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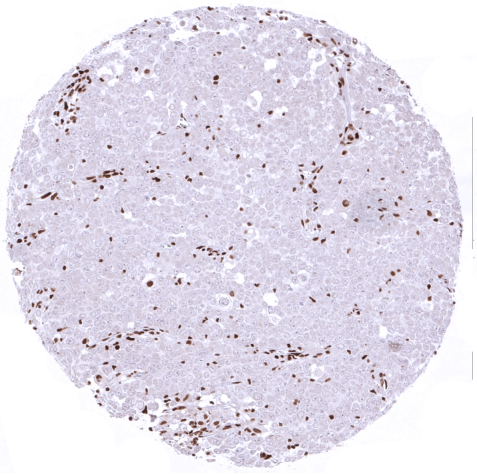
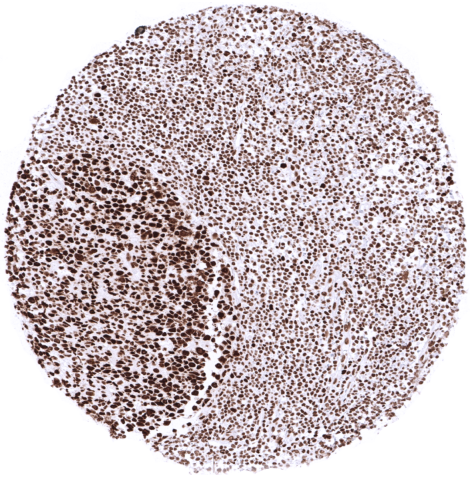
Anti-MSH2 Antibody
MSVA-902M / Recombinant Mouse monoclonal

Human SwissProt	IDP43246
Human Gene Symbol	MSH2
Synonyms	BAT26; COCA1; DNA mismatch repair protein Msh2; FCC1; hMSH2; HNPCC1; LCFS2; MSH2; MutS homolog 2; MutS homolog 2 colon cancer nonpolyposis type 1; MutS protein homolog 2
Specificity	MSH2
Immunogen	Recombinant fragment of human MSH2 protein
Isotype	Rabbit / IgG
Species Reactivity	Human
Localization	Nuclear

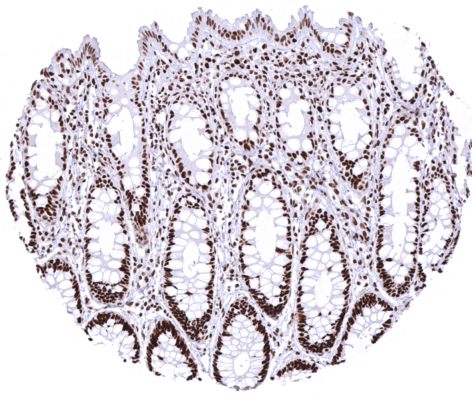
Storage & Stability	Antibody with azide – store at 2 to 8 C. Antibody without azide – store at -20 to -80 C. A ntibody is stable for 24 months. Non-hazardous. No MSD required.
Supplied As	200ug/ml of Ab Purified from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with 0.05% BSA & 0.05% azide.
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 MSH2 expression in tumor cells while stroma and inflammatory cells show strong staining.



In the tonsil, a moderate to strong nuclear staining is seen in the germinal centre cells and at least a weak to moderate staining in the mantle zone cells.



Colon mucosa with MSH2 immunostaining in all stromal and epithelial cells.

Biology

MSH2 is a 104,7 kDa protein coded by the MSH2 gene at 2p21-p16.3. The MSH2 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. MSH2 combines with either MSH6 to form the repair complex MutS alpha or MSH3 to form the DNA repair complex MutS beta. MSH2/MSH6 or MSH2/MSH3 dimerization occurs in the cytoplasm before the dimers are imported into the nucleus. MutS alpha and MutS beta recognize mispaired bases in the DNA and bind to it. In a process involving the exchange of ADP for ATP and a conformational change of MutS alpha/beta, downstream events are then triggered that lead to the repair of the damaged DNA. In normal tissues, a nuclear MSH2 immunostaining is seen in virtually all cells. The highest levels of MSH2 expression are seen in lymphocytes of the cortex of the thymus. Most tumors show a MSH2 detectable expression of variable intensity. A loss of MSH2 indicating a mismatch repair deficiency can occur in many different tumor types. A loss of MSH2 often occurs in combination with a loss of MSH6. 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 MSH2 expression levels in cancer is not clear. Particularly high levels of MSH2 have been suggested to be linked with poor prognosis in certain cancers.

