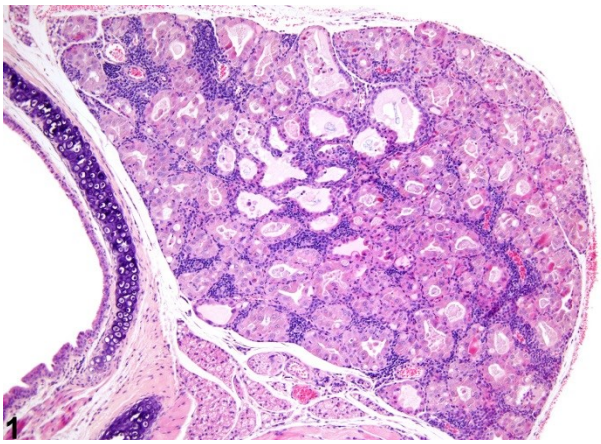
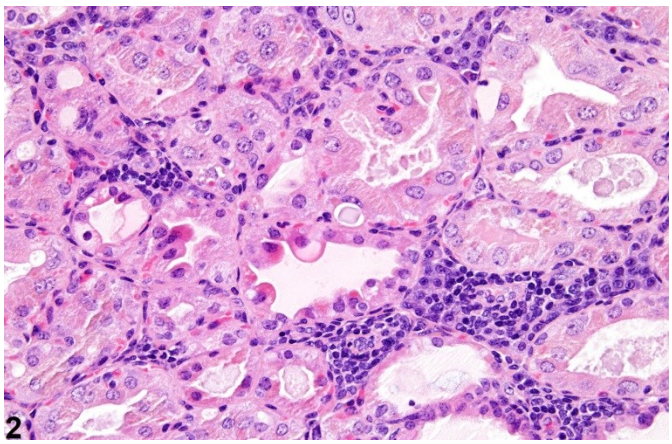
Thyroid Gland – Inflammation





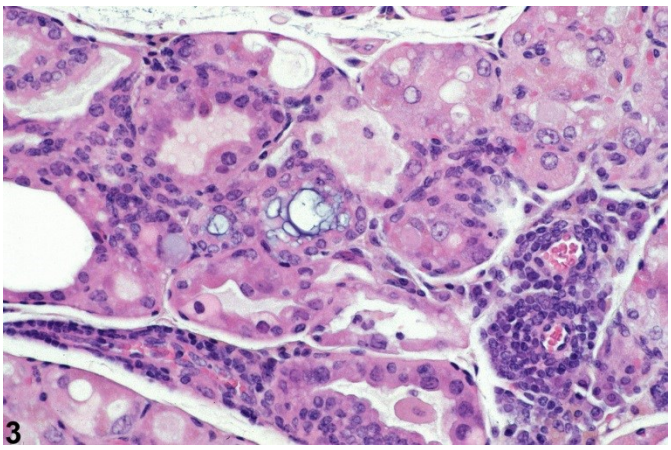
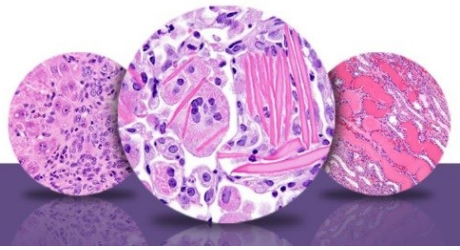


Figure Legend: **Figure 1** Thyroid Gland - Inflammation, chronic in a female Tg.AC (FVB/N) mouse from a subchronic study. Small aggregates of lymphoid cells are present at multiple sites between follicles. **Figure 2** Thyroid Gland - Inflammation, chronic in a female Tg.AC (FVB/N) mouse from a subchronic study. Higher magnification of the small aggregates of lymphoid cells in Figure 1. **Figure 3** Thyroid Gland - Inflammation, chronic in a female Tg.AC (FVB/N) mouse from a subchronic study. A perivascular accumulation of lymphoid cells is present.

Comment: NTP studies have five standard categories of inflammation: acute, suppurative, chronic, chronic-active, and granulomatous. In *acute inflammation*, the predominant infiltrating cell is the neutrophil, though fewer macrophages and lymphocytes may also be present. There may also be evidence of edema or hyperemia. The neutrophil is also the predominant infiltrating cell type in *suppurative inflammation*, but they are aggregated, and many of them are degenerate (suppurative



exudate). Cell debris from both the resident cell populations and infiltrating leukocytes, proteinaceous fluid containing fibrin, fewer macrophages, occasional lymphocytes or plasma cells, and, possibly, an infectious agent may also be present in within the exudate. Grossly, these lesions would be characterized by the presence of pus. The tissue surrounding the exudate may have fibroblasts, fibrous connective tissue, and mixed inflammatory cells, depending on the chronicity of the lesion. Lymphocytes predominate in *chronic inflammation*. Lymphocytes also predominate in *chronic-active inflammation*, but there are also a significant number of neutrophils. Both lesions may contain macrophages. *Granulomatous inflammation* is another form of chronic inflammation, but this diagnosis requires the presence of a significant number of aggregated, large, activated macrophages, epithelioid macrophages, or multinucleated giant cells.

Spontaneously occurring cellular infiltrates are rare in thyroid glands of mice and rats. Multiple changes are present in the thyroids of these treated mice (Figure 1, Figure 2, and Figure 3). Lymphoid cell infiltrates are present between follicles (Figure 1 and Figure 2) and in perivascular spaces (Figure 3). Additionally there is hypertrophy, degeneration, and necrosis of follicular epithelium.

Recommendation: Inflammation of the thyroid gland should be diagnosed and given a severity grade whenever present. The type of inflammation should be indicated in the diagnosis with a modifier (e.g., thyroid gland - Inflammation, chronic). In the absence of other changes characteristic of inflammation (e.g., edema, necrosis, degeneration), a diagnosis of cellular infiltrate with the cell type identified (e.g., thyroid gland - infiltrate, lymphoid) may be preferred. Other changes (e.g., colloid depletion, follicular cell degeneration, necrosis) not be diagnosed separately unless warranted by their severity. These other changes can be described in the pathology narrative. The diagnosis should indicate whether the inflammation is bilateral, with the severity grade based on the more severely affected thyroid.

References:

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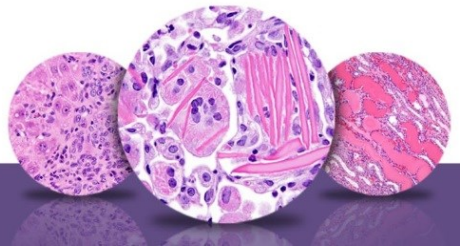

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