The taming of the rat

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If you worry about having a pet rat in case it bites you, then you can relax. Recent research has found that a domesticated strain of rat selectively bred for tameness never bites human handlers.

Postdoctoral researcher Dr Federico Becerra from the Max Planck Weizmann Center for Integrative Archaeology and Anthropology at the Max Planck Institute for Evolutionary Anthropology, Germany, explains: "We found that a strain of rats bred to be aggressive towards humans bit often and with lots of force, whereas a highly tame strain never bit at all. Furthermore, females from the aggressive strain were much more likely to bite and bit harder than males."

The difference between males and female biting behaviour in the aggressive strain is possibly due to their hormonal responses to stressful situations, as Dr Becerra says: "Stressed male rats might bite to protect themselves alone, whereas female rats might have the natural instinct of biting to also protect their offspring, so presumably will be fiercer."

The researchers have selectively bred two strains of rats for many generations: one to be tame towards humans and the other to be as aggressive as possible. "We would select the gentlest or most aggressive rats from each generation and keep them for the next generation," says Dr Becerra. "We also cross-bred the strains, and the mixed offspring similarly showed more female aggression than male."

So should we avoid keeping female pet rats? "We found that tame rats, both male and female, never bit humans in this study," says Dr Becerra.

"So long as they are tame, pet rats of both sexes are equally safe for humans to keep as pets. However, even domesticated, these rats may still be aggressive to each other."

This research is the first to characterise the morphological and behavioural aspects of rat domestication in detail. Understanding the physiological changes happening in rats will also help to better assess the biological effects of domestication in longer-lived animals such as dogs and horses.

More information: This work will be presented by Dr Federico Becerra (Max Planck Weizmann Center for Integrative Archaeology and Anthropology, Max Planck Institute for Evolutionary Anthropology, Germany), at the annual meeting of the Society for Experimental Biology (SEB) in Brighton at 13:50 on Wednesday 6 July 2016.

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