

THE NUMBER OF PROLACTIN CLEAVAGE SITES GENERATING VASOINHIBINS VARIES IN PRIMATES

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BACKGROUND

The prolactin/vasoinhibin axis in humans features the generation, secretion, and actions of the pleiotropic pituitary hormones prolactin and vasoinhibins under control of the hypothalamus, the pituitary gland, and the target tissue microenvironment. Vasoinhibins are generated by proteolytic cleavage of full-length prolactin at various cleavage sites. The evolutionary history of vasoinhibins is largely unknown.

METHODS

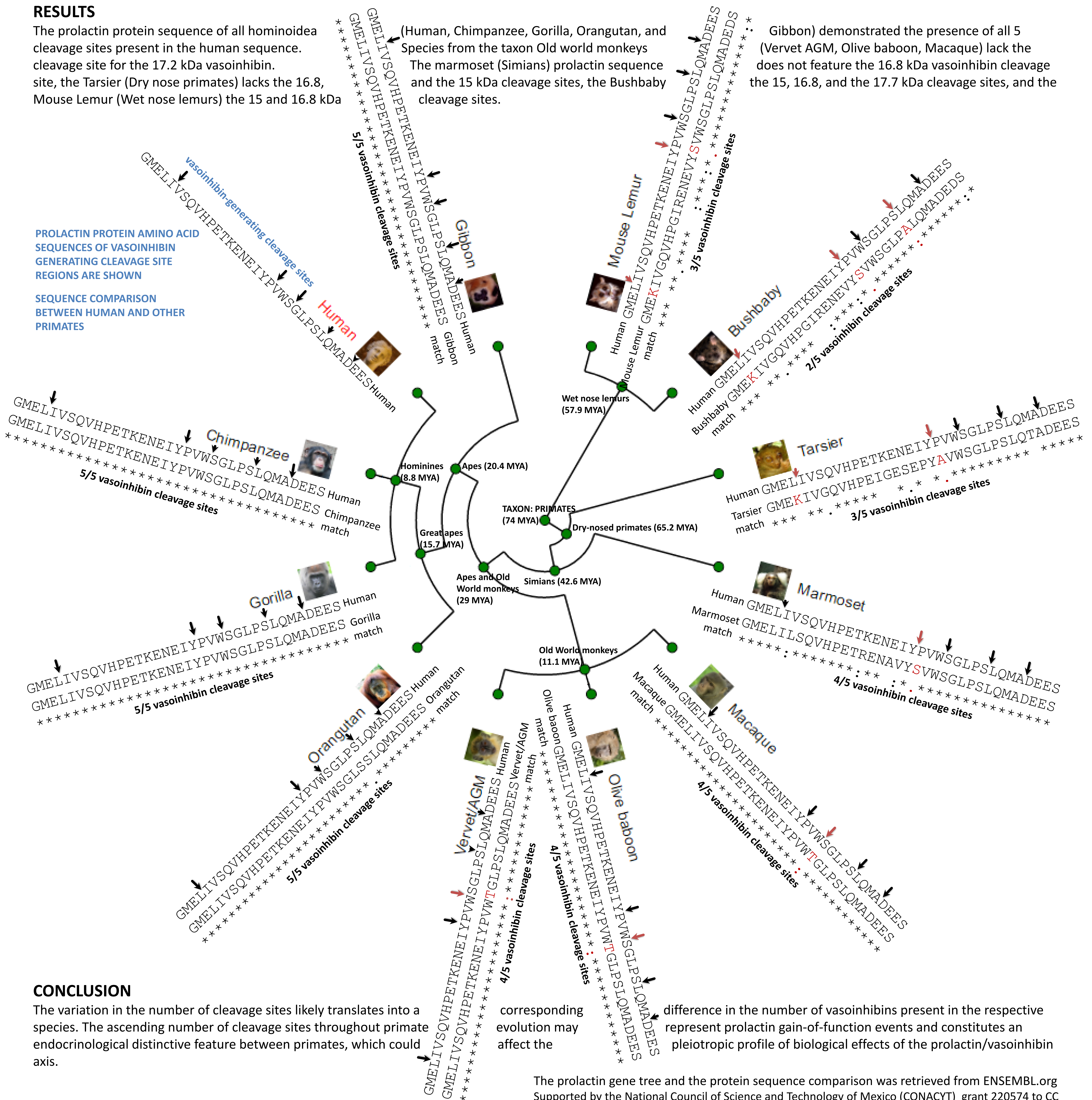
The prolactin protein sequences of the primate species Human, Chimpanzee, Gorilla, Orangutan, Gibbon, Vervet AGM, Olive baboon, Macaque, Marmoset, Tarsier, Bushbaby, and Mouse Lemur, and the prolactin gene tree were retrieved from the ENSEMBL data base. A multiple sequence alignment was performed, using Clustal Omega. Five known cleavage sites within the human prolactin protein sequence, defined by fully conserved sequence motifs required for the generation of vasoinhibins with molecular masses of 15, 16.8, 17.2, 17.7, and 18 kilodalton (kDa), were the focus of the comparison.

RESULTS

The prolactin protein sequence of all hominoidea cleavage sites present in the human sequence. cleavage site for the 17.2 kDa vasoinhibin. site, the Tarsier (Dry nose primates) lacks the 16.8, Mouse Lemur (Wet nose lemurs) the 15 and 16.8 kDa

(Human, Chimpanzee, Gorilla, Orangutan, and Species from the taxon Old world monkeys The marmoset (Simians) prolactin sequence and the 15 kDa cleavage sites, the Bushbaby

Gibbon) demonstrated the presence of all 5 (Vervet AGM, Olive baboon, Macaque) lack the 16.8 kDa vasoinhibin cleavage site, the 15, 16.8, and the 17.7 kDa cleavage sites, and the



CONCLUSION

The variation in the number of cleavage sites likely translates into a species. The ascending number of cleavage sites throughout primate endocrinological distinctive feature between primates, which could

corresponding evolution may affect the

difference in the number of vasoinhibins present in the respective represent prolactin gain-of-function events and constitutes an pleiotropic profile of biological effects of the prolactin/vasoinhibin