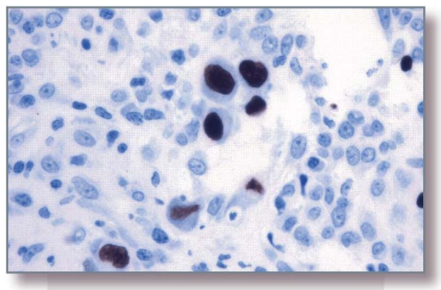
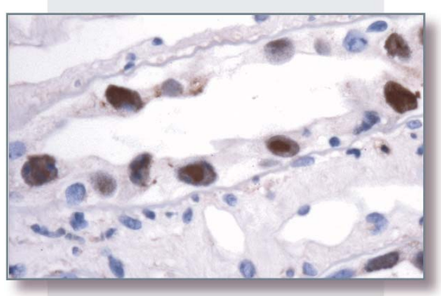
A wide range of microorganisms, from bacteria to viruses, can be identified in formalin-fixed, paraffin-embedded tissue sections. In many cases, IHC offers distinct advantages over special stains, both in terms of overall sensitivity, as well as the ability to detect the presence of antigen, even when the organism is no longer intact. In some cases, in situ hybridization is the best method of detecting the presence of a viral organism. The accompanying image gallery provides examples of the detection of organisms by IHC or in situ hybridization.

Organisms that can be Identified by IHC / In Situ Hybridization

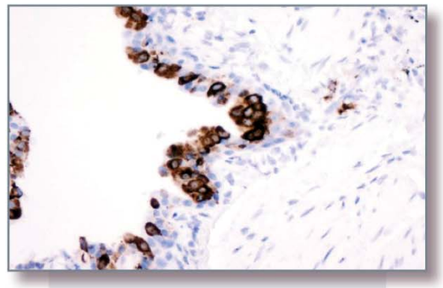
- Adenovirus
- Chlamydia
- Cytomegalovirus
- Epstein-Barr virus (EBER1 by in situ hybridization)
- Epstein-Barr virus (EBV-LMP by IHC)
- Helicobacter pylori
- Hepatitis B core and surface antigens
- Herpes simplex (HSV-I/II)
- HHV-8 (KSHV)
- Parvovirus
- Pneumocystis carinii
- Polyomavirus (BK, JC and SV-40 viruses)
- Respiratory syncytial virus (RSV)
- Toxoplasma gondii
- Varicella zoster



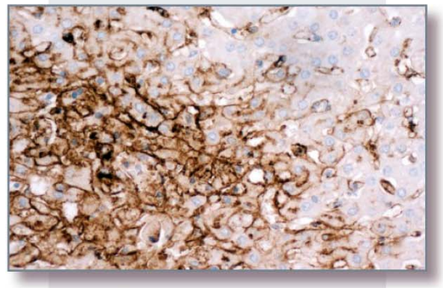
Cytomegalovirus
Antibodies to CMV show localization of the antigen in infected endothelial cells in a rectal biopsy of an immunosuppressed transplant patient.



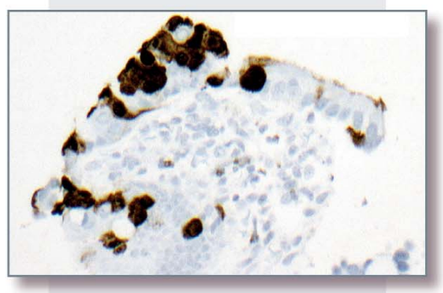
Polyomavirus (BK, JC and SV-40 viruses)
Antibodies to polyomavirus highlight infected renal tubular epithelial cells in a renal transplant patient.



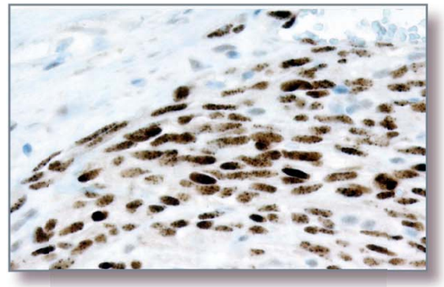
RSV
Respiratory syncytial virus localization to cells in bronchiole of a child.



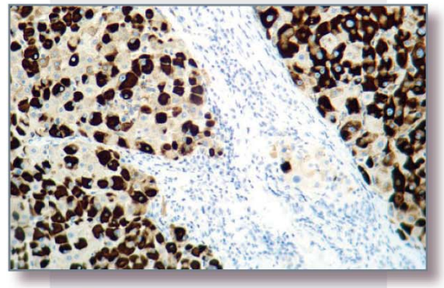
Varicella zoster
This liver biopsy was obtained from an immunosuppressed patient with varicella zoster hepatitis.



Adenovirus
Duodenal mucosa showing adenovirus-infected cells.

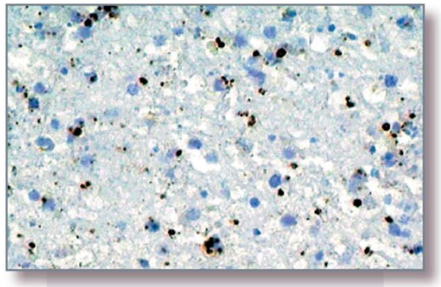


HHV-8
The speckled nuclear pattern of HHV-8 immunoreactivity confirms the diagnosis of Kaposi sarcoma in an AIDS patient.

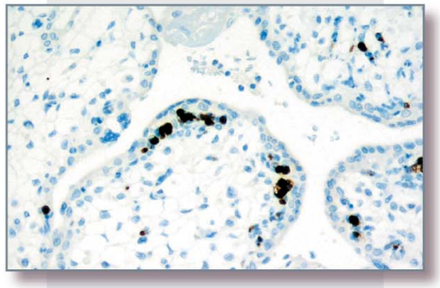


HbsAg
Antibodies to Hepatitis B surface antigen (HbsAg) show localization of the antigen in the cytoplasm of the infected hepatocytes in a characteristic granular staining pattern.

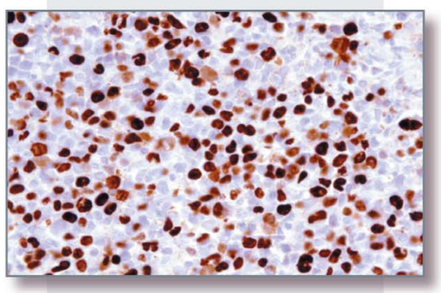
Helicobacter pylori
A gastric biopsy from a patient with gastritis demonstrates numerous Helicobacter pylori organisms by IHC.



Toxoplasma
This brain biopsy from a patient with rapid onset of symptoms suggested the presence of Toxoplasma, which was confirmed using IHC studies in which Toxoplasma tachyzoites were identified.



Parvovirus
Parvovirus may be associated with fetal loss and can be identified using specific antibodies, as seen in this placenta.



EBER1
In situ hybridization showing positive nuclear signal identifying EBV EBER1 RNA, characteristic of post-transplant lymphoproliferative disorder (PTLD).