



Veterinary Research
Scholars Program
University of Missouri

Detection of Canine Papillomavirus in Apocrine Gland Anal Sac Adenocarcinoma



Comparative Oncology
Radiobiology and
Epigenetics Laboratory
University of Missouri

Ethan Bugg, Keiichi Kuroki, Senthil Kumar, Jeffrey Bryan, and Brian Flesner

Background

Papillomaviruses (PV) are nonenveloped DNA viruses that infect skin and mucosa. In humans, pathologies arising from differing strains of human papilloma virus (HPV) range from benign papillomas to dysplastic neoplasms. Viral proteins from genes E6 and E7 are associated with the loss of p53 and retinoblastoma (Rb). PV infection and subsequent neoplasms have been reported in veterinary medicine. Currently, 20 species of canine papillomavirus (CPV) are known to exist. Malignant neoplasms are rare but recently there was a report from the Michigan State University Veterinary Diagnostic Laboratory where seven dogs developed oral squamous cell carcinoma (SCC) after CPV1 infection. In humans, the most common cause of anorectal cancer is HPV. Apocrine gland anal sac adenocarcinoma (AGASACA) is one of the most common perianal tumors in dogs. It is highly aggressive with metastatic rates as high as 96%. We hypothesize that CPV is present in apocrine gland anal sac carcinoma.

