



IMD

2022 CATALOG

ANTIBODIES

Research Topics: Diabetes, Obesity, Metabolism, Cardiovascular Disease, Renal Disease, Inflammation

About Us

ImmunoDiagnostics Limited (IMD) is a spin-off biotech company from The University of Hong Kong, and has R&D activities in both Toronto, Canada and Hong Kong. The founders of IMD are academic professoriates with strong research background in immunology, metabolism, cardiovascular medicine, and antibody and protein engineering. The company has over 13 years of experience in biomarker discovery and development of highly-specific immunoassays for both research & *in vitro* diagnostics (IVD) for major infectious diseases, cardiometabolic disorders and autoimmune diseases.

IMD has established state-of-the-art platforms for expression, purification and functional characterization of bioactive proteins from different sources (*E. coli*, yeast, insect cells and mammalian cells), generation and validation of both polyclonal and monoclonal antibodies, identification and cloning of genes encoding monoclonal antibodies specific to a target of interest using Next Generation Sequencing. Furthermore, our immunoassays have been validated in a large number of unique clinical biobanks in Asia, Europe and North America. Thus far, IMD has developed several hundreds of research products, including bioactive proteins, validated antibodies and immunoassays, which have been widely used in over 30 countries, such as the United States, Canada, United Kingdom, China, Australia and Singapore. IMD products have been cited by many publications in prestigious journals including *Cell*, *Cell Metabolism*, *Nature Series*, *JCI*, *PNAS*.

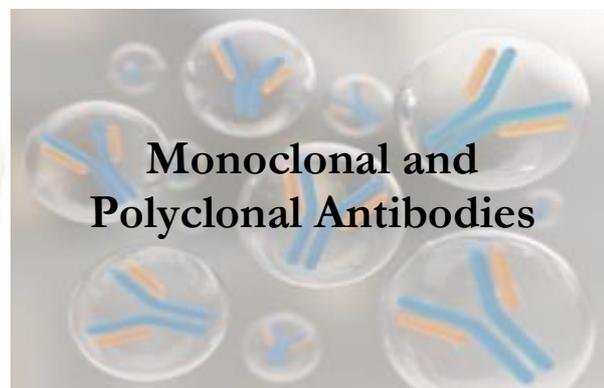
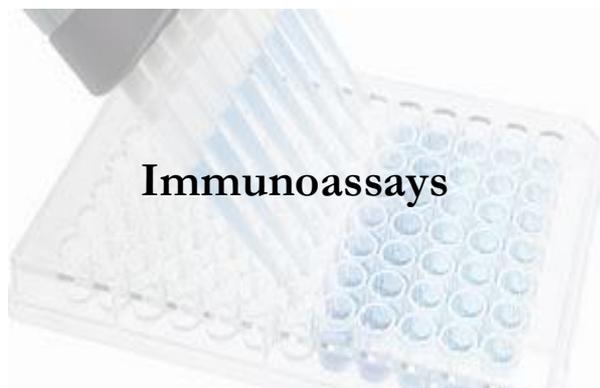


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Polyclonal Antibody against Mouse Adiponectin
(Cat. No.: 12010 Size: 100 ug Host: Rabbit)

Introduction to the Molecule:

Adiponectin, also termed gelatin-binding protein-28 (GBP28), AdipoQ, ACP30 (Acrp30), or apM, is a major adipocyte-secreted adipokine which abundantly present in the circulation as three distinct oligomeric complexes: LMW(67kDa), MMW(167kDa) and HMW(300kDa) adiponectin. Its levels are decreased in insulin resistant, diabetes and cardiovascular disease. Conversely, elevation of circulating adiponectin concentrations can alleviate various vascular dysfunctions in animal models, suggesting this adipokine exerts vasculoprotective effects. In addition, adiponectin may also be of importance in the development and progression of several malignancies.

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length mouse adiponectin expressed in mammalian cells

Specificity:

The antibody detects mouse/rat adiponectin.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used at 0.1 - 0.2 µg/mL with the appropriate secondary reagents to detect mouse/rat adiponectin.

