

Monoclonal Antibodies for Research and Clinical Use

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



Monoclonal Antibodies for Research and Clinical Use

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 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. With Biohit MAbs the researcher can produce good images for scientific publications. 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

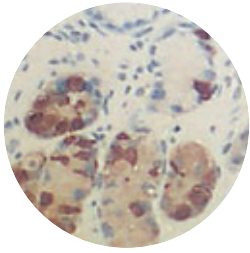
Gastrin-17: Amidated gastrin-17 is a biologically and physiologically important molecule among the family of the gastrin peptides. Amidated gastrin-17 is the most powerful gastrin peptide in the feedback control mechanism of the acid secretion and output from the parietal cells in the gastric corpus. This peptide is solely synthesized 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 synthesizing 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 synthesized 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

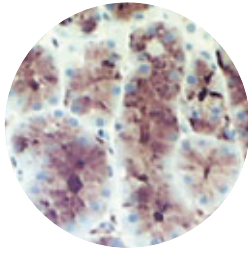
a highly reliable sign for the acid-secreting oxyntic glands. In gastric heterotopia of the duodenal bulb, but not in gastric metaplasia, the oxyntic-type glands give a positive immunohistochemical reaction for pepsinogen I.

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 (right) but positive reaction for pepsinogen II (left) 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).

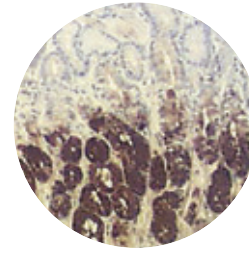




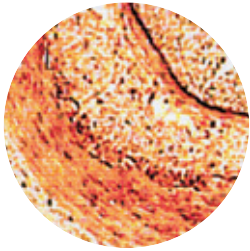
Gastrin-17
– Immunohistochemical staining of normal antrum, peroxidase method.



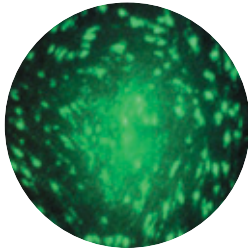
Pepsinogen I
– Immunohistochemical staining of normal corpus, peroxidase method.



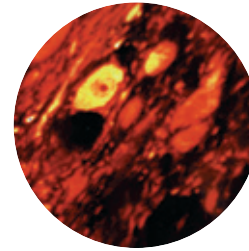
Immunohistochemical staining of antral mucosa with anti-**pepsinogen I** and **II** monoclonal antibodies, peroxidase method.



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



β 1-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 – β 1-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 β 1-integrin^(8,9) and β 3-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
- Desmin
- 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) | BC17 | mouse | IgG ₁ | purified | 100 µg | IHC, IP | 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 _{2a} | 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 |
| Desmin | 37EH | mouse | IgG ₁ | purified | 100 µg | IHC, WB | no | 610020 |
| 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

References:

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



Headquarters Biohit Oyj

Laippatie 1 • 00880 Helsinki • Finland • Tel. +358-9-773 861 • Fax: +358-9-773 86 200 • info@biohit.com • www.biohit.com

CHINA
 Finland Biohit Co., Ltd
 Tel: +86-21-6248 5589
 Fax: +86-21-6248 7786
info.china@biohit.com

FRANCE
 Biohit SAS
 Tel: +33-1-3088 4130
 Fax: +33-1-3088 4102
commercial.france@biohit.com

GERMANY
 Biohit Deutschland GmbH
 Tel: +49-6003-82 820
 Fax: +49-6003-828 222
info@biohit.de

JAPAN
 Biohit Japan Co., Ltd.
 Tel: +81-3-5822 0021
 Fax: +81-3-5822 0022
sales@biohit.co.jp

RUSSIA
 Biohit OOO
 Tel: +7-812-327 5327
 Fax: +7-812-327 5323
main@biohit.ru

UK
 Biohit Ltd.
 Tel: +44-1803-315 900
 Fax: +44-1803-315 530
sales@biohit.co.uk

USA
 Biohit Inc.
 Tel: +1-732-922 4900
 Fax: +1-732-922 0557
pipet@biohit.com