**TIMP2 Monoclonal Antibody (3A4)**

**Catalog Number**
MA5-12207

**Details**

<table>
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<tr>
<th>Size</th>
<th>500 µL</th>
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<tr>
<td>Host/Isotope</td>
<td>Mouse / IgG2a, kappa</td>
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<tr>
<td>Class</td>
<td>Monoclonal</td>
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<tr>
<td>Type</td>
<td>Antibody</td>
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<tr>
<td>Clone</td>
<td>3A4</td>
</tr>
<tr>
<td>Immunogen</td>
<td>A synthetic peptide from the N-terminal region of human TIMP-2 protein</td>
</tr>
<tr>
<td>Conjugate</td>
<td>Unconjugated</td>
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<tr>
<td>Form</td>
<td>Liquid</td>
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<tr>
<td>Concentration</td>
<td>0.2 mg/ml</td>
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<tr>
<td>Purification</td>
<td>Protein A</td>
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<tr>
<td>Storage buffer</td>
<td>PBS, pH 7.4, with 0.2% BSA</td>
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<tr>
<td>Contains</td>
<td>0.09% sodium azide</td>
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<td>Storage Conditions</td>
<td>4° C</td>
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**Species Reactivity**

<table>
<thead>
<tr>
<th>Tested species reactivity</th>
<th>Bovine, Guinea pig, Human, Mouse, Rabbit, Rat</th>
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<tbody>
<tr>
<td>Published species reactivity</td>
<td>Rabbit, Rat, Bovine, Human, Mouse, Not Applicable</td>
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**Tested Applications**

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<thead>
<tr>
<th>Immunohistochemistry (Paraffin) (IHC (P))</th>
<th>Dilution *</th>
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<tr>
<td></td>
<td>1:200</td>
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<tr>
<td>Western Blot (WB)</td>
<td>1-2 µg/ml</td>
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**Published Applications**

- Immunohistochemistry (Paraffin) (IHC (P)) See 1 publications below
- Immunohistochemistry (IHC) See 31 publications below
- Western Blot (WB) See 4 publications below
- Immunocytochemistry (ICC) See 1 publications below

*Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

**Product specific information**

MA5-12207 targets TIMP-2 in IHC (P) and WB applications and shows reactivity with Bovine, Guinea Pig, Human, mouse, Rabbit, and Rat samples.

The MA5-12207 immunogen is a synthetic peptide from the N-terminal region of human TIMP-2 protein.

**Background/Target Information**

TIMP-1 and TIMP-2 are inhibitory enzymes of matrix metalloproteinase family, and are thought to be of great importance in the maintenance of connective tissue integrity. TIMP-2 shows the highest binding affinity to both the latent (pro) and active forms of 72kDa Type IV collagenase (also known as MMP-2 or gelatinase A). It also has affinity for the active form of 92kDa Type IV collagenase (also known as MMP-9 or gelatinase B). TIMP-2 inhibits the proteolytic invasiveness of tumor cells and normal placental trophoblast cells.

Product Images For TIMP2 Monoclonal Antibody (3A4)

TIMP2 Antibody (MA5-12207) in IHC

TIMP2 Antibody (MA5-12207) in WB
Western blot of TIMP-2 using TIMP-2 Monoclonal Antibody (Product # MA5-12207) on HFL-1+TPA med Cells.


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### PubMed References For TIMP2 Monoclonal Antibody (3A4)

#### 1 Immunohistochemistry (Paraffin) References

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<th>Species / Dilution</th>
<th>Summary</th>
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<td>Not Applicable / 1:100</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in different histopathological regions of oral squamous cell carcinomas.</td>
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<tr>
<td>Human / 1:50</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of TIMP1 and TIMP2 in between clearly invasive carcinomas and &quot;in situ&quot; trophoblast invasion.</td>
</tr>
<tr>
<td>Human / Not Cited</td>
<td>MA5-12207 was used in immunohistochemistry to compare the immunohistochemical expression of TIMP1 and TIMP2 between clearly invasive carcinomas and &quot;in situ&quot; trophoblast invasion.</td>
</tr>
<tr>
<td>Human / 1:200</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of TIMP2 in uterine cervical cancer.</td>
</tr>
<tr>
<td>Human / 1:200</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of MMP-2 and TIMP2 expression in uterine cervical cancer.</td>
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<tr>
<td>Human / Not Cited</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of TIMP2 in uterine cervical cancer.</td>
</tr>
<tr>
<td>Human / Not Cited</td>
<td>MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in different histopathological regions of oral squamous cell carcinomas.</td>
</tr>
<tr>
<td>Human / Not Cited</td>
<td>MA5-12207 was used in immunohistochemistry to study the role and clinical significance of MMPs and their inhibitors in squamous cell carcinoma of the tonsil.</td>
</tr>
</tbody>
</table>

