
Anti-p16^{INK4A} / DIA-P16-OD

Mouse monoclonal anti-T cell marker

Clone JAP16

Product Information

Catalog No.:	DIA-P16-OD	Presentation:	Purified antibody in Tris pH 7.3-7.7 with 1% BSA, <0.1% NaN ₃
Clone:	JAP16	Applications:	Immunohistochemistry (IHC), standard formalin-fixed paraffin sections
Isotype	Mouse IgG2b	Dilutions:	1:100 - 1:200 IHC-P
Quantity	100µl		(General recommendation, validation of antibody performance/protocol is the responsibility of the end user. Positive/negative controls should be run simultaneously with samples)
Specificity:	p16 (INK4A)		
Physical State:	Liquid		
Species			
Reactivity:	Human		
Positive Control:	Cervical Carcinoma		
Visualization:	Cytoplasm and nuclei		

Background

Mouse monoclonal anti-p16 antibody clone JAP16 is suitable for the immunohistological detection of p16 in routine-fixed paraffin embedded tissue sections

P16 plays an important role in cell cycle regulation. It is the principal member of the Ink4 family of cyclin-dependent kinase (CDK) inhibitors. Binding of p16 inhibits formation of an active CDK4/6 complex and subsequent phosphorylation of retinoblastoma (Rb) protein. Since phosphorylation of Rb protein is a critical step for cell cycle progression from G1 to S phase, p16-binding to the upstream kinase leads to cell cycle arrest. Consequently, p16 is a negative regulator of cell proliferation and thus, a strong tumor suppressor.

Approx. 50% of all human cancers show p16 inactivation, these include head and neck, esophagus, biliary tract, liver, lung, bladder, colon and breast carcinomas; leukemia; lymphomas; and glioblastomas. Moreover, besides downregulation of p16 in cancer, p16 overexpression has been observed in HPV (human papilloma virus)-related tumors, cervical cancer and head and neck squamous carcinomas. The p16-Rb pathway is a target for viral oncoproteins. The E7 oncoprotein from HPV inactivates Rb. Thus, p16 overexpression in HPV-related tumors reflects cell cycle dysregulation by an unsuccessful attempt to stop cell proliferation.

p16 is used as a diagnostic tool and is an important immunohistochemical in gynecologic pathology.

Instructions for Use

Immunohistochemical staining of standard formalin-fixed paraffin sections

Deparaffinize and rehydrate according to standard procedures. Heat induced epitope retrieval (HIER) is required (pH 9-10 for 10-30 minutes). For immunohistochemical detection different techniques can be used: indirect immunoenzyme labeling with a secondary antibody conjugate, biotin/(strept)avidin-based detection, soluble enzyme immune complex or polymer-based detection. The antibody can be adapted for use on automated staining instruments.

Intended use / regulatory status

Europe: For in Vitro Diagnostic Use / All other countries: For Research Use only

Storage and Stability

Store at 2-8°C. Do not freeze. The antibody is stable until the date indicated on the label, when stored properly.

Safety Notes

The material contains <1% sodium azide as preservative. Although the quantity of azide is very small, appropriate care should be taken when handling this material. Avoid skin and eye contact, inhalation and ingestion.



Figures

Immunohistochemistry of human p16^{INK4A} in routine formalin-fixed paraffin-embedded tissue samples

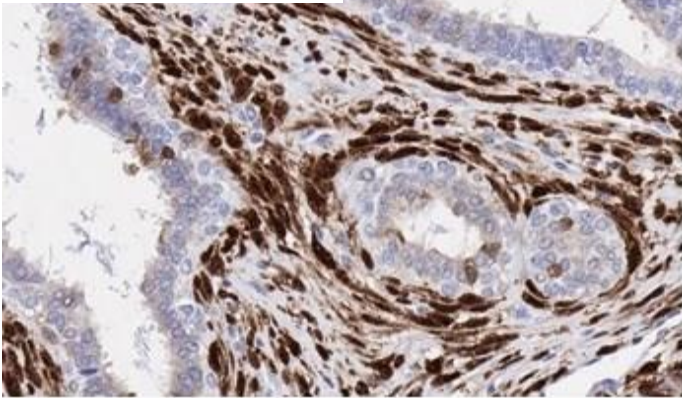
A: Intense nuclear p16 staining in mesenchymal components of a phyllodes tumor of breast.

B: Cytoplasmic and nuclear p16 staining in a cervical adenocarcinoma.