ELISA - This antibody can be used at 0.5 - 1.0 µg/mL with the appropriate secondary reagents to detect mouse/rat Adiponectin.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2005) Testosterone selectively reduces the high molecular weight form of adiponectin by inhibiting its secretion from adipocytes. *J. Biol. Chem.* 280, 18073–18080
- [2] Xu A, et al. (2008) Selective Elevation of Adiponectin Production by the Natural Compounds Derived from a Medicinal Herb Alleviates Insulin Resistance and Glucose Intolerance in Obese Mice. *Endocrinology*. [Epub ahead of print]
- [3] Xu A, et al. (2004) Adiponectin ameliorates dyslipidemia induced by the human immunodeficiency virus protease inhibitor ritonavir in mice. *Endocrinology*. 145(2):487-94
- [4] Wang Y, et al. (2008) Post-translational modifications of adiponectin: mechanisms and functional implications. *Biochem J*. 409(3):623-33

Polyclonal Antibody against Human Adiponectin
(Cat. No.: 11010 Size: 100 ug Host: Rabbit)

Introduction to the Molecule:

Adiponectin, also termed gelatin-binding protein-28 (GBP28), AdipoQ, ACP30 (Acrp30), or apM, is a major adipocyte-secreted adipokine which abundantly present in the circulation as three distinct oligomeric complexes: LMW(67kDa), MMW(167kDa) and HMW(300kDa) adiponectin. Its levels are decreased in insulin resistant, diabetes and cardiovascular disease. Conversely, elevation of circulating adiponectin concentrations can alleviate various vascular dysfunctions in animal models, suggesting this adipokine exerts vasculoprotective effects. In addition, adiponectin may also be of importance in the development and progression of several malignancies.

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G chromatography

Immunogen:

Recombinant full-length human adiponectin expressed in mammalian cells

Specificity:

The antibody detects three types of circular human adiponectin and monomer (30kDa) adiponectin

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used at 0.1 - 0.2 µg/mL with the appropriate secondary reagents to detect human adiponectin.

ELISA - This antibody can be used at 0.5 - 1.0 µg/mL with the appropriate secondary reagents to detect human Adiponectin.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2005) Testosterone selectively reduces the high molecular weight form of adiponectin by inhibiting its secretion from adipocytes. *J. Biol. Chem.* 280, 18073–18080
- [2] Xu A, et al. (2008) Selective Elevation of Adiponectin Production by the Natural Compounds Derived from a Medicinal Herb Alleviates Insulin Resistance and Glucose Intolerance in Obese Mice. *Endocrinology*. [Epub ahead of print]
- [3] Xu A, et al. (2004) Adiponectin ameliorates dyslipidemia induced by the human immunodeficiency virus protease inhibitor ritonavir in mice. *Endocrinology*. 145(2):487-94
- [4] Wang Y, et al. (2008) Post-translational modifications of adiponectin: mechanisms and functional implications. *Biochem J.* 409(3):623-33

Polyclonal Antibody against Mouse Autotaxin

(Cat. No.: 12770

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Autotaxin (ATX, ENPP2) is a secreted glycoprotein with phosphodiesterase (PDE) activity. It is one of the member in the nucleotide pyrophosphatase/ phosphodiesterase family (NPPs) family. ATX has lysophospholipase D activity that converts lysophosphatidylcholine into LPA, and it was originally identified as a tumor cell-motility-stimulating factor. LPA, which specifically binds to G protein-coupled receptors (GPCR), plays a wide range of biological activities, including cell hyperproliferation, which may contribute to oncogenesis and metastasis.

ATX has been to be overexpressed in many tumor cells, and thus plays an important role in tumor development and metastasis. In addition, ATX also plays an important role in nervous and immune systems.

Isotype/Preparation:

Rabbit specific IgG was purified by autotaxin affinity chromatography

Immunogen:

Recombinant Mouse autotaxin in *mammalian cells*. (Cat. No.: 42770)

Specificity:

The antibody detects mouse autotaxin.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot: This antibody can be used as primary antibody in western blot assay to detect mouse autotaxin.

