Monoclonal Antibodies

- Human Gastric Biomarkers
- Human Extracellular Matrix Components
- Human Integrins
- Human Endothelial Cell Surface Marker
- Human Neurotransmitter Substances
- Human Cytoskeletal Polypeptides
- Human Spectrins
- Phytoestrogen

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# Biohit Monoclonal Antibodies

Biohit Monoclonal Antibodies (MAbs) are efficient tools for research in the area of cellular pathology, neurobiology and oncology as well as in research of human gastric biomarkers. Biohit MAbs can also be used as raw materials in the manufacturing of In Vitro Diagnostics products. Biohit MAbs are all produced in mouse, and they have been purified after production. They are all highly specific to their antigens and are applicable in immunohistochemistry, immunoprecipitation and Western blotting. Biohit produces monoclonal antibodies to Human Gastric Biomarkers, Phytoestrogen Genistein, Human Extracellular Matrix Components (ECM), Human Integrins, Human Endothelial Cell Surface Marker, Human Neurotransmitter Substances, Human Cytoskeletal Polypeptides and Human Spectrins.

MAbs to Human Gastric Biomarkers

Gastrin-17: Amidated gastrin-17 is a biologically and physiologically important molecule among the family of the gastrin peptides. Amidated gastrin-17 is the most powerful gastrin peptide in the feedback control mechanism of the acid secretion and output from the parietal cells in the gastric corpus. This peptide is solely synthetized and secreted into the circulation by the so called G cells ("gastrin cells") in the gastric antrum. A positive immunohistochemical reaction for gastrin-17 is a sign of a highly differentiated gastrin-secreting cell and normal antral mucosa. In atrophic gastritis, the normal antral (pyloric) glands and gastrin-17 synthetizing cells disappear. Metaplastic pyloric glands (pseudopyloric metaplasia) do not contain immunopositive gastrin-17 cells.

Pepsinogen I: Pepsinogen I is a group of precursor molecules for pepsin. These proteins are solely synthetized and secreted into gastric lumen by chief (pepsin) cells and mucous neck cells in the gastric corpus (oxyntic mucosa). In atrophic corpus gastritis these cells disappear resulting in a decrease of the serum level of pepsinogen I and in a reduction of the number of pepsinogen I positive cells in gastric biopsies. The presence of positive immunostaining for pepsinogen I is a highly reliable sign for the acid-secreting oxyntic glands. In gastric heterotopia of the duodenal bulb, but not in gastric metaplasia, the oxyntic-type glands give a positive immunohistochemical reaction for pepsinogen I.

Pepsinogen II: Pepsinogen II is a group of precursor molecules for pepsin. These proteins are secreted into the gastric lumen by the pyloric glands of the gastric antrum and also by the chief and neck cells of the gastric corpus (oxyntic mucosa). Negative immunohistochemical reaction for pepsinogen I (figure in the middle on top of the next page) but positive reaction for pepsinogen II (figure on the left hand side on top of the next page) is a typical sign of the antral mucosa and, in the presence of atrophic gastritis, this staining pattern indicates that the positive glands and cells are metaplastic and "pyloric" in differentiation (so called pseudopyloric metaplasia).
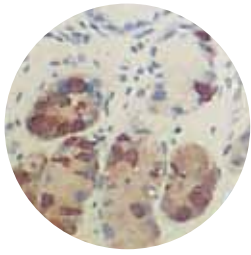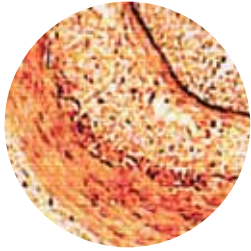
Gastrin-17 – Immunohistochemical staining of normal antrum, peroxidase method.
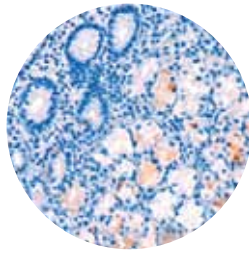
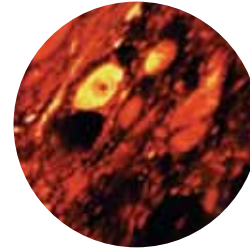**Pepsinogen I** – Immunohistochemical staining of normal corpus, peroxidase method.
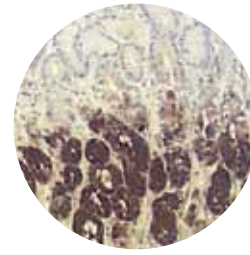
Immunohisto-chemical staining of antral mucosa with anti-**pepsinogen I** and **II** monoclonal antibodies, peroxidase method.