#### 31 Immunohistochemistry References

**PubMed Article URL:** http://dx.doi.org/10.3342/ceo.2011.4.2.88

**Author(s):** Lee SY, Park SY, Kim SH, Choi EC

**Clinical Significance.”**

**Expression and Clinical Significance of Metalloproteinases and Their Inhibitors by Endothelial Cells From Invasive Breast Carcinomas.”**

**Author(s):** Cid S, Eiro N, Gonzalez LO, Beridze N, Vazquez J, Vizoso FJ

**PubMed Article URL:** http://dx.doi.org/10.1016/j.clbc.2016.05.007

**Significant relation of tissue inhibitor of matrix metalloproteinase-2 and its combination with matrix metalloproteinase-2 to survival of patients with cancer of uterine cervix.”**

**Author(s):** Wang PH, Ko JL, Yang SF, Tsai A, Yang SF, Chen SC, Shih YT

**PubMed Article URL:** http://dx.doi.org/10.1117/193719111398143

**Comparative study of the immunohistochemical expression of tissue inhibitors of metalloproteinases 1 and 2 between clearly invasive carcinomas and “in situ” trophoblast invasion.”**

**Author(s):** Dimo B, Ioannidis I, Karameris A, Vilaras G, Tzoumakari P, Nonni A, Patoursis E, Lazaris AC

**PubMed Article URL:** http://dx.doi.org/10.1007/s12032-011-0032-8

**Semi-quantitative expression of tissue inhibitor of matrix metalloproteinase-2 in cancer of uterine cervix.”**

**Author(s):** Wu YC, Wang PH, Tsai A, Yang SF, Chen SC

**PubMed Article URL:** http://dx.doi.org/10.1002/jso.21918

**Expression and Clinical Significance of Metalloproteases and Their Inhibitors in Squamous Cell Carcinoma of the Tongue.”**

**Author(s):** Cid S, Eiro N, Gonzalez LO, Beridze N, Vazquez J, Vizoso FJ

**PubMed Article URL:** http://dx.doi.org/10.1016/j.clbc.2016.05.007

**Clinical Significance.”**

**Expression of matrix metalloproteinases and their inhibitors in squamous cell carcinoma of the tonsil and their clinical significance.”**

**Author(s):** Lee SY, Park SY, Kim SH, Choi EC

**PubMed Article URL:** http://dx.doi.org/10.3342/ceo.2011.4.2.88
MA5-12207 was used in immunohistochemistry to study the immunohistochemical expression of MMP-2 and TIMP-2 in bovine uteri with adenomyosis

**Vernacular research communications (Jun 2011; 35: 261)**

"Differential immunohistochemical expression of matrix metalloproteinase-2 and tissue inhibitor of metalloproteinase-2 in cow uteri with adenomyosis during follicular phase."

Author(s): Moreira L, de Carvalho EC, Caldas-Bussiere MC

PubMed Article URL: http://dx.doi.org/10.1007/s11259-011-9470-1

MA5-12207 was used in immunohistochemistry to study the immunohistochemical expression of MMPs and TIMPs in ductal carcinoma in situ of the breast

**Journal of cancer research and clinical oncology (Sep 2010; 136: 1313)**

"Expression of metalloproteases and their inhibitors by tumor and stromal cells in ductal carcinoma in situ of the breast and their relationship with microinvasive events."

Author(s): Gonzalez LO, Gonzalez-Reyes S, Junquera S, Marin L, Gonzalez JM, Vizoso FJ

PubMed Article URL: http://dx.doi.org/10.1007/s00432-010-0782-2

MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in breast cancer primary tumors and in local recurrences following mastectomy

**Journal of cancer research and clinical oncology (Jul 2010; 136: 1049)**

"Expression of metalloproteases and their inhibitors in primary tumors and in local recurrences after mastectomy for breast cancer."

