solve the conundrum that at life's origins, the weak tricodon-anticodon interactions could not promote translation in the absence of complex ribosomes. Modern genomes have isolated tetracodons resulting from insertion mutations. Some bioinformatic analyses suggest that tetracoding stretches overlap with regular mitochondrial protein coding genes. These tetragenies are probably decoded by (antisense) tRNAs with expanded anticodons. They are GC-rich, which produce stronger basepairs than A:T interactions, suggesting expression at high temperatures. The hypothesis that tetracoding is an adaptation to high temperatures is tested here by comparing predicted mitochondrial tetracoding in Lepidosauria (lizards, amphisbaenia, and Sphenodon), in relation to body temperature, expecting more tetracoding in species with high body temperature. The association between tRNAs with expanded anticodons and tetracoding previously describe