## *Spleen – Apoptosis, Lymphocyte*

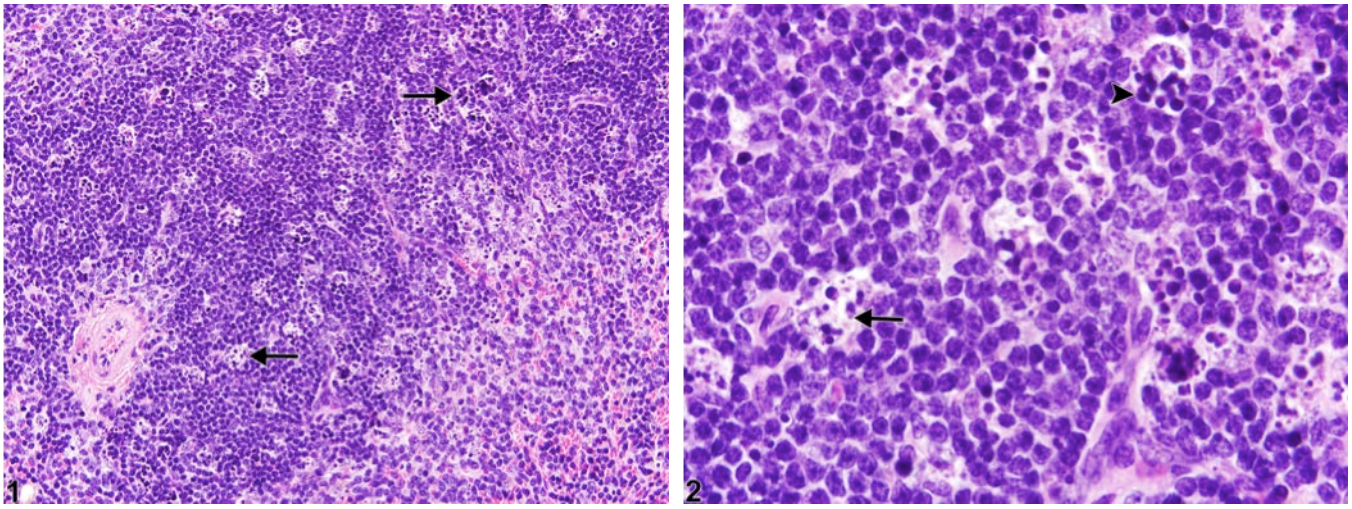
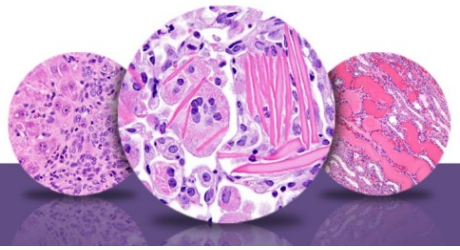



**Figure Legend: Figure 1** Spleen - Apoptosis, Lymphocyte in a female B6C3F1/N mouse from a subchronic study. Tingible body macrophages are scattered throughout the splenic white pulp (arrows). **Figure 2** Spleen - Apoptosis, Lymphocyte in a female B6C3F1/N mouse from a subchronic study (higher magnification of Figure 1). Tingible body macrophages (arrow) contain intracytoplasmic fragments of apoptotic lymphocytes (apoptotic bodies) (arrowhead).

**Comment:** Lymphocyte apoptosis normally occurs in the B-cell-rich follicular germinal centers of the spleen of rodents but may also be increased in B-cell and/or T-cell (periarteriolar lymphatic sheaths) compartments with experimental exposures to radiation, viruses, endotoxin, or chemicals. Apoptosis is characterized by shrinkage of individual lymphocytes, condensation of nuclear chromatin, and fragmentation of apoptotic cells into membrane-bound bodies (apoptotic bodies) (Figure 2, arrowhead), which are subsequently phagocytized by macrophages (tingible body macrophages) (Figure 1 and Figure 2, arrows). Significant lymphocyte apoptosis may lead to atrophy of one or more white pulp compartments. Historically, apoptosis of lymphocytes has been called “lymphocyte necrosis,” but the correct terminology for this lesion is “lymphocyte apoptosis.” A diagnosis of necrosis should be used when the predominant cytomorphology is consistent with the classic forms of necrosis (see Spleen - Necrosis). Necrosis is characterized by cell swelling, condensation, fragmentation and dissolution of the nucleus, cell lysis, and accumulation of abundant eosinophilic cytoplasmic and karyorrhectic nuclear debris. Inflammation is generally present with necrosis.



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**Recommendation:** When increased above that seen in concurrent controls, lymphocyte apoptosis in the spleen should be diagnosed and assigned a severity grade. Lymphocyte apoptosis must be differentiated from splenic necrosis.

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