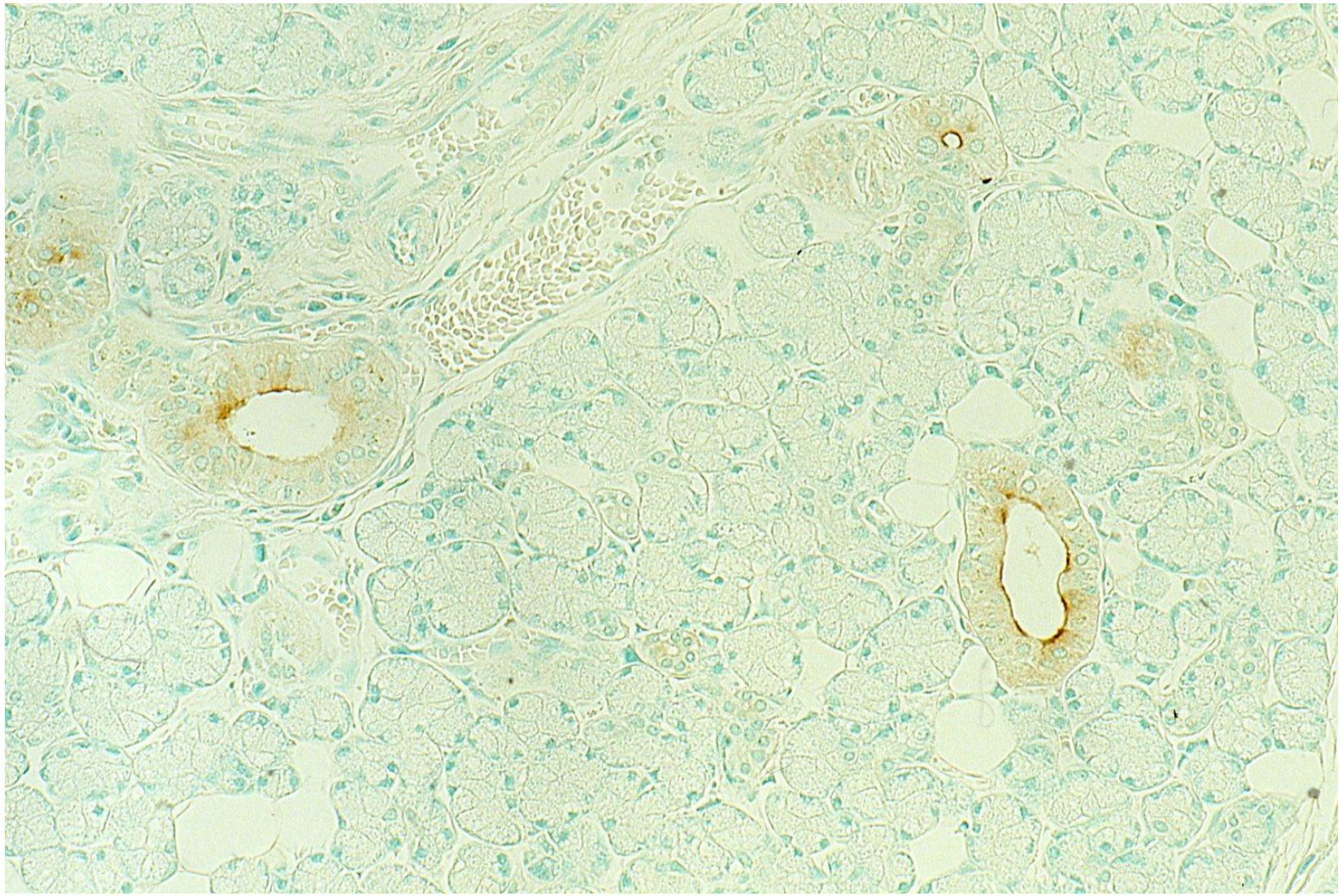
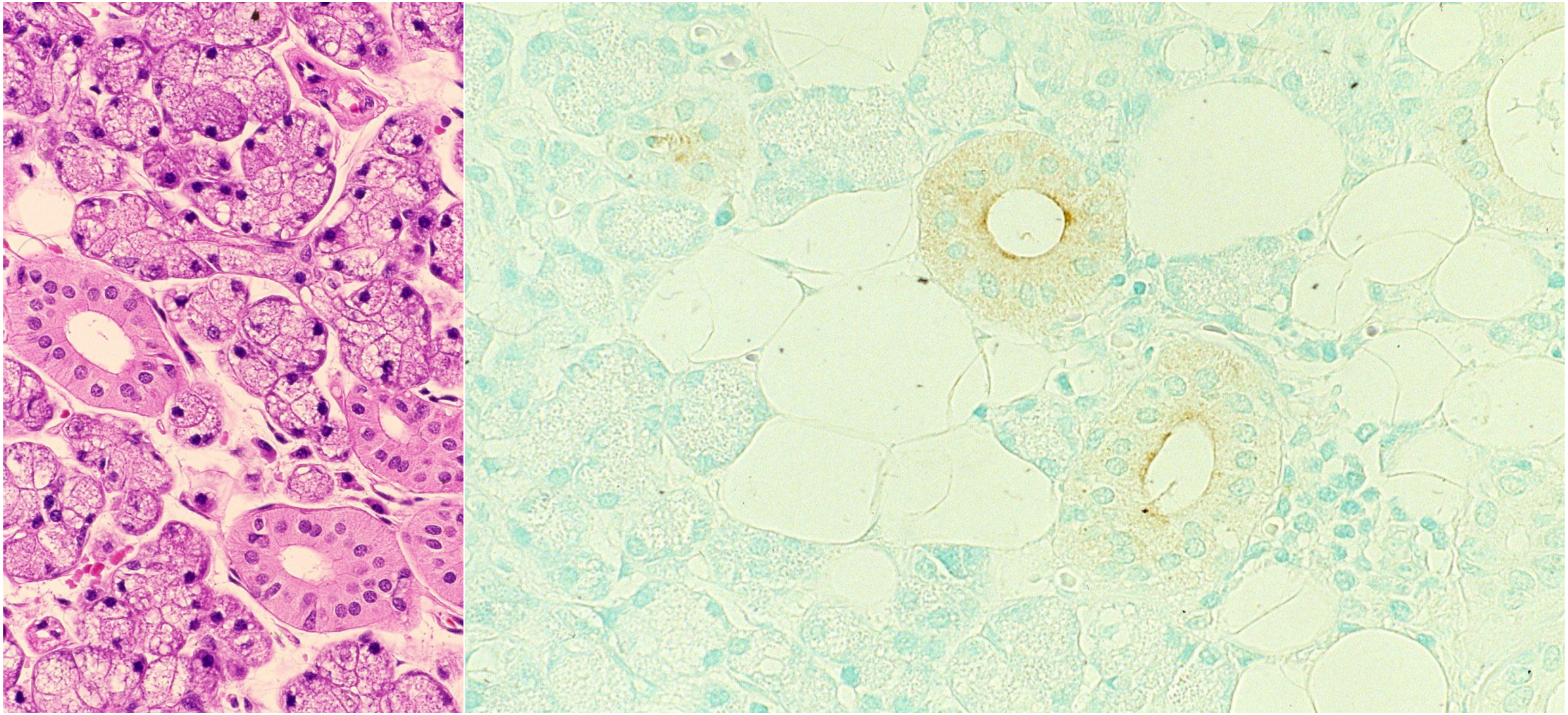
Cross-reactivity of PSA with normal and neoplastic salivary gland ducts

Prostate-specific antigen (PSA), a kallikrein-like enzyme present in the seminal plasma, is believed to be a specific marker of prostatic glandular epithelial cells and their neoplasm. It should be noted that PSA immunoreactivity detected by PSA antiserum is demonstrated in the apical cytoplasm of striated duct epithelial cells of the major salivary (parotid and submandibular) gland of both sexes. No PSA-like immunoreactivity is seen in large-sized duct epithelial cells and acinar cells. Minor salivary gland ducts are negative. In salivary gland lesions with inflammatory and atrophic changes, ductal expression of PSA-like immunoreactivity is decreased, and the site of intracellular localization often becomes diffusely cytoplasmic. The immunoreactivity can be absorbed by human seminal plasma. Immunoreactivities of prostatic acid phosphatase and sex hormone receptors are undetectable in the salivary gland. Twenty-nine (34%) of 86 salivary gland tumors with ductal differentiation are also immunoreactive for PSA mainly in the cytoplasm. A PSA monoclonal antibody ER-PR8 detects immunoreactivity in the prostate but not in the salivary glands or their tumors. Prostate-specific antigen-like immunoreactivity in small-sized (striated) duct epithelial cells of the major salivary gland and their tumors may be due to a cross-reactivity of the antiserum with kallikrein-like substances commonly distributed in the prostate and salivary gland (see HN-205-a-SalivG).