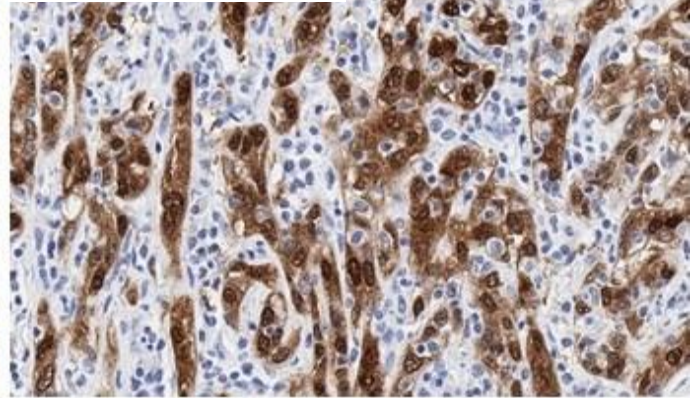
C: Diffuse positive signal for p16 in an endometrioid ovarian carcinoma.

D: Intense p16 staining in a serous ovarian carcinoma.

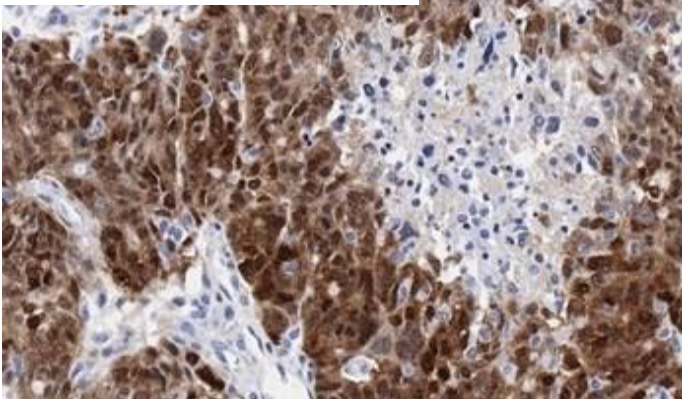
(A) Phyllodes tumor of breast



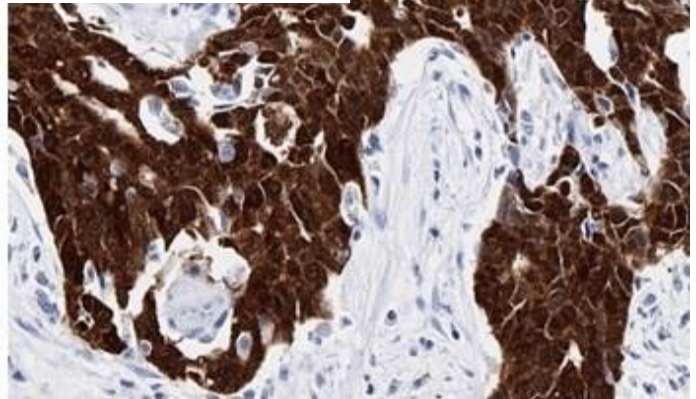
(B) Cervical adenocarcinoma



(C) Endometrioid ovarian carcinoma



(D) Serous ovarian carcinoma



(pictures courtesy of Prof. Guido Sauter, Department of Pathology, University Hospital Eppendorf, Hamburg, Germany)

References

1. Alcorta DA et al. (1996). Involvement of the cyclin-dependent kinase inhibitor p16 (INK4a) in replicative senescence of normal human fibroblasts. *Proc Natl Acad Sci USA* 93: 13742–13747.
2. Serrano M. (1997). The tumor suppressor protein p16INK4a. *Exp Cell Res* 237: 7–13.
3. Milde-Langosch K et al. (2001). Overexpression of the p16 cell cycle inhibitor in breast cancer is associated with a more malignant phenotype. *Breast Cancer Res Treat* 67: 61–70.
4. Garcia V et al. (2004). Overexpression of p16INK4a correlates with high expression of p73 in breast carcinomas. *Mutat Res* 554: 215–221.
5. Ohtani N et al. (2003). Epstein-Barr virus LMP1 blocks p16INK4a-RB pathway by promoting nuclear export of E2F4/5. *J Cell Biol* 162: 173–183.
6. Pei XH, Xiong Y. (2005). Biochemical and cellular mechanisms of mammalian CDK inhibitors: a few unresolved issues. *Oncogene* 24: 2787–2795.
7. Ivanova TA et al. (2007). Up-regulation of expression and lack of 5' CpG island hypermethylation of p16 INK4a in HPV-positive cervical carcinomas. *BMC Cancer* 7: 47.
8. Reuschenbach M et al. (2008). Characterization of humoral immune responses against p16, p53, HPV16 E6 and HPV16 E7 in patients with HPV-associated cancers. *Int J Cancer* 123: 2626–2631.
9. Paulson TG et al. (2008). p16 mutation spectrum in the premalignant condition Barrett's esophagus. *PLoS One* 3: e3809.
10. Mulvany NJ et al. (2008). Diagnostic utility of p16INK4a: a reappraisal of its use in cervical biopsies. *Pathology* 40: 335–344.
11. Lam AK et al. (2008). p16 expression in colorectal adenocarcinoma: p marker of aggressiveness and morphological types. *Pathology* 40: 580–585.