Cellular fibronectin – Expression in endothelium and muscle layer of benign arteries, peroxidase method. (regular 8 strong).

β1-Integrin – Immunohistochemical staining of W138 Va13 SV40 transformed human fibroblasts, FITC method.

GABA – Immunohistochemical staining of GABAergic neurons in the reticular nucleus of the thalamus, TRITC –method.

MAbs to Human ECM Components – Cellular Fibronectin

The extracellular matrix (ECM) consists of interstitial connective tissue and basement membrane (BM). The ECM acts as a backbone for cells and provides a physical barrier. It also influences such functions as cell proliferation, differentiation, adhesion, migration, gene expression, and tissue integrity. ECM also plays a profound role in tissue injury and healing. The detection of ECM components in various parts of the body provides an efficient tool for following malignant change, invasion and metastasis. Biohit provides monoclonal antibodies to fibronectins[1,2,3], tenascin[4,5], laminin[6,7] and vitronectin.

MAbs to Phytoestrogen

Genistein is an isoflavone belonging to the group of phytoestrogens (plant estrogens), which have been implicated in the prevention of cancer, cardiovascular and other chronic diseases. The main source of genistein is the soybean and various soy foods. Its determination in biological fluids and tissues by immunoassay is of increasing importance and for that purpose a specific antiserum is now available.

MAbs to Human Integrins – β1-Integrin

Integrins are the largest known family of receptors for ECM proteins. They are glycoproteins that mediate cell-extracellular matrix as well as cell-cell interactions. Integrins consist of several protein subfamilies that share a common β-subunit and have a distinct α-subunit. Monoclonal antibodies to β1-integrin[8,9] and β3-integrin[10] as well as to $α_{IIb}$-integrin[11] are offered by Biohit.

MAbs to Human Endothelial Cell Surface Marker

Platelet endothelial cell adhesion molecule (PECAM-1) is an antigen, which is typically shared by both endothelial and distinct hematopoietic cells. It is widely expressed among leukocytes and functions as a cell adhesion molecule.

MAbs to Human Neurotransmitter Substances – GABA

Neural and neuroendocrine cells are able to synthesize a variety of peptides as well as amino acids that can function either as inhibitory or stimulatory substances in neurotransmission. Such neurotransmitter substances are gamma-amino butyric acid (GABA)[12] and calcitonin gene-related peptide (CGRP).

MAbs to Human Cytoskeletal Polypeptides

The cytoplasmic cytoskeleton determines cell organization, shape and adhesion among other functions. Furthermore, the cell type-specific expression of intermediate filaments allows determination of the origin of many, otherwise unspecific tumours. Biohit offers monoclonal antibodies to the following cytoskeletal peptides:

- α-Actinin
- α-Fodrin
- Vinculin
- Cytokeratin 18
- Cytokeratin 8, 18, 19
- Cytokeratin 7, 17, 19
- Vimentin
- Neurofilaments 150, 200
- Neurofilaments 70, 200

MAbs to Human Spectrins

Erythroid spectrins, some other proteins of erythroid cytoskeleton, and the transmembrane protein band 3 are highly specific for erythrocytes and their progenitors. They are more reliable markers for erythroid differentiation than Glycophorin A, the commonly used marker for erythroid differentiation, because Glycophorin A is expressed also in many cell lines otherwise exhibiting mainly megacaryotic characteristics. Both erythroid α-spectrin[11] and erythroid β-spectrin monoclonal antibodies can be used for example in identification of erythroid leukemias.

