

Systematics, taxonomy and domestication of alpaca and llama: New chromosomal and molecular evidence Sistemática, taxonomía y domesticación de alpacas y llamas: Nueva evidencia cromosómica y molecular

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Four camelid species exist in South America: two wild, the guanaco (*Lama guanicoe*) and the vicuña (*Vicugna vicugna*), and two domestic, the alpaca (*Lama pacos*) and the llama (*Lama glama*).

However, the origin of the domestic species has been a matter of debate. In the present study, variations in chromosome G banding patterns and in two mitochondrial gene sequences have been used to study the origin and classification of the llama and alpaca.-Similar patterns in chromosome G band structure were observed in all four Lamini species, and these in turn were similar to the bands described for camels, *Camelus bactrianus*. However, fine and consistent differences were found in the short arms of chromosome 1, separating camels, guanacos and llamas from vicuñas and alpacas. This pattern was consistent even in a hybrid guanaco x alpaca. Equivalent relationship showed the complete cytochrome b gene sequences, and the minimum expansion tree of the partial control region sequence, grouping guanaco with