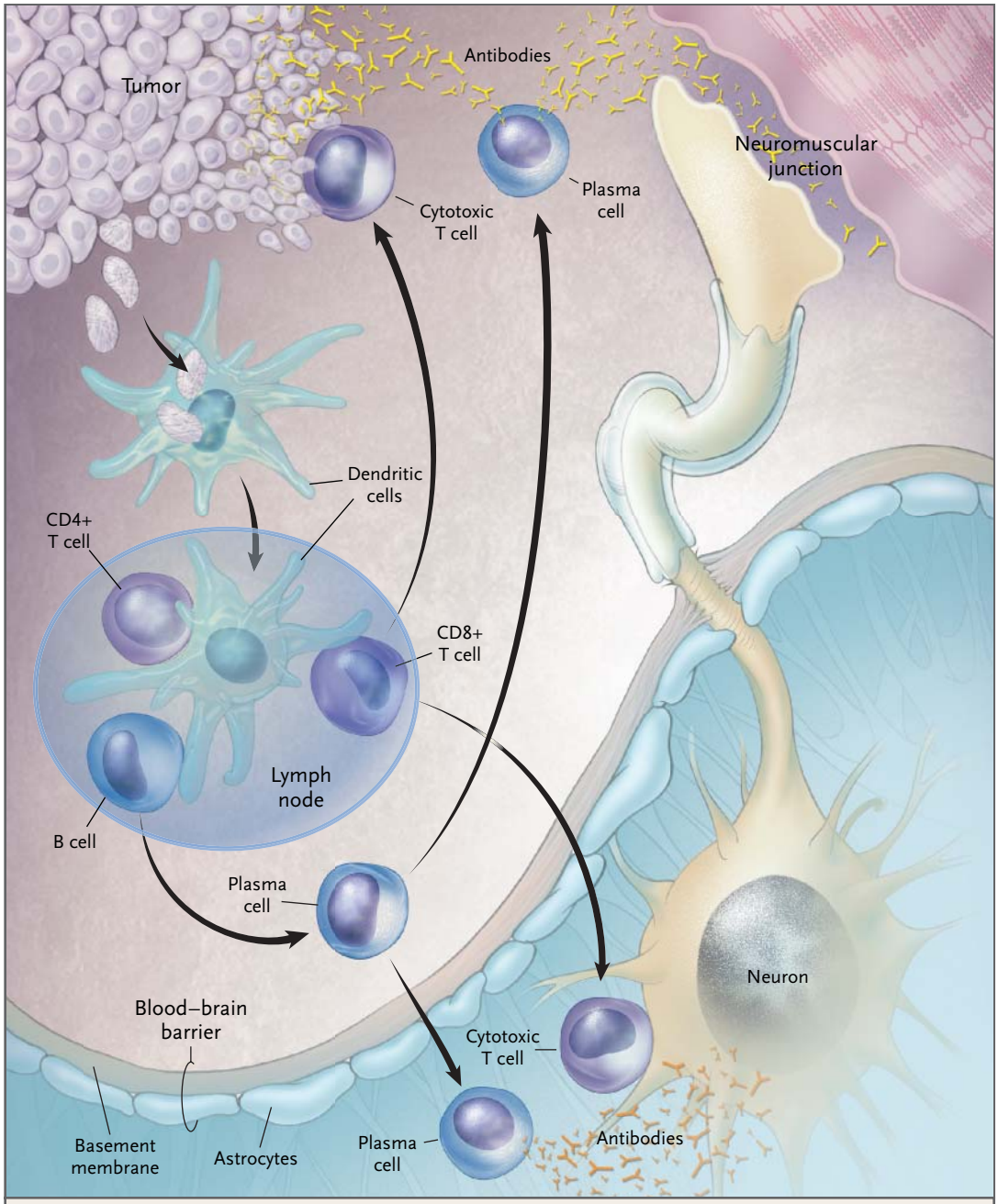

Figure 2. Proposed Pathogenesis of Paraneoplastic Neurologic Disorders.

A tumor not involving the nervous system expresses a neuronal protein that the immune system recognizes as nonself. Apoptotic tumor cells are phagocytized by dendritic cells that migrate to lymph nodes, where they activate antigen-specific CD4+, CD8+, and B cells. The B cells mature into plasma cells that produce antibodies against the tumor antigen. The antibodies or the cytotoxic CD8+ T cells (or both) slow the growth of the tumor, but they also react with portions of the nervous system outside the blood–brain barrier. In the illustration, antibodies are reacting with voltage-gated calcium channels at the neuromuscular junction, causing the Lambert–Eaton myasthenic syndrome. In some instances, plasma cells and cytotoxic T cells cross the blood–brain barrier and attack neurons expressing the antigen they share with the tumor.