



NTP Nonneoplastic Lesion Atlas

Nose, Olfactory Epithelium, Glands – Hyperplasia

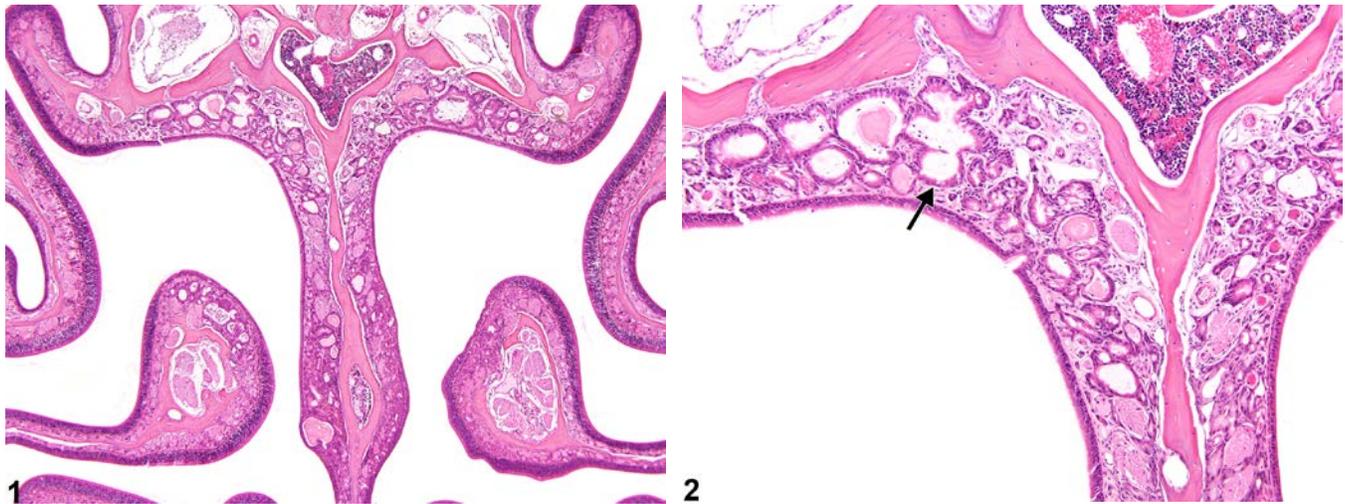


Figure Legend: **Figure 1** Nose, Olfactory epithelium, Glands - Hyperplasia in a male B6C3F1/N mouse from a chronic study. There is an increase in the number and dilation of the Bowman's glands in the olfactory lamina propria. **Figure 2** Nose, Olfactory epithelium, Glands - Hyperplasia in a male B6C3F1/N mouse from a chronic study (higher magnification of Figure 1). Many of the hyperplastic Bowman's glands are dilated (arrow).

Comment: Hyperplasia and dilation of the Bowman's glands (Figure 1 and Figure 2) are relatively common lesions and are seen to variable degrees in conjunction with olfactory epithelial changes. The hyperplasia may be accompanied by squamous metaplasia or respiratory metaplasia (see Nose, Olfactory epithelium, Glands - Metaplasia).

Recommendation: Hyperplasia of the Bowman's glands should be diagnosed and graded with grading based on the number of Bowman's glands present. The site should be "olfactory epithelium, glands." It is not necessary to specify "Bowman's glands" in the site because glands associated with the olfactory epithelium will be assumed to be Bowman's glands. When both hyperplasia and dilation of the Bowman's glands are present, only Bowman's gland hyperplasia should be diagnosed and given a severity grade, with the dilation described in the pathology pathology narrative. If only dilation is present, then dilation is diagnosed and given a severity grade. A separate diagnosis of respiratory metaplasia, when present, is generally not needed unless warranted by severity. The presence of metaplasia, however, should be described in the pathology narrative.



NTP Nonneoplastic Lesion Atlas

Nose, Olfactory Epithelium, Glands – Hyperplasia

References:

Bogdanffy MS. 1990. Biotransformation enzymes in the rodent nasal mucosa: The value of a histochemical approach. *Environ Health Perspect* 85:177-186.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/2200661>

Maronpot RR. 1990. Pathology Working Group review of selected upper respiratory tract lesions in rats and mice. *Environ Health Perspect* 85:331-352.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/2384066>

Renne R, Brix A, Harkema J, Kittel B, Lewis D, March T, Nagano K, Pino M, Rittinghausen S, Rosenbruch M, Tellier P, Wohrmann T. 2009. Proliferative and nonproliferative lesions of the rat and mouse respiratory tract. *Toxicol Pathol* 37(7 suppl):5S-73S.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/1295070>

Authors:

Rodney A. Miller, DVM, PhD, DACVP
NC Pathology Group Manager
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC

Mark F. Cesta, DVM, PhD, DACVP
Staff Scientist, NTP Pathologist
Cellular and Molecular Pathology Branch
Division of the National Toxicology Program
National Institute of Environmental Health Sciences
Research Triangle Park, NC