

### PRODUCT FOCUS -- Tools for the detection of HPV and related cancer diagnoses

**Human papillomavirus (HPV)** is a diverse group of 200+ DNA viruses that infect epithelial tissue, and are transmitted primarily through skin-to-skin or sexual contact. Many HPV infections are asymptomatic and not permanent, however persistent infection with high-risk types, especially HPV16 and HPV18, can promote malignant progression.

**HPV is the principal cause of cervical cancer** and strongly associated with anogenital cancers and a subset of head and neck cancers, particularly oropharyngeal carcinoma. Low-risk types, such as HPV6 and HPV11, are linked to benign lesions like genital warts and papillomas. HPV is extremely common as an infection, but a smaller subset progresses to clinically significant disease, with high-risk types (especially HPV16/18) responsible for the majority of cancer-related burden with ~700,000 new cases/yr worldwide (5% of all cancers).

**IHC can be used** to confirm the presence of HPV structural proteins in carcinomas. In addition, IHC is used to identify surrogate markers of HPV-driven oncogenesis—such as p16—as opposed to detecting the virus directly. p16 IHC is a standard screening tool in the diagnosis of HPV-associated cancers. Other supportive markers include Ki-67 and p53 making IHC a rapid and cost-effective on FFPE tissue yielding strong prognostic value.

Zeta offers **two high-utility antibody cocktails** for HPV detection. They are described below:

#### HPV Cocktail

(clones CAMVR-1 & CIP5)

Useful for identifying active viral infection.

Recombinant antibody cocktail containing two defined monoclonals that recognize HPV. Immunogens are HPV16 L1 capsid protein and full-length E6 proteins from HPV16 and HPV18.

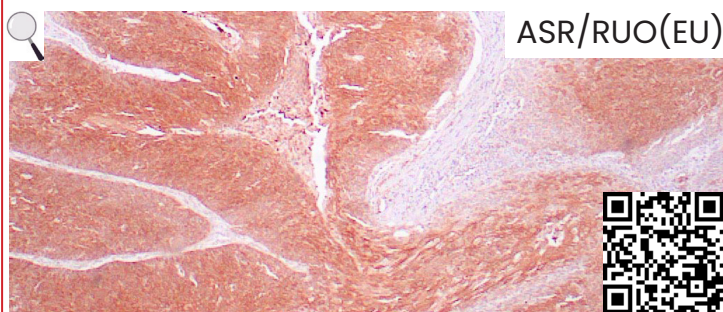
The cocktail is designed to detect HPV structural (capsid) proteins, particularly the L1 protein. HPV L1 capsid protein is expressed in productive (episomal) HPV infections - on a single slide.

These antibodies are most useful in highlighting viral presence in infected epithelial cells and benign lesions (e.g., condylomas, papillomas) and low-grade dysplasia where viral replication is active. [\(more\)](#)

**Species:** Mouse Monoclonals

**Cat#:** [Z2657](#)

**IHC:** Human cervical carcinoma stained with the HPV cocktail. Note the nuclear and cytoplasmic staining of carcinoma cells.



#### HPV Infected Tumor Cocktail

**DUALstain™** (clones ZR407 & ZM67)

Targets cell cycle dysregulation caused by high-risk HPV.

Recombinant antibody cocktail containing two defined monoclonals (p16<sup>INK4a</sup> and Ki-67) that recognize specific proteins that help assess the prognosis for tumors that have been shown to have previous HPV infection.

The cocktail is useful in the identification of tumor cells co-expressing both tumor suppression marker p16<sup>INK4a</sup> (red) and cell proliferation marker Ki-67 (brown) in HPV infected tumors, such as high-grade dysplasia and carcinomas. [\(more\)](#)

**Species:** Rabbit (p16<sup>INK4a</sup>) & Mouse (Ki-67) Monoclonals

**Cat#:** [Z2835](#)

**IHC:** Human cervical HPV-associated squamous cell carcinoma (SCC) stained with HPV INFECTED TUMOR Cocktail Antibodies using DAB-conjugate anti-mouse (Ki-67) and AP-conjugated anti-rabbit (p16<sup>INK4a</sup>). Note the SCC is strongly positive for P16 (red) with a high Ki-67 index (~50%) (brown).

