



*Short Communication*

## Molecular conservation of the mammalian leptin protein

J.E. Gabriel<sup>1</sup> and K.C.F. Lidani<sup>2</sup>

<sup>1</sup>Colegiado de Ciências Biológicas, Centro de Ciências Agrárias, Universidade Federal do Vale do São Francisco, Petrolina, PE, Brasil

<sup>2</sup>Departamento de Patologia Médica, Hospital de Clínicas, Universidade Federal do Paraná, Curitiba, PR, Brasil

Corresponding author: J.E. Gabriel  
E-mail: jane.gabriel@univasf.edu.br

Genet. Mol. Res. 14 (1): 253-258 (2015)

Received June 24, 2014

Accepted October 17, 2014

Published January 16, 2015

DOI <http://dx.doi.org/10.4238/2015.January.16.9>

**ABSTRACT.** In this study, we comparatively assessed multiple sequences of the leptin protein from different animal species to establish new insights into conservation degree of biological sequences and evolutionary biology among mammals using computational biology tools. First, amino acid sequences of the leptin protein from *Homo sapiens* (human, P41159), *Sus scrofa* (wild pig, Q29406), *Felis catus* (domestic cat, Q29406), *Rattus norvegicus* (rat, P50596), and *Mus musculus* (mouse, P41160) were randomly searched in the high-quality annotated and non-redundant protein sequence database UniProtKB/Swiss-Prot. A dendrogram showing the evolutionary relationships among specimens was constructed from the sequences of interest using the Mega 6.0 software with the neighbor-joining method. The resulting tree presenting the evolutionary relationships among specimens inferred from amino acid sequences of the leptin protein in mammals demonstrated 2 main branches: 1 cluster including the rat and mouse species (0.02) and a second cluster containing both

wild pig and domestic cat species grouped in a sub-branch (0.04 and 0.06, respectively), linking them to the human sequence (0.08). These findings were reinforced by comparing estimates of evolutionary divergence among leptin sequences analyzed. Based on comparative analyses of multiple sequence alignments in the present study, there was a stronger conservation degree of the leptin protein in evolutionarily close species and several conservative changes along the sequences of interest, revealing information regarding the evolutionary biology among mammals.

**Key words:** Bioinformatics; Conservation degree; Evolutionary biology; Leptin protein; Mammals