Protocol Suggestions

Dilution: 1:150. 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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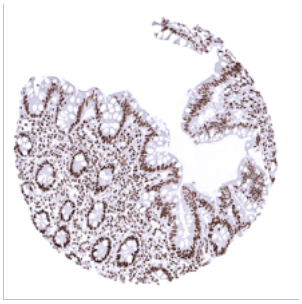
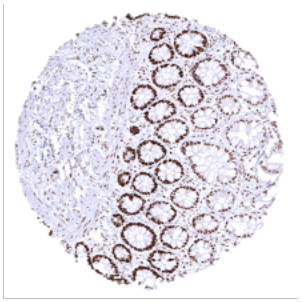
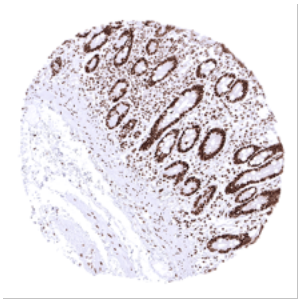


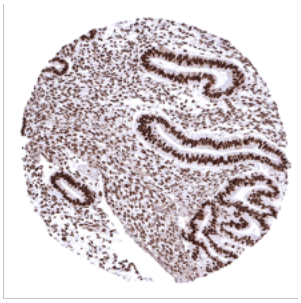
Appendix, mucosa



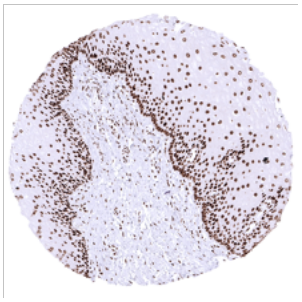
Colon, mucosa - In the colon epithelium, the MSH2 staining intensity decreases from the bottom to the top of the crypts



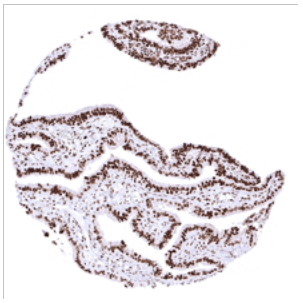
Duodenum, mucosa



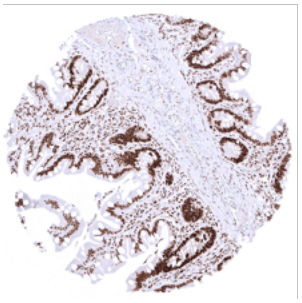
Endometrium, secretion



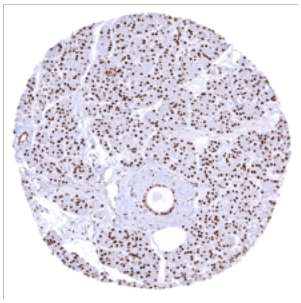
Esophagus, squamous epithelium



Fallopian tube, mucosa

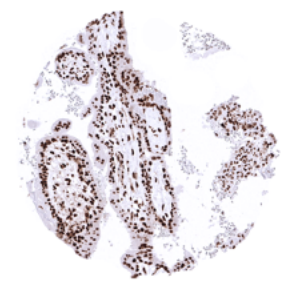


Ileum, mucosa



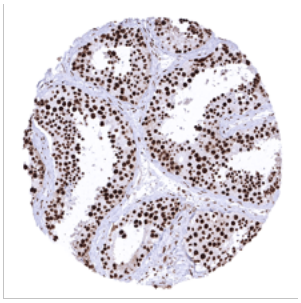
Pancreas

Pituitary gland, anterior lobe

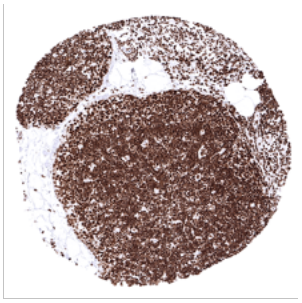


Placenta, early

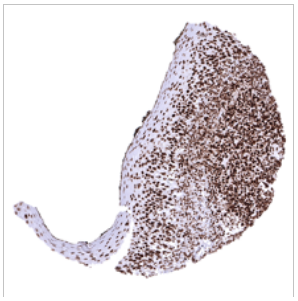
Rectum, mucosa - In the colon (and rectum) epithelium, the MSH2 staining intensity decreases from the bottom to the top of the crypts



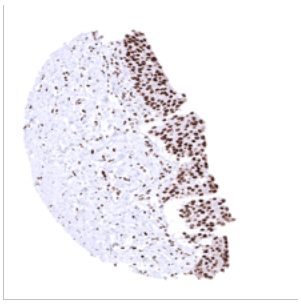
Testis



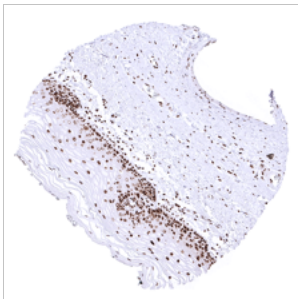
Thymus



Tonsil, surface epithelium



Urinary bladder, urothelium



Uterus, ectocervix