ELISA - This antibody can be used as capture antibody in mouse autotaxin Elisa (Cat. No.: 32770).

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Human Autotaxin

(Cat. No.: 11770

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Autotaxin (ATX, ENPP2) is a secreted glycoprotein with phosphodiesterase (PDE) activity. It is one of the member in the nucleotide pyrophosphatase/ phosphodiesterase family (NPPs) family. ATX has lysophospholipase D activity that converts lysophosphatidylcholine into LPA, and it was originally identified as a tumor cell-motility-stimulating factor. LPA, which specifically binds to G protein-coupled receptors (GPCR), plays a wide range of biological activities, including cell hyperproliferation, which may contribute to oncogenesis and metastasis.

ATX has been to be overexpressed in many tumor cells, and thus plays an important role in tumor development and metastasis. In addition, ATX also plays an important role in nervous and immune systems.

Isotype/Preparation:

Rabbit specific IgG was purified by autotaxin affinity chromatography

Immunogen:

Recombinant human autotaxin in *mammalian cells*. (Cat. No.: 41770)

Specificity:

The antibody detects human autotaxin.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot: This antibody can be used as primary antibody in western blot assay to detect human autotaxin.

ELISA - This antibody can be used as capture antibody in Human autotaxin Elisa (Cat. No.: 31770).

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against APPL1

(Cat. No.: 11130

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

APPL1, an adaptor protein containing an NH₂-terminal Bin/Amphiphophysin/Rvs (BAR) domain, a central pleckstrin homology (PH) domain and a COOH-terminal phosphotyrosine binding (PTB) domain [1] was originally identified as an interacting partner of Akt in a yeast two-hybrid assay using Akt2 as a bait [2]. APPL1 binds to a number of cell surface receptors (TrkA[3, 4], DCC[5], adiponectin [6, 7], FSH[8]) and intracellular signaling molecules (small GTPase Rab5[9], GIPC[4] and inositol 5-phosphatase[10], suggesting that APPL1 may act as a common relay to coordinate diverse signaling cascades. APPL1 potentiates insulin-mediated Akt activation by counteracting the effect of the Akt inhibitor TRB3 [11].

Isotype/Preparation:

Rabbit SPECIFIC IgG was purified by human APPL1 affinity chromatography.

Immunogen:

Recombinant full-length human APPL1 expressed in E. coli

Specificity:

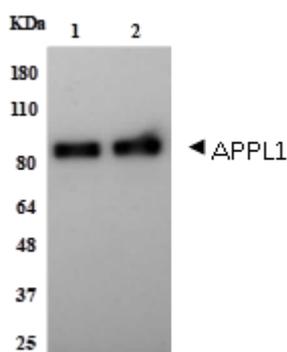
The antibody detects several types of APPL1 in different species such as human, monkey, mouse, rat etc. (about 85kDa).

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

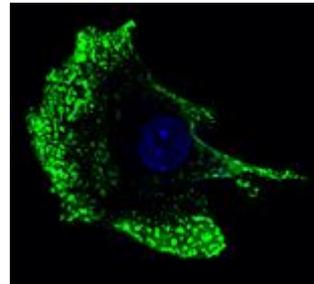
Western blot - This antibody can be used at 0.1 - 0.2 µg/mL with the appropriate secondary reagents to detect APPL1.



Western blot analysis of APPL1 in 20ug HEK293 (Lane 1) and C₂C₁₂ (Lane 2) cell lysate using anti-APPL1

followed by goat anti-rabbit antibody.

Immunostaining - This antibody can be used at 1.0 - 2.0 µg/mL with the appropriate secondary reagents to detect APPL1.



Immunostaining of APPL1 in C₂C₁₂ cells using anti-APPL1 followed by goat anti-rabbit antibody,

visualized by confocal microscopy.

ELISA - This antibody can be used at 2.0 - 5.0 µg/mL with the appropriate secondary reagents to detect APPL1.

