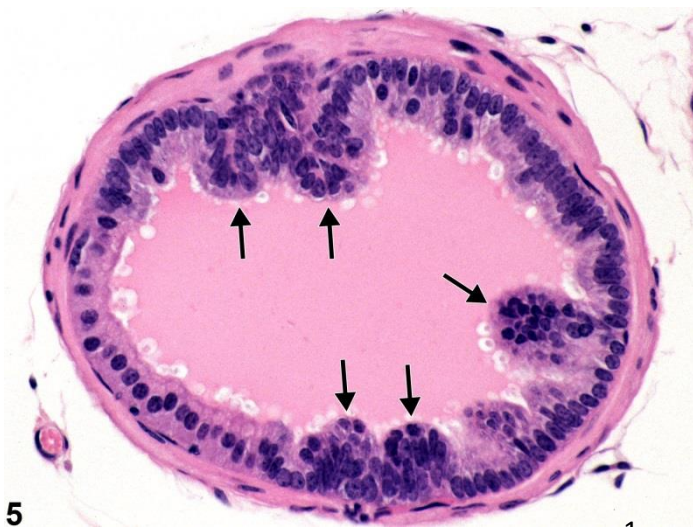
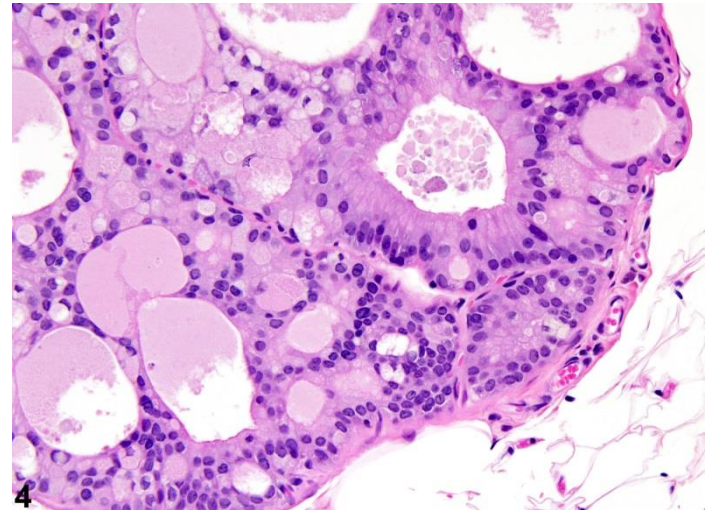
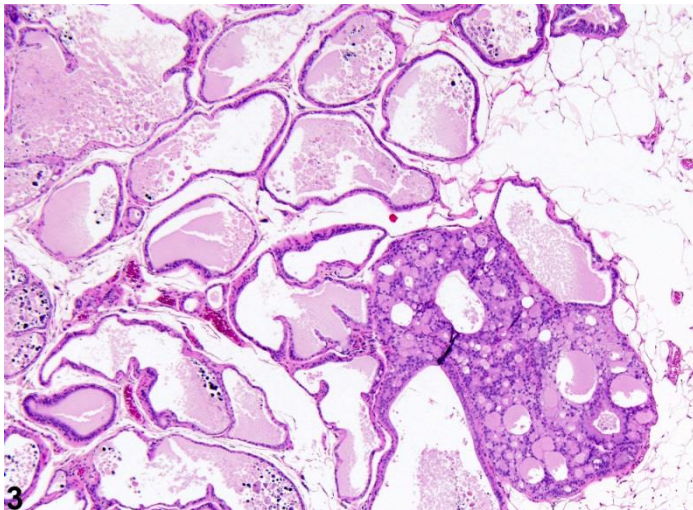
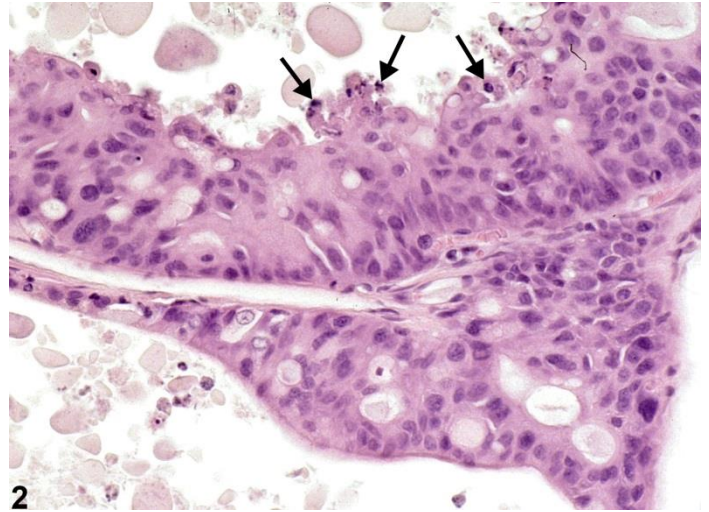
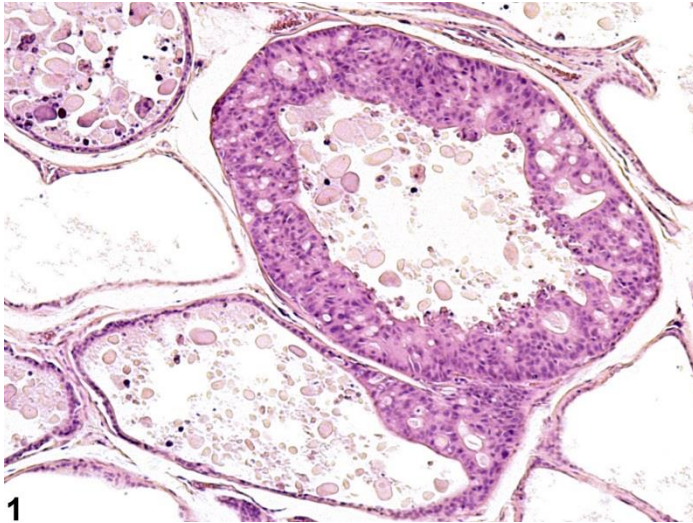
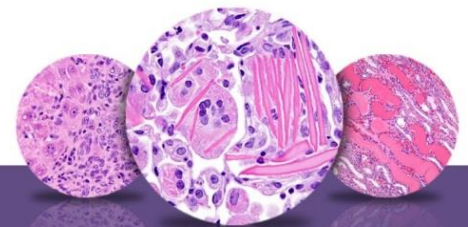


