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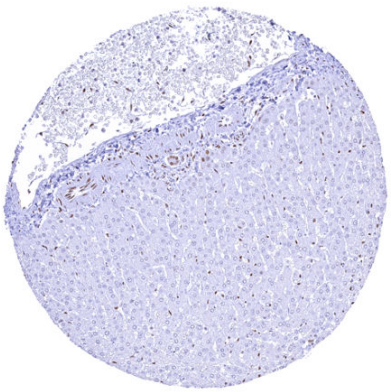
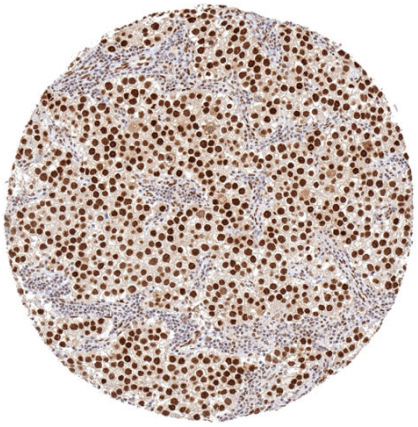
Anti- 53BP1 Antibody
HMV324 / Recombinant Rabbit monoclonal

Human SwissProt	Q12888
Human Gene Symbol	TP53BP1
Synonyms	tumor protein p53 binding protein 1 , 53BP1 , TDRD30 , p202 , p53BP1
Specificity	53BP1
Immunogen	Carrier-protein conjugated synthetic peptide encompassing a sequence within the C-terminus region of human 53BP1. The exact sequence is proprietary.
Isotype	Rabbit / IgG
Species Reactivity	Human

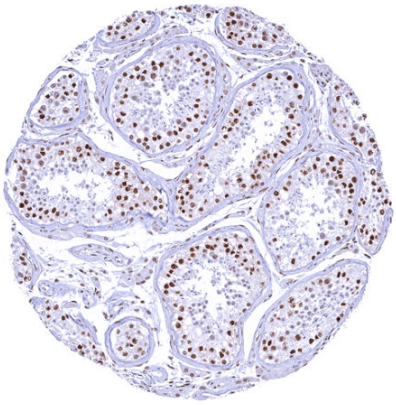
Localization	Nucleus
Storage & Stability	Antibody with azide – store at 2 to 8 C. Antibody without azide – store at -20 to -80 C. Antibody is stable for 24 months. Non-hazardous. No MSD required.
Supplied As	Purified antibody from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with <1% BSA & <0.1% azide. Antibody concentrate is optimized for dilution within dilution range using commercially available antibody diluent for IHC.
Positive Control	Testis: 53BP1 staining should be strong in spermatogonia but decrease with maturation of germ cells.
Negative Control	Testis: 53BP1 staining should be absent in mature spermatocytes and spermatids.



Liver showing a lack of 53BP1 staining in hepatocytes



Testicular seminoma with strong 53BP1 staining of tumor cells while the staining is markedly less intense in associated inflammatory cells



Testis with gradual decrease of 53BP1 staining with maturation of germ cells. Mature spermatocytes and spermatids are 53BP1 negative

Biology

p53-binding protein 1 (53BP1) is a scaffold protein without enzymatic activity which participates in DNA damage checkpoint control and DNA repair and acts as a key determinant of DNA double-strand break (DSB) repair pathway choice. The main mechanisms for DSB repair include the homologous recombinational repair (HR) pathway (requiring the sister chromatid as a template) and the non-homologous end-joining (NHEJ) pathway which rejoins the broken ends without the use of extensive homology. NHEJ, although faster than HR, is less accurate. In response to DSBs, 53BP1 rapidly accumulates on the chromatin surrounding the DNA damage site and recruits the DNA break-responsive effectors that promote NHEJ-mediated DSB repair while inhibiting homologous recombination (HR) signaling. Reduced function of 53BP1 may promote the even more error-prone microhomology-mediated end joining (MMEJ). Loss of p53BP1 results in resistance to PARP inhibition treatment in Brca1-deficient tumors. In normal tissues, a nuclear 53BP1 staining occurs in virtually all cells although the level of expression varies between tissues/cell types. In the testis, the 53BP1 staining is strong in spermatogonia but staining intensity gradually decreases with maturation of germ cells. Mature spermatocytes and spermatids are 53BP1 negative. A positive 53BP1 immunostaining (intensity may vary) is usually seen in tumor cells of virtually all cancer types as well as in tumor associated stromal and inflammatory cells.

Potential Research Applications

-The role of 53BP1 in DNA repair needs to be further investigated.
-The prognostic and predictive role of 53BP1 expression levels in cancer is unclear.

Protocol Suggestions

Dilution: 1:100 – 1:200 ; pH 7,8 is optimal. Freshly cut sections should be used (more than 10 days between cutting and staining deteriorates staining intensity for most antibodies in IHC).

Limitations

This antibody is available for **research use only** and is not approved for use in diagnostics.

Warranty

There are no warranties, expressed or implied, which extend beyond this description. MSVA is not liable for any personal injury or economic loss resulting from this product.