Immunoprecipitation - See reference [6], [11]

Quality Control Test:

BCA to determine quantity of the antibody

References:

- Hosch, S.E., J.M. Olefsky, and J.J. Kim, APPLied mechanics: uncovering how adiponectin modulates insulin action. *Cell Metab*, 2006. 4(1): p. 5-6.
- Mitsuuchi, Y., et al., Identification of a chromosome 3p14.3-21.1 gene, APPL, encoding an adaptor molecule that interacts with the oncoprotein-serine/threonine kinase AKT2. *Oncogene*, 1999. 18(35): p. 4891-8.
- Lin, D.C., et al., APPL1 associates with TrkA and GIPC1, and is required for NGF-mediated signal transduction. *Mol Cell Biol*, 2006. 25: p. 25.
- Varsano, T., et al., GIPC is recruited by APPL to peripheral TrkA endosomes and regulates TrkA trafficking and signaling. *Mol Cell Biol*, 2006. 26(23): p. 8942-52.
- Liu, J., et al., Mediation of the DCC apoptotic signal by DIP13 alpha. *J Biol Chem*, 2002. 277(29): p. 26281-5. Epub 2002 May 14.
- Cheng, K.K., et al., Adiponectin-induced endothelial nitric oxide synthase activation and nitric oxide production are mediated by APPL1 in endothelial cells. *Diabetes*, 2007. 56(5): p. 1387-94.
- Mao, X., et al., APPL1 binds to adiponectin receptors and mediates adiponectin signalling and function. *Nat Cell Biol*, 2006. 8(5): p. 516-23. Epub 2006 Apr 16.
- Nechamen, C.A., et al., Human follicle-stimulating hormone (FSH) receptor interacts with the adaptor protein APPL1 in HEK 293 cells: potential involvement of the PI3K pathway in FSH signaling. *Biol Reprod*, 2004. 71(2): p. 629-36. Epub 2004 Apr 7.
- Miaczynska, M., et al., APPL proteins link Rab5 to nuclear signal transduction via an endosomal compartment. *Cell*, 2004. 116(3): p. 445-56.
- Erdmann, K.S., et al., A role of the Lowe syndrome protein OCRL in early steps of the endocytic pathway. *Dev Cell*, 2007. 13(3): p. 377-90.
- Cheng, K.K., et al., APPL1 potentiates insulin-mediated inhibition of hepatic glucose production and alleviates diabetes via Akt activation in mice. *Cell Metab*, 2009. 9(5): p. 417-27.

Polyclonal Antibody against Human Angiopoietin-like Protein 4

(Cat. No.: 11020

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Angiopoietin-like protein 4 (ANGPTL4), also known as PPAR γ angiopoietin-related protein, fasting-induced adipose factor, or hepatic fibrinogen /angiopoietin-related protein (HFARP), is a secreted adipokine predominantly expressed in adipose tissue and liver. The experimental results show that ANGPTL4 is a blood-borne hormone directly involved in regulating glucose homeostasis, lipid metabolism, and insulin sensitivity. Serum levels of ANGPTL4 were decreased in patients with type 2 diabetes. In animal experiments, ANGPTL4 treatments might reduce hyperglycemia, and improve glucose tolerance by decreasing hepatic glucose production and enhancing insulin-mediated inhibition of gluconeogenesis. However, the molecular mechanisms underlying its metabolic actions remain elusive.

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length human ANGPTL4 expressed in E. coli

Specificity:

The antibody detects human ANGPTL4

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot - This antibody can be used at 0.1 - 0.2 $\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect human ANGPTL4.

ELISA - This antibody can be used at 0.5 - 1.0 $\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect human ANGPTL4.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2005) Testosterone selectively reduces the high molecular weight form of adiponectin by inhibiting its secretion from adipocytes. *J. Biol. Chem.* 280, 18073–18080
- [2] Wang Y, et al. (2007) Overexpression of angiopoietin-like protein 4 alters mitochondria activities and modulates methionine metabolic cycle in the liver tissues of db/db diabetic mice. *Mol Endocrinol.* 21(4):972-86.