Results

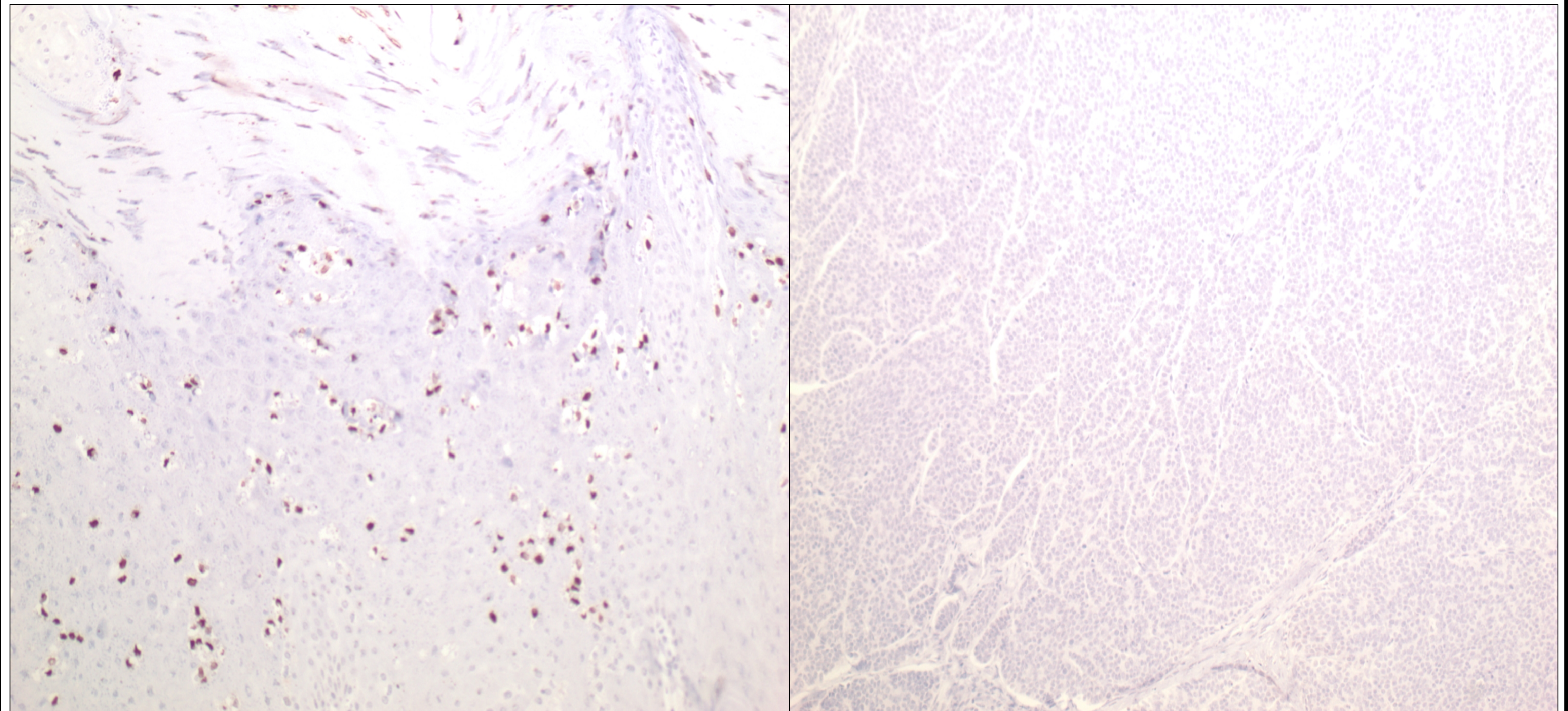
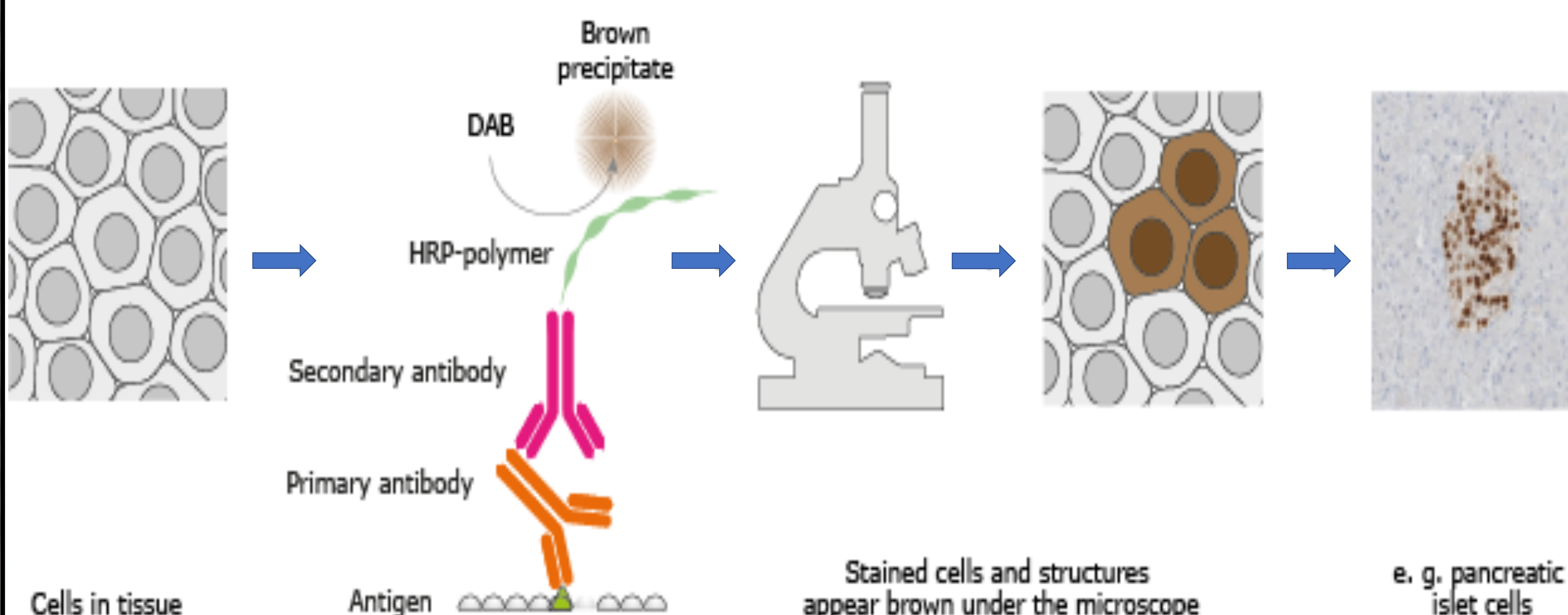
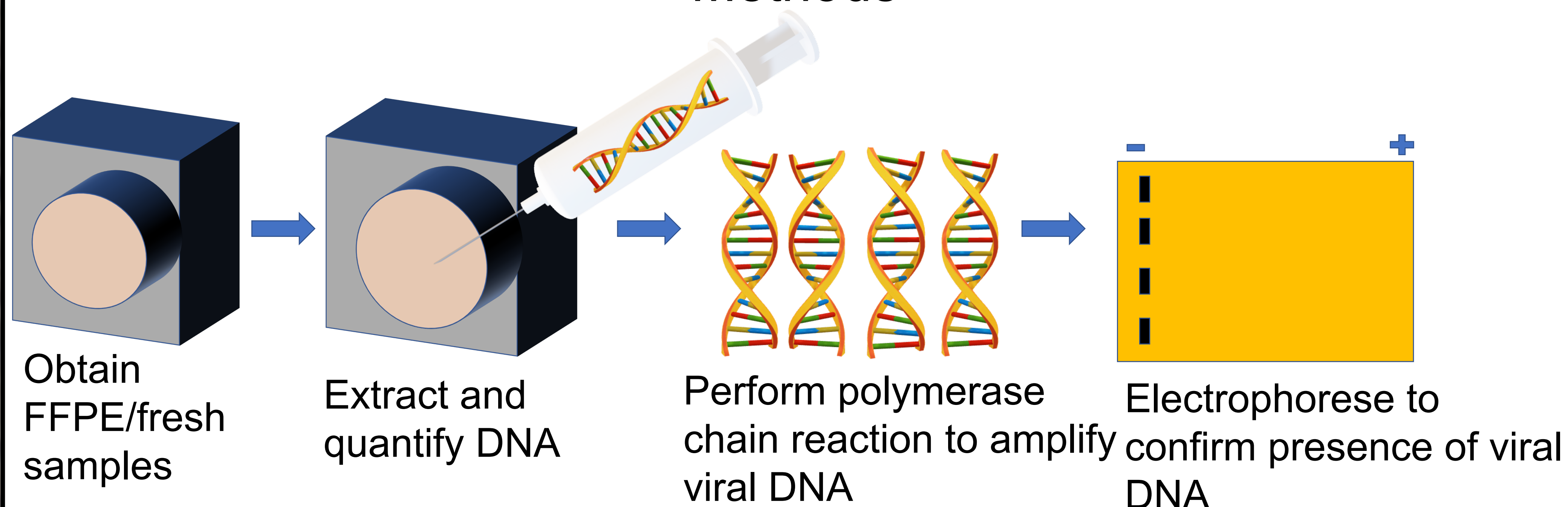