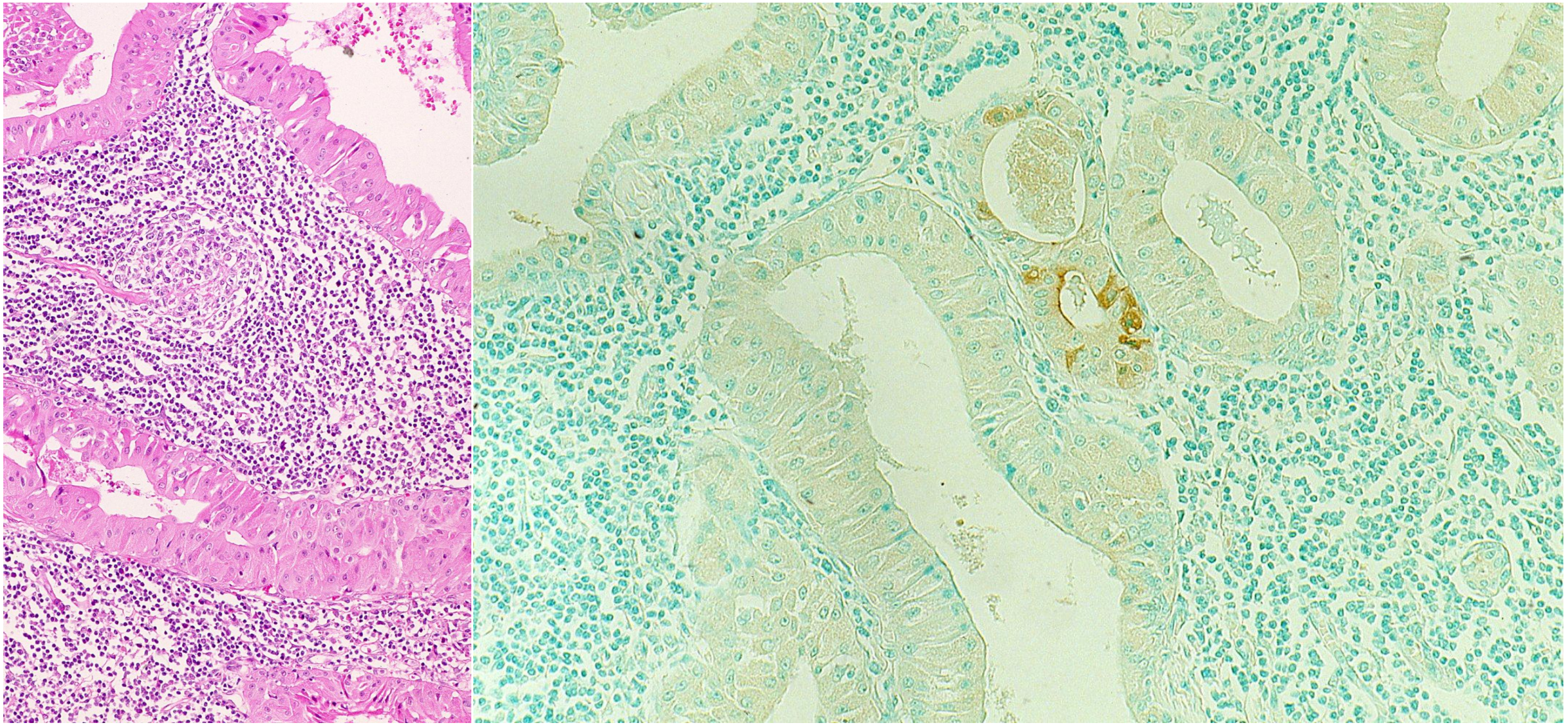
Ref.: Tazawa K, et al. Localization of prostate-specific antigen-like immunoreactivity in human salivary gland and salivary gland tumors. Pathol Int 1999; 49(6): 500-505. doi: 10.1046/j.1440-1827.1999.00900.x



