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Clinical Image

Title: Effects of Nitrous acid Exposure to Guinea Pigs

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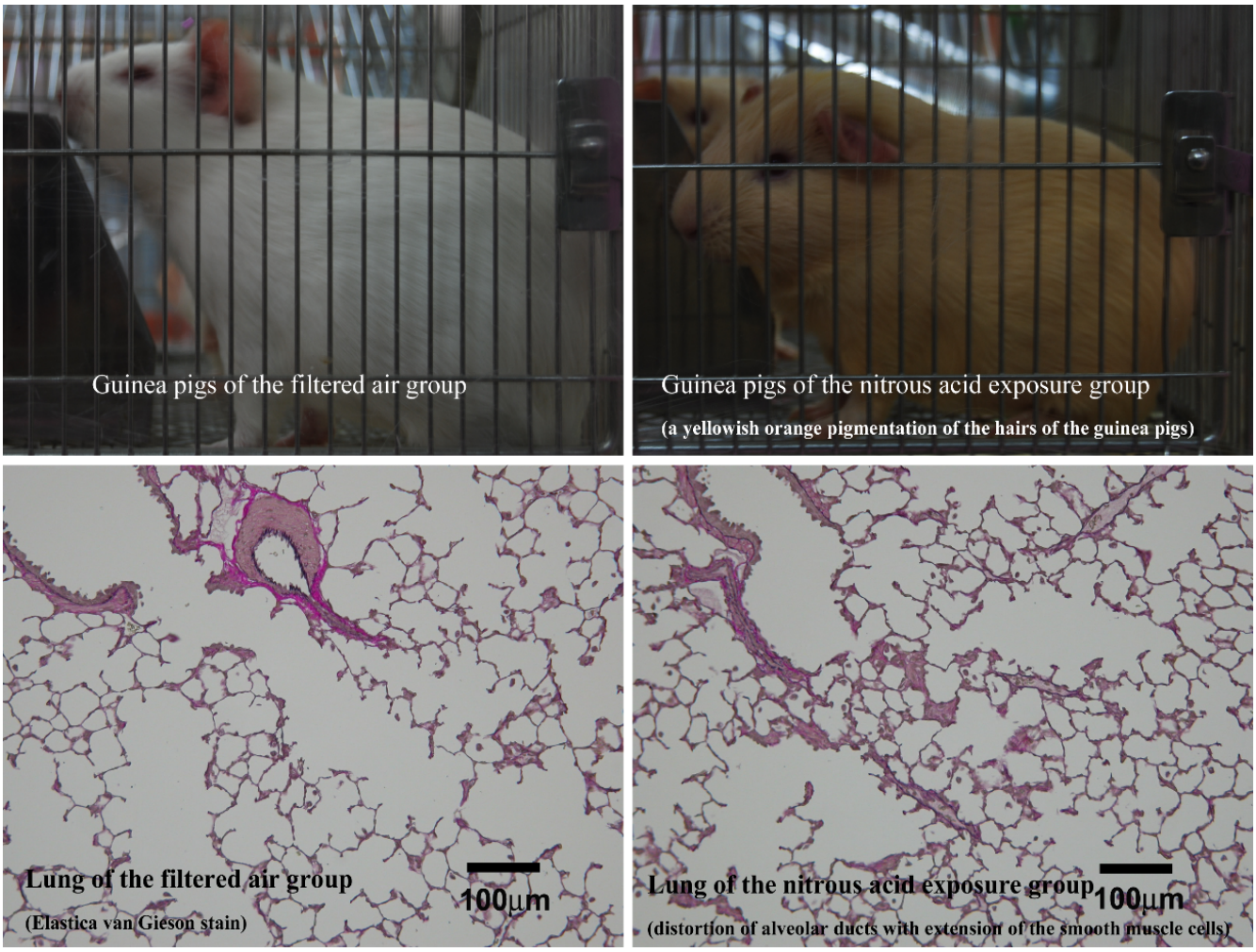

Nitrous acid (HONO) exists as a gas in the atmosphere at ppb order and is not regulated. Few epidemiological studies have been performed to assess the association of HONO exposure with respiratory symptoms and lung function. Jarvis et al. (2005) observed that indoor HONO levels are associated with a decrease in lung function and possibly with additional respiratory symptoms [1]. A few inhalation studies have examined the relationship between the HONO exposure and respiratory symptoms and lung functions in mildly asthmatic adult subjects after a 3-h exposure to 0.65 ppm HONO [2] or in healthy adult nonsmokers after a 3.5-h exposure to 0.395 ppm HONO [3]. Our animal experiments using guinea pigs have demonstrated a yellowish orange pigmentation of the hairs of the guinea pigs (Figure 1), pulmonary emphysema-like alterations occur in the centriacinar regions of the alveolar ducts, and distortion of the centriacinar regions of alveolar ducts with extension of the bronchial epithelial cells and smooth muscle cells (Figure 2), in 3.6 ppm HONO exposure (24 h/day) for four weeks.

In the future, numerous epidemiological studies and numerous animal exposure experiments of HONO should be carried out, and we anticipate that HONO will be regulated.

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