Polyclonal Antibody against APPL2

(Cat. No.: 11140

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

APPL2, also termed as Adaptor protein, phosphotyrosine interaction, PH domain and leucine zipper containing 2, has been shown to be involved in the regulation of cell proliferation, and in the crosstalk between the adiponectin signalling and insulin signalling pathways. The encoded protein binds many other proteins, including RAB5A, APPL1, adiponectin receptors, and proteins of the NuRD/MeCP1 complex.

Isotype/Preparation:

Rabbit SPECIFIC IgG was purified by human APPL2 affinity chromatography.

Immunogen:

Recombinant full-length human APPL2 expressed in E. coli

Specificity:

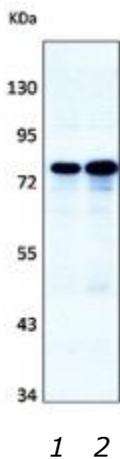
The antibody detects several types of APPL2 in different species such as human, monkey, mouse, rat etc. (about 85kDa).

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

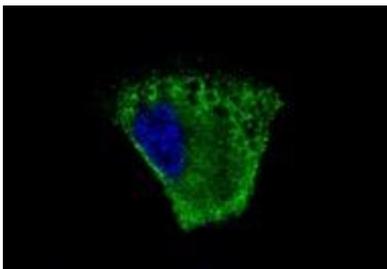
Application/Usage:

Western blot - This antibody can be used at 0.1 - 0.2 µg/mL with the appropriate secondary reagents to detect APPL2.



Western blot analysis of APPL2 in 20ug HEK293 (Lane 1) and MDA-MB-231 (Lane 2) cell lysate using anti-APPL2 followed by goat anti-rabbit antibody.

Immunostaining - This antibody can be used at 2-3 µg/mL with the appropriate secondary reagents to detect APPL2.



Immunostaining of APPL2 in C₂C₁₂ cells using anti-APPL2 followed by goat anti-rabbit antibody, visualized by confocal microscopy.

ELISA - This antibody can be used at 1.0 - 2.0 µg/mL with the appropriate secondary reagents to detect APPL2.

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Human STAP1
(Cat. No.: 11A121 Size: 100 µg Host: Rabbit)

Introduction to the Molecule:

Signal-transducing adaptor protein 1 (STAP1; also known as BCR downstream-signaling protein 1, BRDG1) is a 37 kDa adaptor protein which is involved in B cell antigen receptor signaling. This protein is a substrate of tyrosine-protein kinase Tec, and its interaction with tyrosine-protein kinase Tec is phosphorylation-dependent. Human STAP1 is 295 amino acids in length and contains a proline-rich region, a pleckstrin homology (PH) domain, and a region in the carboxy terminal half with similarity to the Src Homology 2 (SH2) domain. Human STAP1 shares 82% amino acid identity with mouse STAP1.

Purification:

Antigen-affinity purified Polyclonal rabbit IgG

Immunogen:

E. coli-derived recombinant human STAP1
 Accession # Q9ULZ2

Specificity:

Detects human and mouse STAP1 in Western blots.

Formulation:

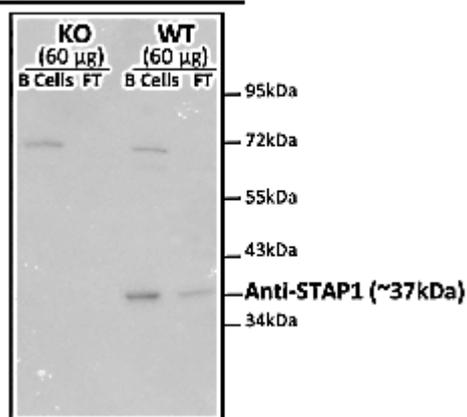
Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -80°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Please Note: Optimal dilutions should be determined by each laboratory for each application.

Detection of Human BRDG1 by Western Blot.

B-cell fractionation



Western blot shows B cell fractionation of splenic B cells either C57BL/6 STAP1 KO or WT mice. PVDF membrane was probed with **8 µg/mL** of Human STAP1 Antigen Affinity-purified Polyclonal Antibody (Catalog # 11A121) followed by HRP conjugated Anti-Rabbit IgG Secondary Antibody. A specific band was detected for STAP1 at approximately 37 kDa (as indicated).

