Figure Legend: Figure 1 Kidney - Nephroblastomatosis in a female Harlan Sprague-Dawley rat from a subchronic study. An area of dense basophilic cellularity can be seen in the renal cortex. Figure 2 Kidney - Nephroblastomatosis in a female Harlan Sprague-Dawley rat from a subchronic study. The cells are deeply basophilic and uniform in morphology. They are infiltrating between renal tubules, and no organoid differentiation of the lesion can be recognized. Figure 3 Kidney - Nephroblastomatosis in a female Harlan Sprague-Dawley rat from a subchronic study. At higher magnification, the cells in nephroblastomatosis have indistinct cell margins and cytoplasm, round to oval nuclei with stippled chromatin, and often a prominent nucleolus. Figure 4 Kidney - Infiltration, Cellular, Mononuclear in a female Harlan Sprague-Dawley rat from a subchronic study. This higher magnification of mononuclear
Kidney – Nephroblastomatosis

cell infiltration, characterized by a heterogeneous population of cells in the kidney and small blood vessels, is for comparison with Figures 1 - 3.

Comment: Nephroblastomatosis can be a spontaneous lesion and is the presumptive precursor lesion of nephroblastoma. On low power, nephroblastomatosis appears as an area of densely basophilic cellularity (Figure 1 and Figure 2). On higher magnification, uniform cells are seen infiltrating between renal tubules and are characterized by having indistinct cell margins and cytoplasm and round to oval nuclei with stippled chromatin (Figure 3). The distinction between nephroblastomatosis and nephroblastoma is somewhat arbitrary and depends on differentiation into any organoid (tubule, glomeruloid) structures, which is seen in nephroblastomatosis, and the overall size of the lesion. Differentiation from other lesions such as cellular infiltrates, inflammation, or lymphoma usually depends on the presence of a more heterogeneous population of cell types, which often have a focal to multifocal perivascular distribution, and/or the presence of associated cells in blood vessels within the lesion (Figure 4).

Recommendation: Nephroblastomatosis should be diagnosed whenever present and given a severity grade.

References:

Kidney – Nephroblastomatosis

Authors:

John Curtis Seely, DVM, DACVP
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC

Amy Brix, DVM, PhD, DACVP
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC