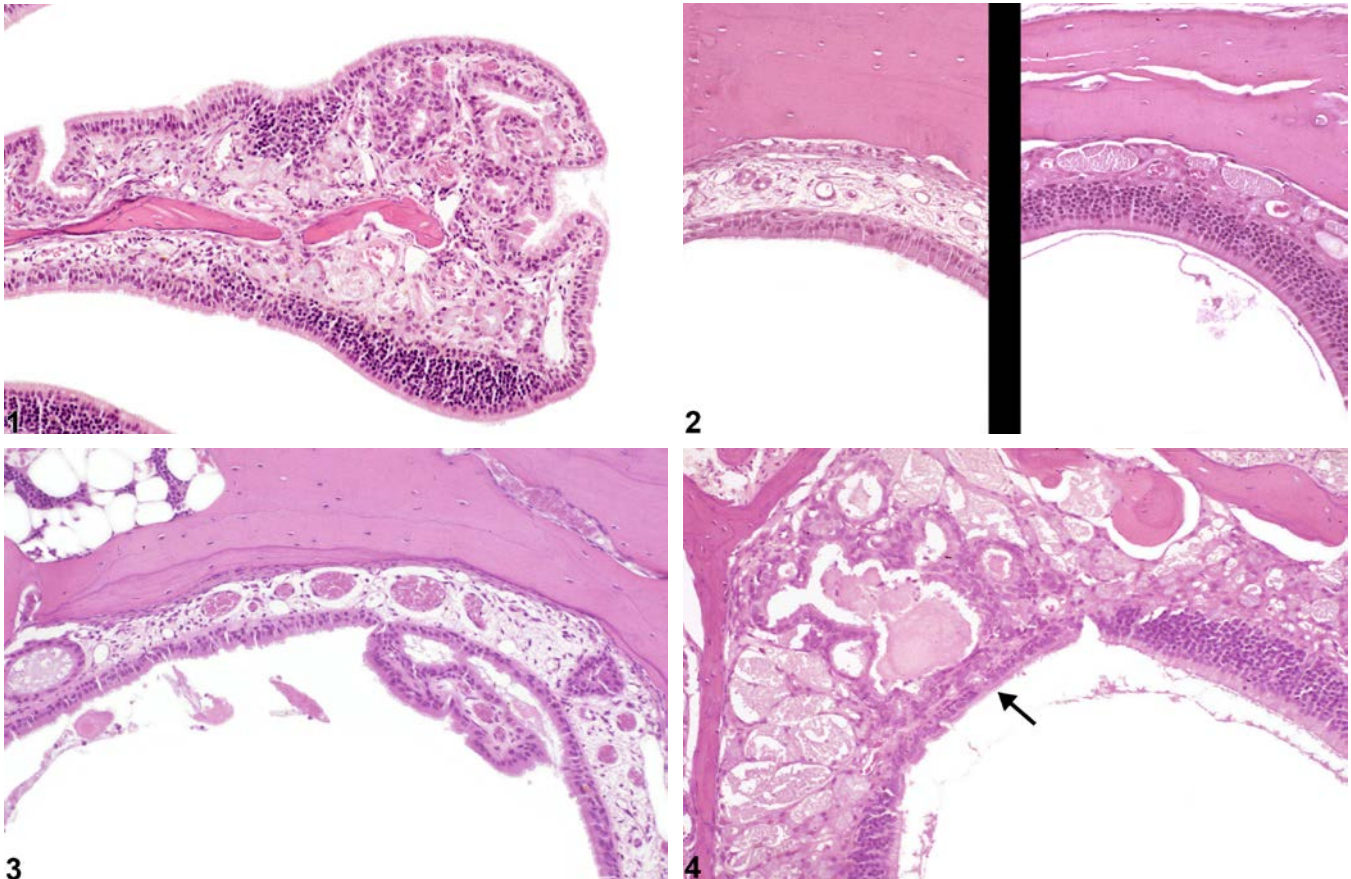
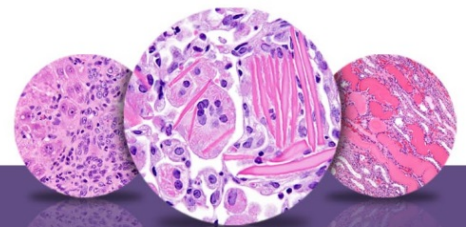