# NTP Nonneoplastic Lesion Atlas

## Prostate, Epithelium – Hyperplasia





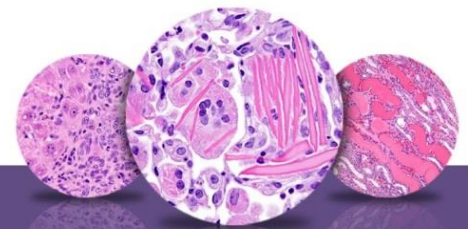
## NTP Nonneoplastic Lesion Atlas

### *Prostate, Epithelium – Hyperplasia*

**Figure Legend:** **Figure 1** Prostate, Epithelium - Hyperplasia. Epithelial hyperplasia of the prostate in a male F344/N rat from a chronic study. **Figure 2** Prostate, Epithelium - Hyperplasia. Higher magnification of Figure 1. Proliferative epithelial cells have formed a thickened lining of the affected acini, and there is evidence of associated apoptosis (arrows) in a male F344/N rat from a chronic study. **Figure 3** Prostate, Epithelium - Hyperplasia. Proliferative epithelial cells fill an acinus with multilocular areas of secretion in a male F344/N rat from a chronic study. **Figure 4** Prostate, Epithelium - Hyperplasia. Higher magnification of Figure 3. Epithelial hyperplasia of the prostate in a male F344/N rat from a chronic study. **Figure 5** Prostate, Epithelium - Hyperplasia. Arrows indicate multiple areas of hyperplasia from a male TRAMP mouse in an acute study.

**Comment:** Hyperplasia is characterized by an increased number of epithelial acinar lining cells that typically project into the acinar lumen. Hyperplasia typically affects one to three contiguous acini, and the lining cells may almost completely fill the acinar lumen but do not compress contiguous acini. The hyperplastic cells range from cuboidal to tall columnar and in the rat usually have a granular eosinophilic cytoplasm. There may be a multilocular appearance when there are multiple isolated areas of secretion (Figure 3 and Figure 4). As the hyperplastic cells pile up, some undergo degeneration and necrosis or apoptosis (arrow, Figure 2). Subcutaneous administration of the  $\alpha$ -androgenic agonist phenylephrine in rats induces prostatic hyperplasia characterized by piling up of epithelial cells, with papillary and cribriform patterns and budding out. Spontaneous age-dependent overgrowth of cells, consistent with hyperplasia, in the dorsal and ventral lobes of prostate in old brown Norway rats has been reported. Prostatic hyperplasia is seen in aging animals and can involve any lobe. Distinction from prostatic adenoma is based largely on compression of contiguous acini by an expanding and relatively discrete epithelial proliferation filling acini. By way of contrast, the prostatic hyperplasia seen in the TRAMP mouse consists of piling up of hyperbasophilic cells (arrows, Figure 5). In the TRAMP mouse these are considered prostatic intraepithelial neoplasia lesions by some investigators.

**Recommendation:** The distribution of hyperplasia should be recorded, along with the severity of this lesion. The affected lobe(s) should be identified if possible and indicated in the tissue identification (e.g., prostate, ventral lobe, epithelium hyperplasia, mild). If paired lobes are affected, the diagnosis should be qualified as bilateral and the severity score determined by the more severely affected lobe.



## NTP Nonneoplastic Lesion Atlas

### *Prostate, Epithelium – Hyperplasia*

Any potentially treatment-related increase in hyperplasia should be documented in the pathology narrative and correlated with related changes in other reproductive and endocrine tissues.

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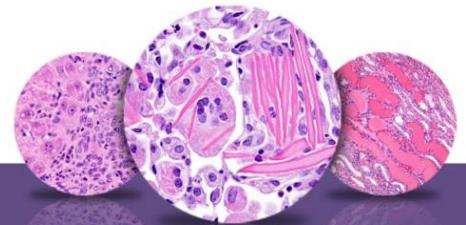
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