Author(s): del Casar JM, Carreño G, Gonzalez LO, Junquera S, Gonzalez-Reyes S, Gonzalez JM, Vizoso FJ

PubMed Article URL: http://dx.doi.org/10.1007/s00432-009-0750-x

MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in different histological subtypes of breast cancer

**Human pathology (Jul 2010; 41: 980)**

"Immunohistochemical study of matrix metalloproteinases and their inhibitors in pure and mixed invasive and in situ ductal carcinomas of the breast."

Author(s): Gonzalez LO, Junquera S, del Casar JM, Gonzalez L, Marin L, Gonzalez-Reyes S, Andicoechea A, Gonzalez-Fernández R, Gonzalez JM, Pérez-Fernández R, Vizoso FJ

PubMed Article URL: http://dx.doi.org/10.1016/j.humpath.2009.08.027

MA5-12207 was used in immunohistochemistry to study the mechanism by which metformin regresses endometriotic implants in rats

**American journal of obstetrics and gynecology (Apr 2010; 202: 368.e1)**

"Metformin regresses endometriotic implants in rats by improving implant levels of superoxide dismutase, vascular endothelial growth factor, tissue inhibitor of metalloproteinase-2, and matrix metalloproteinase-9."


PubMed Article URL: http://dx.doi.org/10.1016/j.ajog.2009.10.873

MA5-12207 was used in immunohistochemistry to characterize effects of alpha2b treatment on fibrosis and metalloproteinase levels

**The Journal of international medical research (Jun 2010; 38: 187)**

"The effects of interferon alpha2b on chemically-induced peritoneal fibrosis and on peritoneal tissue MMP-2 and TIMP-2 levels in rats."

Author(s): Ucar E, Borazan A, Semerci E, Bincici DN, Yaldiz M, Aysal A, Altug E, Kuvandik C, Huzmeli C, Yetim T, Candis S

PubMed Article URL: http://dx.doi.org/10.1177/14732300103800121

MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in prostate cancer

**British journal of cancer (Mar 2010; 102: 922)**

"Study of matrix metalloproteinases and their inhibitors in prostate cancer."

Author(s): Escaff S, Fernández JM, González LO, Suárez A, González-Reyes S, González JM, Vizoso FJ

PubMed Article URL: http://dx.doi.org/10.1038/sj.bjc.6605569
MA5-12207 was used in immunohistochemistry to study the regression of endometriotic implants by atorvastatin in a rat model.

**Rat / 1:200**

**Reproductive biology medicine online (Feb 2010; 20: 291)**

"Atorvastatin causes regression of endometriotic implants in a rat model."

Author(s): Yilmaz B, Ozat M, Kiliç S, Gungör T, Akoze Y, Lordlar N, Sut N, Akşakal O

PubMed Article URL: http://dx.doi.org/10.1016/j.rbmo.2009.11.004

MA5-12207 was used in immunohistochemistry to study the clinical significance of MMP and TIMP expression by intratumor stromal and invasive front fibroblasts in breast carcinoma.

**Human / 1:50**

**Breast cancer research and treatment (Jul 2009; 116: 39)**

"Comparative analysis and clinical value of the expression of metalloproteinases and their inhibitors by intratumor stromal fibroblasts and those at the invasive front of breast carcinomas."

Author(s): Del Casar JM, González LO, Álvarez E, Junquera S, Marín L, González L, Bongera M, Vázquez J, Vízoso FJ

PubMed Article URL: http://dx.doi.org/10.1007/s10549-009-0351-z

MA5-12207 was used in immunohistochemistry to study the mechanism by which halofuginone prevents cerulein-induced pancreatic fibrosis.

**Mouse / 1:250**

**Pancreas (May 2009; 38: 427)**

"Inhibition of transforming growth factor beta signaling by halofuginone as a modality for pancreas fibrosis prevention."

Author(s): Zion O, Genin O, Kawada N, Yoshizato K, Rolfe S, Nagler A, Lovanna J, Halevy O, Pines M

PubMed Article URL: http://dx.doi.org/10.1097/MPA.0b013e3181967670

MA5-12207 was used in immunohistochemistry to examine the alteration of matrix metalloproteinases during menstrual cycle.