# NTP Nonneoplastic Lesion Atlas

## *Nose, Olfactory Epithelium – Metaplasia, Respiratory*



**Figure Legend:** **Figure 1** Nose, Olfactory epithelium - Metaplasia, Respiratory in a female B6C3F1/N mouse from a chronic study. There is replacement of olfactory epithelium by ciliated, respiratory epithelium. **Figure 2** Nose, Olfactory epithelium - Metaplasia, Respiratory in a treated male B6C3F1/N mouse (left) and normal olfactory epithelium from a control male B6C3F1/N mouse from a subchronic study (right). The olfactory epithelium of the treated mouse has been replaced by respiratory epithelium. Image provided courtesy of Dr. R. Miller. **Figure 3** Nose, Olfactory epithelium - Metaplasia, Respiratory in a male B6C3F1/N mouse from a chronic study. The olfactory mucosa has been completely replaced by respiratory epithelium, and there is concurrent atrophy of the olfactory nerves. Image provided courtesy of Dr. R. Miller. **Figure 4** Nose, Olfactory epithelium - Metaplasia, Respiratory in a control B6C3F1/N mouse from a chronic study. There is localized replacement of the olfactory



# NTP Nonneoplastic Lesion Atlas

## *Nose, Olfactory Epithelium – Metaplasia, Respiratory*

mucosa by respiratory epithelial cells (arrow) and dilation of Bowman's glands. Image provided courtesy of Dr. R. Miller.

**Comment:** Respiratory metaplasia is defined as the replacement of olfactory epithelium with a ciliated, respiratory epithelium (Figure 1, Figure 2, Figure 3, and Figure 4). The presence of respiratory metaplasia implies that loss of olfactory epithelium has occurred through necrosis or atrophy. Treatment-related atrophy of olfactory nerves beneath the affected olfactory epithelium can occur. Small focal, unilateral areas of respiratory metaplasia can sometimes be seen in control animals (Figure 4).

**Recommendation:** Respiratory metaplasia should be diagnosed and graded. Small, focal lesions seen in control animals should be diagnosed when the nose is an obvious or potential target organ. Necrosis or atrophy associated with respiratory metaplasia of the olfactory epithelium should not be diagnosed unless it is clearly a separate process and atrophic or necrotic areas are present elsewhere in the olfactory epithelium. It is common for respiratory metaplasia to be present in the epithelium of the Bowman's glands beneath the affected olfactory epithelium. This can be described in the narrative and not diagnosed separately unless warranted by its prominence or severity (see Nose, Olfactory epithelium, Glands - Metaplasia). Atrophy of the olfactory nerves should also be described in the narrative, unless its severity warrants a separate diagnosis.

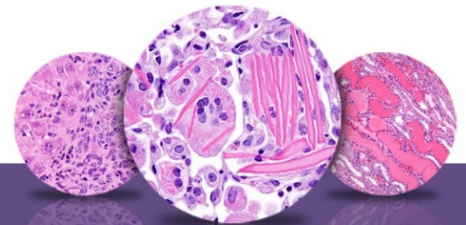
### References:

Nagano K, Katagiri T, Aiso S, Senoh H, Sakura Y, Takeuchi T. 1997. Spontaneous lesions of nasal cavity in again F344 rats and BDF1 mice. *Exp Toxicol Pathol* 49:97-104.

Abstract: <http://www.sciencedirect.com/science/article/pii/S0940299397800772>

Takeuchi T, Nagano K, Katagiri T, Aiso S, Okudaira M, Fujiwara K. 1998. Incidence of respiratory metaplasia of the nasal gland epithelium in untreated F344 rats and BDF1 mice subjected to two-year carcinogenicity studies. *J Toxicol Pathol* 11:209-212.

Abstract: [https://www.jstage.jst.go.jp/article/tox/11/3/11\\_3\\_209/article](https://www.jstage.jst.go.jp/article/tox/11/3/11_3_209/article)



# NTP Nonneoplastic Lesion Atlas

## *Nose, Olfactory Epithelium – Metaplasia, Respiratory*

### **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