

COMPARISON OF COUGH RESPONSE BETWEEN SPECIFIC PATHOGEN-FREE AND CONVENTIONAL ANIMALS IN NAÏVE GUINEA PIGS

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Background: Recommendations of international and national associations for laboratory animal science emphasize that valid results in experimental conditions can be obtained only using quality laboratory animals. Specific pathogen-free (SPF) is a term used to describe laboratory animals of higher quality without specific group of pathogens, which worsen their overall health and survival in long-term experiments.

Methods: Dose-response curves were constructed for Dunkin-Hartley guinea pigs (8 males, 8 females; for both SPF and conventional animals) to doubling concentrations of citric acid (0.05M to 1.6M) and capsaicin (6.25 μ M to 200 μ M) in whole-body plethysmograph HSE855 with simultaneous recording of sound and airflow trace for offline analysis. The measurements were performed four times in one-week intervals.

Results: In conventional animals the cough threshold occurred at concentration 0.2M in males and 0.1M in females for citric acid and 6.25 μ M for both males and females for capsaicin challenge. In SPF animals, the threshold for both males and females was 0.4M for citric acid and 6.25 μ M for males and 25 μ M for females in capsaicin challenge.

Conclusion: Cough response in all groups remained stable; however in SPF animals it was significantly lower. Databases did not provide any explanation for our results and to our best knowledge such comparison between SPF and conventional animals has not been done. Another observation from our laboratory confirmed poor cough response of SPF animals in standard tussive challenges. This fact will have to be considered during comparison of results in-between laboratories as well as with published literature.