MS Validated Antibodies

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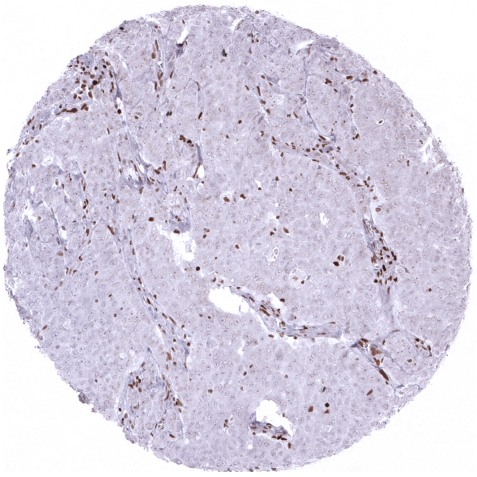
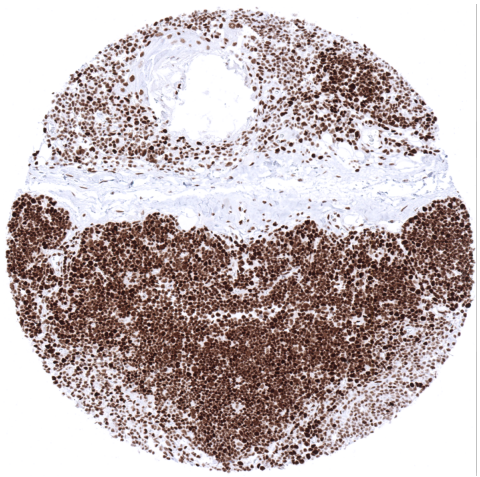
Anti-MSH6 Antibody
MSVA-906R / Recombinant Rabbit monoclonal

Human SwissProt	P52701
Human Gene Symbol	MSH6
Synonyms	DNA mismatch repair protein Msh6; G/T mismatch-binding protein; GTBP; GTMBP; hMSH6; HNPCC5; HSAP; MSH6; mutS (E. coli) homolog 6; MutS alpha 160kDa subunit; MutS-alpha 160kDa subunit; p160; Sperm associated protein
Specificity	MSH6
Immunogen	Recombinant fragment of human MSH6 protein
Isotype	Rabbit / IgG
Species Reactivity	Human

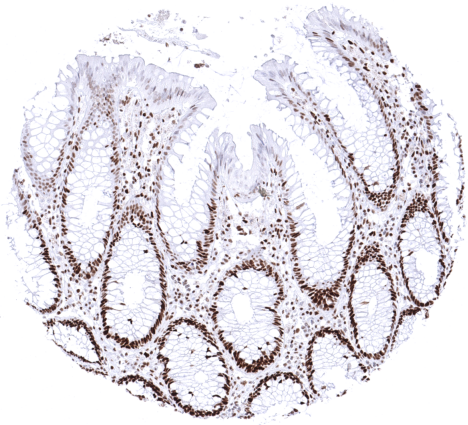
Localization	Cytoplasmic
Storage & Stability	Antibody with azide – store at 2 to 8 C. Antibody without azide – store at -20 to -80 C. Antibody is stable for 24 months. Non-hazardous. No MSD required.
Supplied As	200ug/ml of Ab Purified from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with 0.05% BSA & 0.05% azide.
Positive Control	Tonsil: Virtually all mantle zone B-cells must show an at least weak to moderate nuclear staining. A moderate to strong nuclear staining must be seen in the germinal centre B-cells.
Negative Control	Colon adenocarcinoma with loss of MSH6 expression: no nuclear staining should be seen in cancer cells, while a nuclear staining must be seen in stromal and inflammatory cells.



Colorectal adenocarcinoma with a loss of MSH6 expression in tumor cells while stroma and inflammatory cells show strong staining.



Thymocytes in the cortex of the thymus show the highest levels of MSH6 expression among normal tissues.