**Human / 4.0 ug/ml**


"Menstrual activity of matrix metalloproteinases is decreased in endometrium regenerating after thermal ablation."

Author(s): Brun JL, Galant C, Delvaux D, Lemoine P, Henriot P, Courtoy PJ, Marbaix E

PubMed Article URL: http://dx.doi.org/10.1093/humrep/den392

MA5-12207 was used in immunohistochemistry to investigate the expression of MMP-2, -7, -9, MT1-MMP, and TIMP-1 and -2 in ovarian tumors.

**Human / Not Cited**

International journal of oncology (Dec 2008; 33: 1239)

"Serous and mucinous ovarian tumors express different profiles of MMP-2, -7, -9, MT1-MMP, and TIMP-1 and -2."

Author(s): Brun JL, Cortez A, Commo F, Uzan S, Rouzier R, Darai E

PubMed Article URL: http://dx.doi.org/null

MA5-12207 was used in immunohistochemistry to investigate the prognostic value of gelatinase expression in patients with rectal carcinoma.

**Human / Not Cited**

American journal of clinical oncology (Feb 2008; 31: 55)

"Gelatinase B expression as a prognostic factor in patients with stage II/III rectal carcinoma treated by postoperative adjuvant therapy."

Author(s): Unsal D, Akyurek N, Uner A, Erpolat OP, Han U, Akmanus M, Mentes BB, Dursun A

PubMed Article URL: http://dx.doi.org/10.1097/COC.0b013e318068b4e2

MA5-12207 was used in immunohistochemistry to study the overexpression of MPPs and TIMPs in mononuclear inflammatory cells in breast cancer and the correlation with metastatic relapse.

**Human / 1:50**

**British journal of cancer (Oct 2007; 97: 957)**

"Overexpression of matrix metalloproteinases and their inhibitors in mononuclear inflammatory cells in breast cancer correlates with metastasis-relapse."


PubMed Article URL: http://dx.doi.org/10.1038/sj.bjc.6603963

MA5-12207 was used in immunohistochemistry to study the expression of MPPs and TIMPs in chronic doxorubicin cardiomyopathy.

**Rabbit / Not Cited**

**Veterinary pathology (Jul 2007; 44: 494)**

"Effects of autologous stem cells on immunohistochemical patterns and gene expression of metalloproteinases and their tissue inhibitors in doxorubicin cardiomyopathy in a rabbit model."

Author(s): Aupperle H, Garbade J, Schubert A, Barten M, Dhein S, Schoon HA, Mohr FW

PubMed Article URL: http://dx.doi.org/10.1354/vp.44-4-494


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MA5-12207 was used in immunohistochemistry to study the expression of MMPs and TIMPs in human breast cancer.

Human / 1:100


"Matrix metalloproteinases and their inhibitors in the chamber angle of normal eyes and patients with primary open-angle glaucoma and exfoliation glaucoma."

Author(s): Rönkkö S, Rekonen P, Kaarniranta K, Puustjärvi T, Teräsvirta M, Uusitalo H

PubMed Article URL: http://dx.doi.org/10.1007/s00417-006-0440-1

Human / 1:50

British journal of cancer (Mar 2007; 96: 903)

"Study of matrix metalloproteinases and their inhibitors in breast cancer."

Author(s): Vizoso FJ, González LO, Corte MD, Rodríguez JC, Vázquez J, Lamelas ML, Junquera S, Merino AM, García-Muñiz JL

PubMed Article URL: http://dx.doi.org/10.1038/sj.bjc.6603666

Human / Not Cited

International journal of radiation oncology, biology, physics (Jan 2007; 67: 196)

"Matrix metalloproteinase-9 expression correlated with tumor response in patients with locally advanced rectal cancer undergoing preoperative chemoradiotherapy."

Author(s): Unsai Klici D, Uner A, Akyurek N, Erpolat P, Dursun A, Pak Y

PubMed Article URL: http://dx.doi.org/10.1016/j.ijrobp.2006.08.010

Human / 1:200

Journal of neuroscience research (Aug 2006; 84: 278)

"Distribution and expression of tissue inhibitors of metalloproteinase in dorsal root entry zone and dorsal column after dorsal root injury."