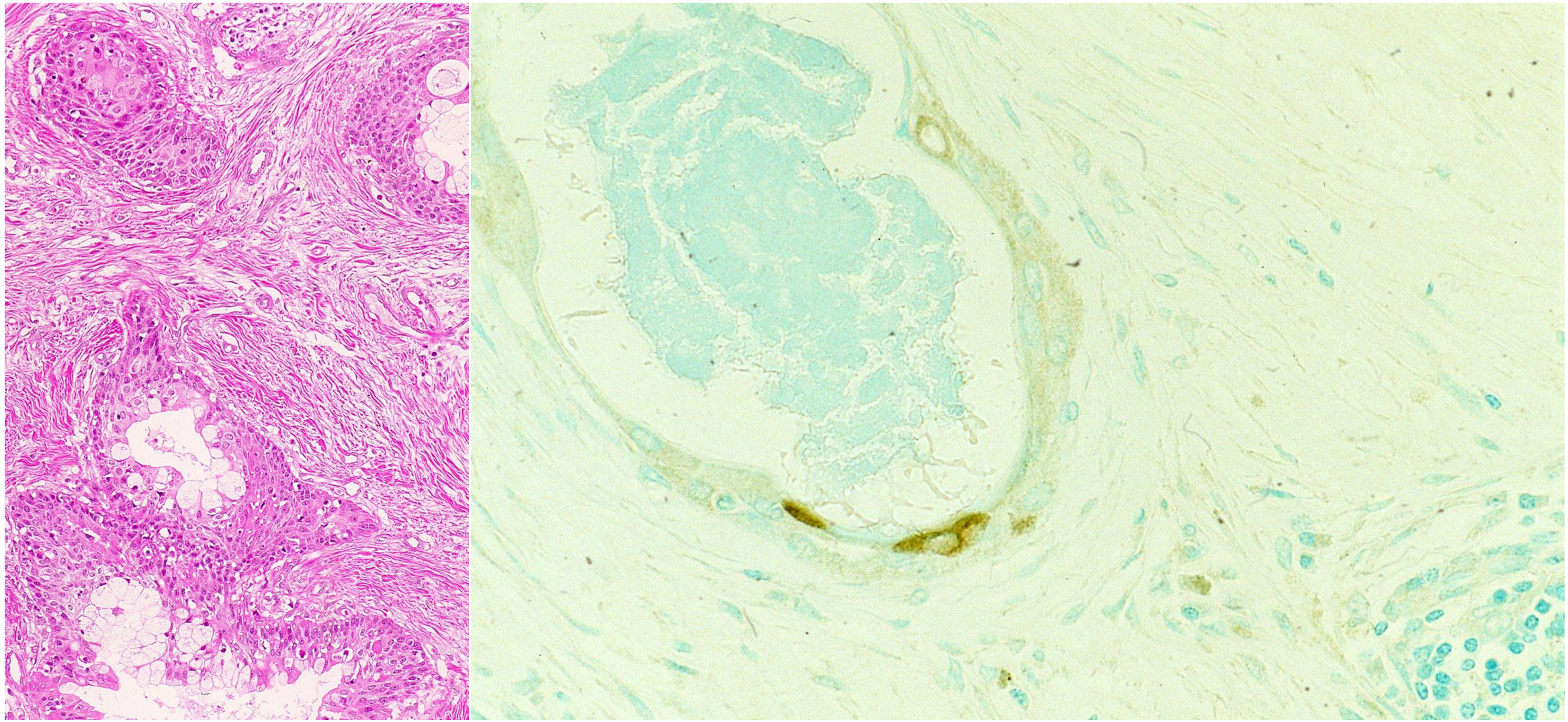
PSA-like immunoreactivity in normal parotid gland. The apical cytoplasm of the striated ductal epithelial cells are labeled with the PSA antiserum (PSA immunostaining).