Colon mucosa with MSH6 expression in all cell. In epithelial cells, the MSH6 staining intensity decreases from the bottom of the crypts towards the surface cell layer.

Biology

MSH6 is a 160 kDa protein coded by the MSH6 gene at 2p16.3 The MSH6 protein belongs to the Mutator S (MutS) family of proteins that play a key role in DNA damage repair. DNA mismatches commonly occur as a result of DNA replication errors, genetic recombination, or other chemical and physical factors. Recognizing those mismatches and repairing them is extremely important for cells and a failure to do so results in microsatellite instability. MSH6 combines with MSH2 to form the active protein complex, hMutS alpha. MSH6 only functions when bound to the MSH2 protein as a heterodimer, although MSH2 itself can function as a homomultimer or as a heterodimer with MSH3. When a G/T mismatch is recognized, hMutS alpha complex binds and exchanges ADP for ATP. This leads to a conformational change which helps trigger downstream events to repair the damaged DNA. A nuclear MSH6 immunostaining is seen in virtually all cells. The highest levels of MSH6 expression are seen in lymphocytes of the cortex of the thymus. In gastrointestinal tract, the surface epithelial cells and the stomach glands show the lowest staining levels. MSH6 immunostaining is largely absent in the brain. Here only glial cells and vessels may show a rather weak staining. Most tumors show a MSH6 detectable expression of variable intensity. A loss of MSH6 indicating a mismatch repair deficiency can occur in many different tumor types. A loss of MSH6 most commonly occurs in combination with a loss of MSH2. Colorectal adenocarcinoma, gastric adenocarcinoma, and endometroid carcinomas of the uterus and the ovary show the highest rates of mismatch repair deficiency (5-15%). Mismatch repair deficiency can also occur in virtually all other tumor entities, typically at a frequency of 0,5-2%.

Potential Research Applications

-The clinical relevance of MSH6 expression levels in cancer is not clear. Particularly high levels of MSH6 have been suggested to be linked with poor prognosis in certain cancers.

Protocol Suggestions

Dilution: 1:100. pH 7,8 is optimal. Freshly cut sections should be used (less 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. Not for resale without express authorization.

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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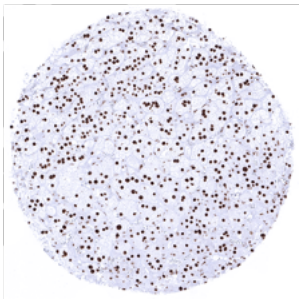
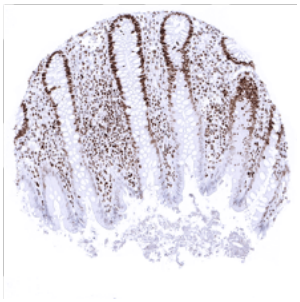
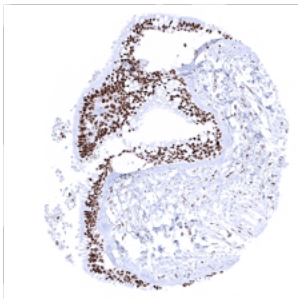


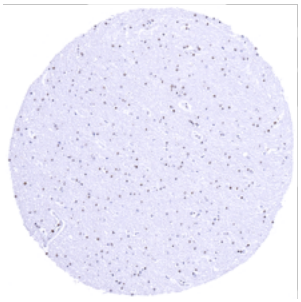
Adrenal gland



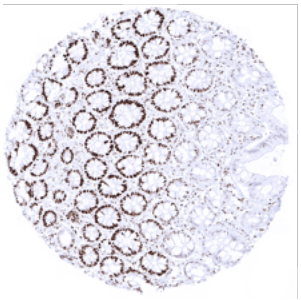
Appendix, mucosa- In the colon, the MSH6 immunostaining decreases towards the top of the crypts