Specificity	Clone #	Host	Subclass	Format	Qty***	Applications*	Paraffin**	Ordering #
Monoclonal Antibodies to Human Gastric Biomarkers								
Pepsinogen I	4C6.1	mouse	IgG$_1$	purified	100 µg	IHC	yes	610055
Pepsinogen II	L10CC10	mouse	IgG$_1$	purified	100 µg	IHC	yes	610056
Gastrin-17	G52C7.1	mouse	IgG$_1$	purified	100 µg	IHC	yes	610057
Monoclonal Antibodies to Phytoestrogen								
Genistein	L22FA2	mouse	IgG$_1$	purified	100 µg	EIA, FIA	-	610058
Monoclonal Antibodies to Human Extracellular Matrix Components								
Cellular Fibronectin (cFn)	DH1	mouse	IgG$_1$	purified	100 µg	IHC, WB, EIA	no	610001
Tenascin-C	EB2	mouse	IgG$_1$	purified	100 µg	IHC, WB, EIA	no	610002
Tenascin-C	DB7	mouse	IgG$_{2a}$	purified	100 µg	IHC, WB	yes	610003
Laminin (β$_1$-chain)	DG10	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610004
Laminin (γ$_1$-chain)	BC7	mouse	IgG$_1$	purified	100 µg	IHC, IP, WB	no	610005
Plasma Fibronectin (pFn)	BF12	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610006
Vitronectin	BE10	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610007
Monoclonal Antibodies to Human Integrins								
β$_1$-Integrin	DF5	mouse	IgG$_1$	purified	100 µg	IHC, WB	yes	610008
β$_1$-Integrin	DF7	mouse	IgG$_1$	purified	100 µg	IHC, WB	yes	610009
β$_3$-Integrin	BB10	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610010
α$_{IIb}$-Integrin	CA3	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610011
Monoclonal Antibodies to Human Endothelial Cell Surface Marker								
PECAM-1	CE6	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610027
Monoclonal Antibodies to Human Neurotransmitter Substances								
GABA	5A9	mouse	IgG$_1$	purified	100 µg	IHC, EIA	yes	610025
CGRP	CD8	mouse	IgG$_1$	purified	100 µg	IHC, WB, EIA	yes	610026
Monoclonal Antibodies to Human Cytoskeletal Polypeptides								
α-Actinin	CB11	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610012
α-Fodrin	AA6	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610013
Vinculin	FB11	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610014
Cytokeratin 18	4B11	mouse	IgG$_1$	purified	100 µg	IHC, WB, IP	no	610015
Cytokeratin 8,18,19	2A4	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610016
Cytokeratin 7,17,19	4F5	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610017
Vimentin	65E	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610018
Neurofilaments 150, 200	13AA	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610021
Neurofilaments 70, 200	14BA	mouse	IgG$_1$	purified	100 µg	IHC, WB	no	610022
Monoclonal Antibodies to Human Spectrins								
Erythroid α-Spectrin	AF10	mouse	IgG$_1$	purified	100 µg	IP, WB, IHC	no	610023
Erythroid β-Spectrin	DB2	mouse	IgG$_1$	purified	100 µg	IP, WB, IHC	no	610024

*The Biohit monoclonal antibodies are applicable in:
IHC = Immunohistochemistry
WB = Western Blotting
FIA = Time-resolved Fluorescence Immunoassay

IP = Immunoprecipitation
EIA = Enzyme Immunoassay

** Reactivity with paraffin sections
***Other sizes available at request

References:
1. Li, T.F. et al. (2000) Clin. Exp. Rheumatol. 18, 221-225.
2. Ylätupa, S. et al. (1995) Br. J. Cancer 71, 578-582.
3. Auranen, M. et al. (2000) Neuromusc. Disord. 10, 16-23.
4. Korhonen, M. et al. (2000) J. Histochem. Cytochem. 48, 1011-1020.
5. Pedrosa-Dömellöf, P. et al. (2000) J. Histochem. Cytochem. 48, 201-209.
6. Gewerhiwot, T et al. (2000) Exp. Cell Res. 253, 723-732.
7. Gewerhiwot, T et al. (2000) Matrix Biol. 19, 163-167.
8. Koukoulis, G. et al. (1997) Human Pathol. 28, 84-90.
9. Ylänne, J. et al. (1989) Int. J. Cancer 43, 1126-1136.
10. Li, T.F. et al. (2000) J. Rheumatol. 27, 727-744.
11. Tani, T. et al. (1996) Exp. Hematol. 24, 158-168.
12. Jongen-Relo, A.L. et al. (1999) J. Comp. Neurol. 408, 237-271.
13. Sormunen, R. et al. (1999) J. Pathol. 187, 416-423.

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