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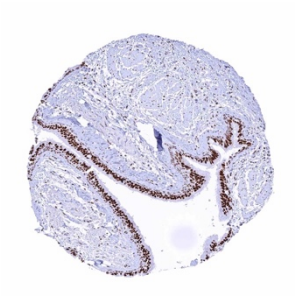
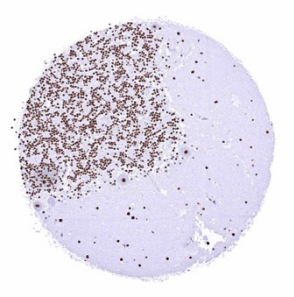
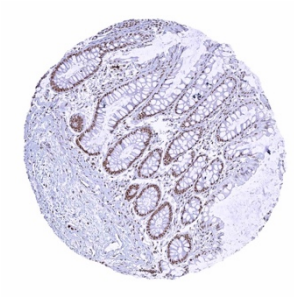


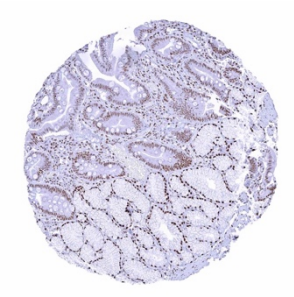
Bronchus, mucosa



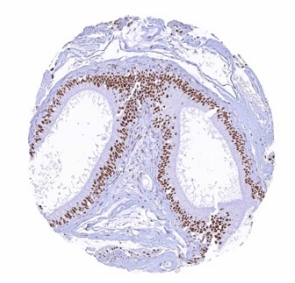
Cerebellum, cortex (molecular layer, Purkinje cell layer, granule cell layer)



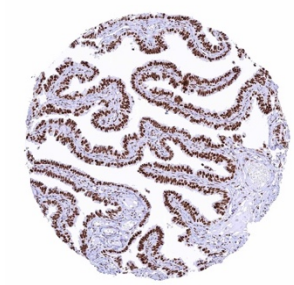
Colon descendens, mucosa



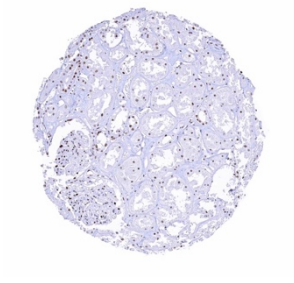
Duodenum, Transition to Brunner glands



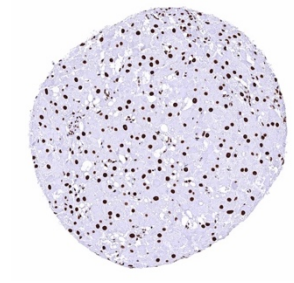
Epididymis (Corpus)



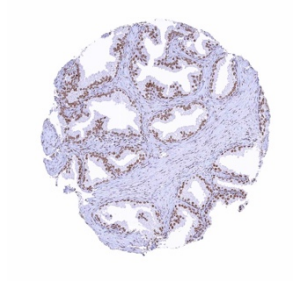
Fallopian tube, mucosa



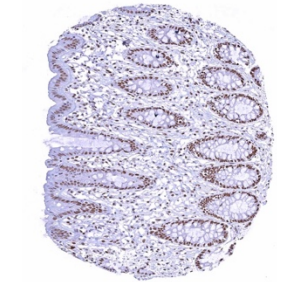
Kidney, cortex



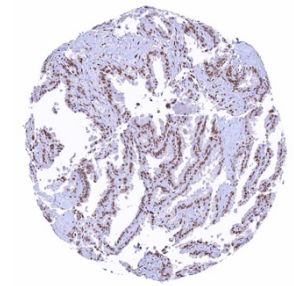
Ovary, corpus luteum



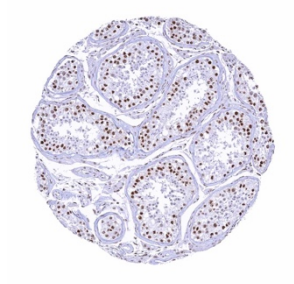
Prostate



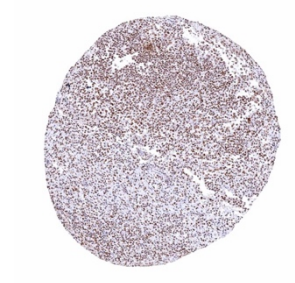
Rectum, mucosa



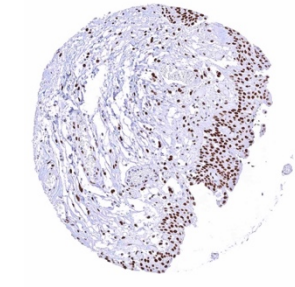
Seminal vesicle



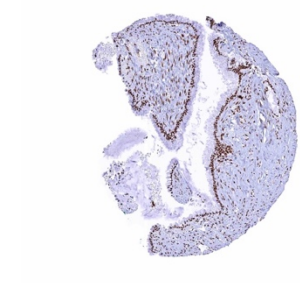
Testis



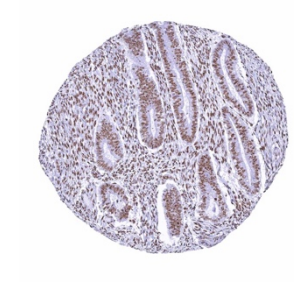
Tonsil



Urinary bladder, urothelium



Uterus, endocervix



Uterus, endometrium (secretion)