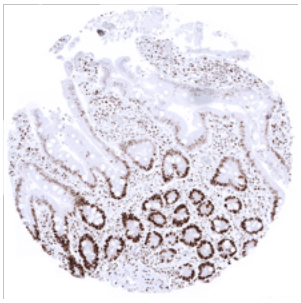
Bronchus, mucosa



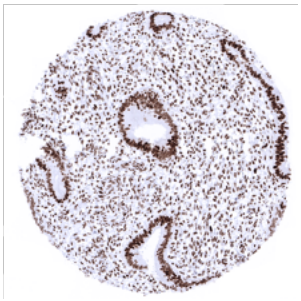
Cerebrum, white- MSH6 immunostaining is largely absent in the brain. Here only glial cells and vessels may show a rather weak staining



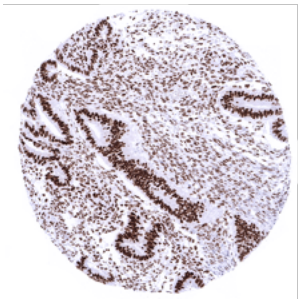
Colon descendens, mucosa



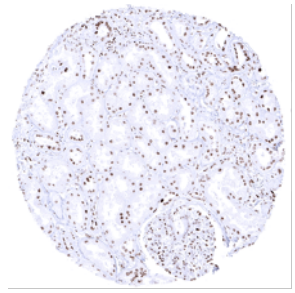
Duodenum, mucosa



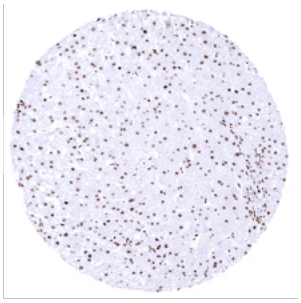
Endometrium, proliferation



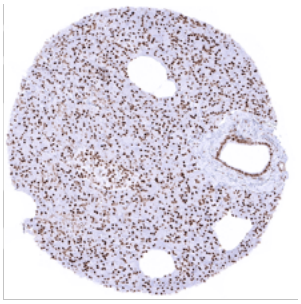
Endometrium, secretion



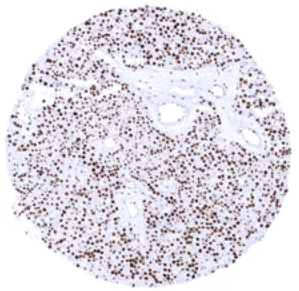
Kidney, cortex - An at least weak to moderate, nuclear MSH6 staining is seen in all cells of the kidney



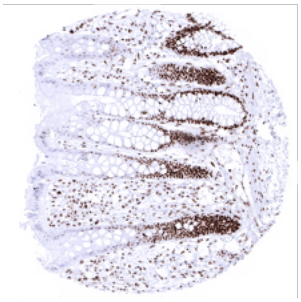
Liver - An at least weak to moderate, nuclear MSH6 staining is seen in all cells of the liver



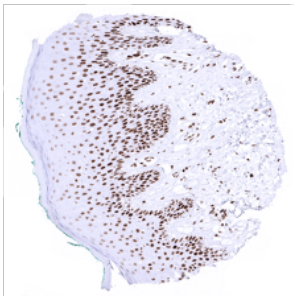
Pancreas



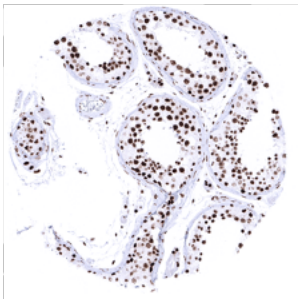
Parathyroid



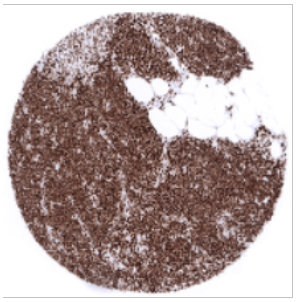
Rectum, mucosa



Skin - In the squamous epithelium of the skin, the MSH6 staining intensity decreases gradually from the bottom to the top



Testis



Thymus- The highest levels of MSH6 expression occurs seen in lymphocytes of the cortex of the thymus