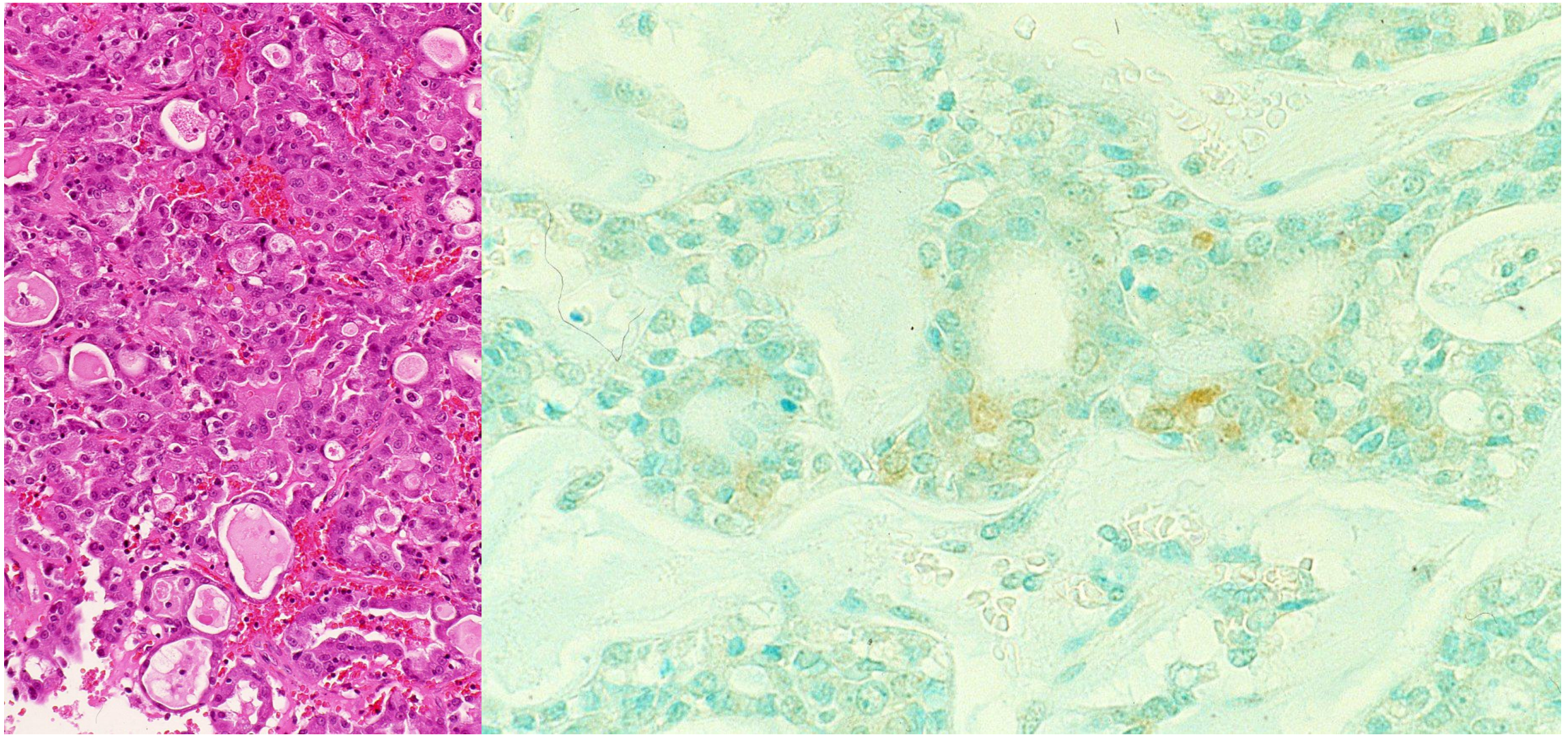
PSA-like immunoreactivity in normal parotid gland. The apical cytoplasm of the striated ductal epithelial cells are labeled with the PSA antiserum (left: H&E, right PSA).