Author(s): Zhang X, Bo X, Anderson PN, Lieberman AR, Zhang Y

PubMed Article URL: http://dx.doi.org/10.1002/jnr.20892

Human / 1:400

International journal of cancer (Jun 2006; 118: 2991)

"EMMPRIN-induced MMP-2 activation cascade in human cervical squamous cell carcinoma."

Author(s): Sier CF, Zuidwijk K, Zijlman HS, Hanemaaijer R, Mulder-Staple AA, Prins FA, Dreef EJ, Kenter GG, Fleuren GJ, Gorter A

PubMed Article URL: http://dx.doi.org/10.1002/ijc.21778

Human / 1:75

Histopathology (Apr 2006; 48: 588)

"The distribution of matrix metalloproteinases and tissue inhibitors of metalloproteinases in the lungs of congenital diaphragmatic hernia patients and age-matched controls."

Author(s): Masumoto K, de Rooij JD, Smit S, Rottier R, Tibboel D, de Krijger RR

PubMed Article URL: http://dx.doi.org/10.1111/j.1365-2559.2006.02379.x

Human / 1:75

Histopathology (Oct 2005; 47: 410)

"Expression of matrix metalloproteinases and tissue inhibitors of metalloproteinases during normal human pulmonary development."

Author(s): Masumoto K, de Rooij JD, Smit S, Rottier R, Tibboel D, de Krijger RR

PubMed Article URL: http://dx.doi.org/10.1111/j.1365-2559.2005.02228.x

Human / 1:50

Cancer research and treatment : official journal of Korean Cancer Association (Jun 2005; 37: 165)

"Expression of cyclooxygenase-2 in human breast cancer: relationship with HER-2/neu and other clinicopathological prognostic factors."

Author(s): Nam E, Lee SN, Im SA, Kim DY, Lee KE, Sung SH

PubMed Article URL: http://dx.doi.org/10.4143/crt.2005.37.3.165
MA5-12207 was used in immunohistochemistry to study the expression of MMP2, MMP9, TIMP1 and TIMP2 in arteries from patients with fatal acute Kawasaki's disease

Arteriosclerosis, thrombosis, and vascular biology (Apr 2003; 23: 576)
"Systemic arterial expression of matrix metalloproteinas 2 and 9 in acute Kawasaki disease."
Author(s): Gavin PJ, Crawford SE, Shulman ST, Garcia FL, Rowley AH
PubMed Article URL:http://dx.doi.org/10.1161/01.ATV.0000065385.47152.FD

4 Western Blot References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
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<tr>
<td><strong>Human / 1:250</strong></td>
<td>MA5-12207 was used in western blot to study the effects of Huangqi decoction on apoptosis, fibrosis, and hepatic inflammation in a rat model of liver fibrosis.</td>
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<tr>
<td><strong>Human / 1:200</strong></td>
<td>MA5-12207 was used in western blot to study the role of the 67 kDa laminin receptor in the mechanism by which hypoxia promotes human gastric cancer metastasis</td>
</tr>
<tr>
<td><strong>Rat / 1:1000</strong></td>
<td>MA5-12207 was used in western blot to study the effects of connective tissue growth factor on the production of MMP-2 and TIMP-2 by cultured renal interstitial fibroblasts.</td>
</tr>
<tr>
<td><strong>Human / Not Cited</strong></td>
<td>MA5-12207 was used in western blot to study the expression of MMPs and TIMPs in brain arteriovenous malformations</td>
</tr>
<tr>
<td><strong>Human / 10 ug/ml</strong></td>
<td>Cancer Letters (Jul 2003; 197: 47) &quot;Abnormal expression of matrix metalloproteinas 2 and tissue inhibitors of metalloproteinases in brain arteriovenous malformations.&quot; Author(s): Hashimoto T, Wen G, Lawton MT, Boudreau NJ, Bolllon AW, Yang GY, Barbaro NM, Higashida RT, Dowd CF, Halbach VV, Young WL PubMed Article URL:<a href="http://dx.doi.org/10.1161/01.STR.0000061888.71524.DF">http://dx.doi.org/10.1161/01.STR.0000061888.71524.DF</a></td>
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1 Immunocytochemistry References

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<thead>
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<th>Species / Dilution</th>
<th>Summary</th>
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<tbody>
<tr>
<td><strong>Human / 10 ug/ml</strong></td>
<td>MA5-12207 was used in immunocytochemistry to study neuroblastoma and the regulation of angiogenesis</td>
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