Figure 3. (a) Cutaneous papilloma stained with IHC for L1 capsid protein. Brown stained areas are positive for L1 from CPV. (b) AGASACA stained with IHC for L1 capsid protein. No staining is observed.

Methods



www.proteinatlas.org/learn/method/immunohistochemistry

Expected Outcomes

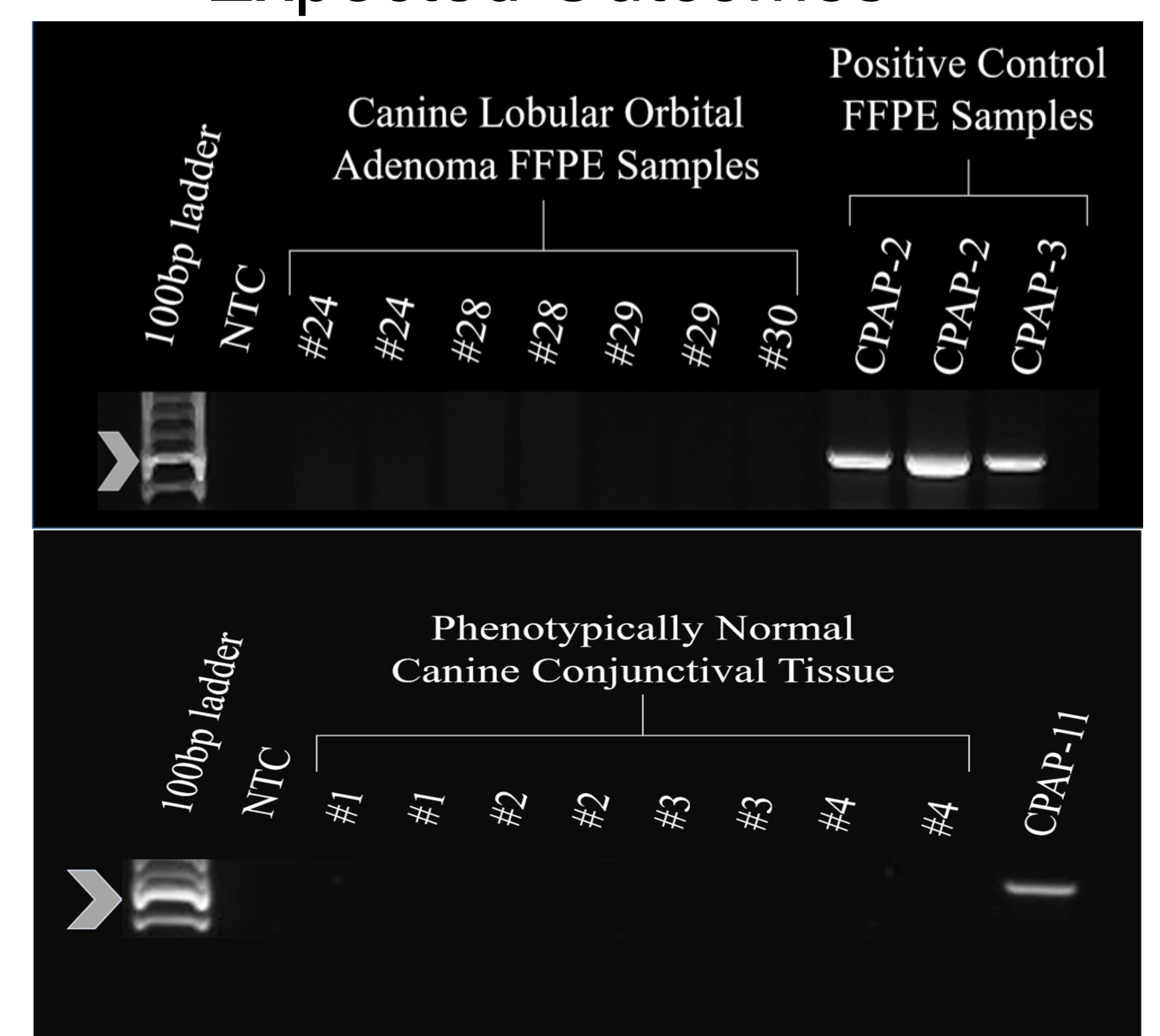


Figure 2. The gels show a PCR for CPV in canine lobular orbital adenoma done previously. We will perform the same PCR in AGASACA.

Conclusions

- PCR for the L1 capsid gene in AGASACA is in progress.
- IHC staining for the L1 capsid protein was negative.
- CPV is unlikely to be present in AGASACA.