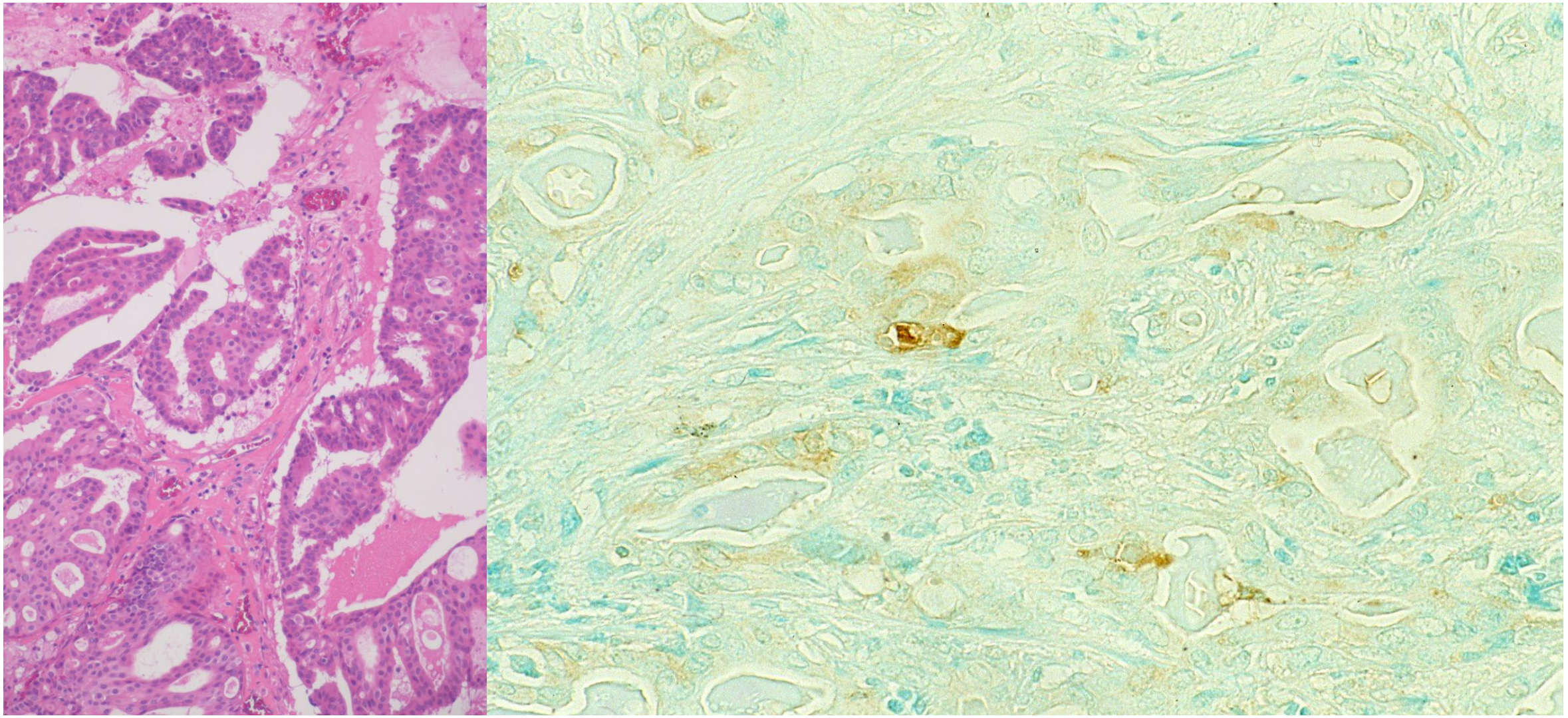
PSA-like immunoreactivity in Warthin's tumor of the parotid gland. Striated duct-like small ducts in Wartin's tumor are labeled with the PSA antiserum (left: H&E, right: PSA).



PSA-like immunoreactivity in mucoepidermoid carcinoma of the parotid gland. Some ductal cells in mucoepidermoid carcinoma are labeled with the PSA antiserum (left: H&E, right: PSA).



PSA-like immunoreactivity in acinic cell carcinoma of the parotid gland. Some tumor cells with ductal differentiation in acinic cell carcinoma are labeled with the PSA antiserum (left: H&E, right: PSA).



PSA-like immunoreactivity in salivary duct carcinoma of the parotid gland. Some tumor cells with ductal differentiation in salivary duct carcinoma are labeled with the PSA antiserum (left: H&E, right: PSA).