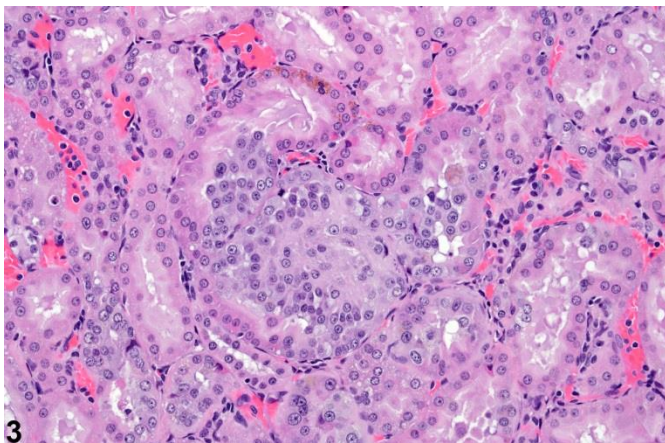
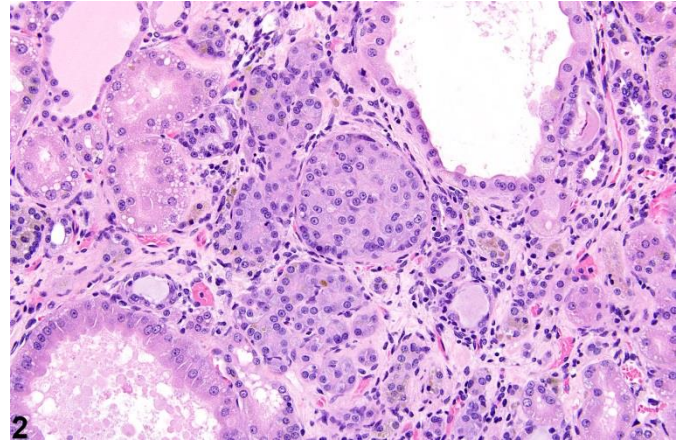
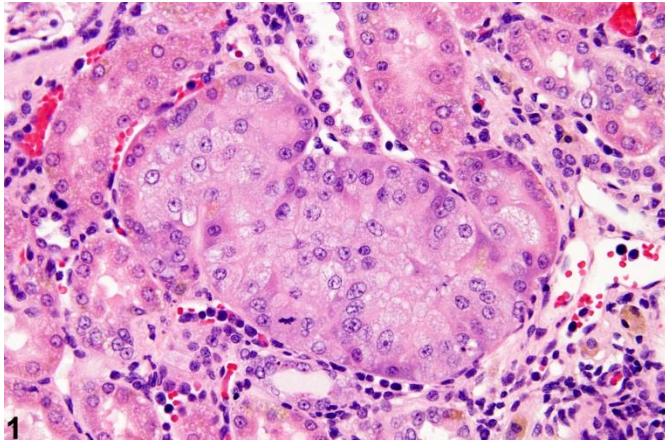




# NTP Nonneoplastic Lesion Atlas

## *Kidney, Renal Tubule – Atypical Tubule Hyperplasia*



**Figure Legend:** **Figure 1** Kidney, Renal tubule - Atypical tubule hyperplasia in a male F344/N rat from a chronic study. Atypical tubule hyperplasia is confined to one tubule and is characterized by an increase in cellularity and cell size, cytoplasmic basophilia, nuclear enlargement, and circumferential expansion. **Figure 2** Kidney, Renal tubule - Atypical tubule hyperplasia in a male F344/N rat from a chronic study. This larger focus of tubule hyperplasia contains three cross sections of presumably the same tubule. **Figure 3** Kidney, Renal tubule - Atypical tubule hyperplasia in a female F344/N rat from a chronic study. Early proliferation of epithelial cells indicates atypical tubule hyperplasia.

**Comment:** Atypical tubule hyperplasia (ATH) may occur spontaneously, in association with chronic progressive nephropathy, or as a result of chemical administration. ATH usually arises from the proximal convoluted tubule, but a distal tubule or collecting duct origin is possible. It is considered a



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putative preneoplastic lesion that is part of the continuum leading to neoplasia (Figure 1, Figure 2, and Figure 3).

ATH is characterized by an increased number of epithelial cells within the confines of a single tubule, as opposed to an adenoma, in which the proliferating cells are no longer within the confines of a single tubule. The proliferative lining epithelium in ATH is greater than two or three cell layers. Hyperplastic cells appear enlarged with a slightly basophilic “glassy” cytoplasmic sheen. Variable degrees of cytoplasmic and nuclear pleomorphism may be present. Evidence of lesion expansion is identified by fibroblast flattening and margination around the lesion. Neovascularization noted in renal tubule adenomas is not apparent in ATH.

ATH should not be confused with tubule hyperplasia, which is often observed in foci of advanced chronic progressive nephropathy (see Kidney - Nephropathy, Chronic Progressive) and characterized as a tubule lined by a single layer of increased numbers of epithelial cells. This form of tubule hyperplasia is rarely induced by chemical administration and is considered to represent a form of regeneration.

**Recommendation:** Since atypical tubule hyperplasia is presumed to be a preneoplastic lesion, it should be diagnosed and given a severity grade whenever present.

### **References:**

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