Western blot – recommended concentration 1~5 µg/ml

Polyclonal Antibody against Human CRP

(Cat. No.: 11120

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

C-reactive protein (CRP) is a circulating protein mainly secreted from the liver. This acute phase protein consists of five identical non-glycosylated subunits of 23 kDa, that give rise to a symmetrically arranged globular protein with molecular weight of approximately 120 kDa.¹ It has long been recognized that CRP is closely related to immunology, inflammation and host defence, as a result it has been used as an inflammatory marker. There is accumulating evidence suggesting the important role that CRP plays in mediating cardiovascular diseases (CVD) and type 2 diabetes.²⁻⁴ Normally CRP is presenting only in a trace amount in circulation (<1 µg/ml)⁵⁻⁶ but can increase over 1,000-fold under acute inflammatory state. Individual with blood CRP levels <1 µg/ml, 1-3 µg/ml and >3 µg/ml is considered to have low, moderate and high risk, respectively, of CVD and myocardial infarction.⁷ Therefore, blood CRP level has become a promising measure of CVD risk.⁸⁻⁹

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant Human C-reactive Protein (CRP) expressed in *E. coli*.

Specificity:

The antibody detects human CRP.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

ELISA - This antibody can be used at 0.1 - 0.2 µg/ml with the appropriate secondary reagents to detect human CRP.

Quality Control Test:

BCA to determine quantity of the antibody

References:

1. Thompson D., Pepys M.B. and Wood S.P. (1999) *Structure*, 7, 169-177.
2. Festa A, D'Agostino R. Jr., Tracy R.P. and Haffner S.M. (2002) *Diabetes*, 51, 1131-1137.
3. Verma S. and Yeh E.T. (2003) *Am J Physiol*, 285, R1253-R1258.
4. Jialal I., Devaraj S. and Venugopal S.K. (2004) *Hypertension*, 44, 6-11.
5. Kindmark C.O. (1972) *Scand J Clin Lab Invest*, 29, 407-411.
6. Macy E.M., Hayes T.E. and Tracy R.P. (1997) *Clin Chem*, 43, 52-58.
7. Ridker P.M. (2004) *Am Heart Hosp J*, 2 (4 Suppl 1), 4-9.
8. Benzaquen I.R., Yu H. and Rifai N. (2002) *Crit Rev Clin Lab Sci*, 39, 459-497.
9. Pearson T.A. et al., (2003) *Circulation*, 107, 499-511.

Polyclonal Antibody against Mouse Fatty-acid Binding Protein 5

(Cat. No.: 12040

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

The fatty-acid-binding proteins (FABPs) are a family of carrier proteins for fatty acids and other lipophilic substances such as eicosanoids and retinoids. These proteins are thought to facilitate the transfer of fatty acids between extra- and intracellular membranes. The fatty acid binding protein 4 (FABP-4) and fatty acid binding protein 5 (FABP5) are closely related and both are expressed in adipocytes. Mice with targeted disruption of FABP-4 accompany FABP-5 almost completely protect against diet-induced obesity, insulin resistance, dyslipidemia, type 2 diabetes, and fatty liver disease. While mice over expressing FABP5 in adipose have reduced insulin sensitivity

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length mouse FABP5 expressed in *E. coli*.

Specificity:

The antibody detects mouse FABP5.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used at 0.5 - 2 $\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect mouse FABP5.

Immunoprecipitation, ELISA and immunocytochemistry are not tested.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2006) Adipocyte Fatty Acid-Binding Protein Is a Plasma Biomarker Closely Associated with Obesity and Metabolic Syndrome. *Clin Chem*. 52(3):405-13.
- [2] Xu A, et al. (2007) Circulating adipocyte-fatty acid binding protein levels predict the development of the metabolic syndrome: a 5-year prospective study. *Circulation*. 115:1537-1543.
- [3] Rhee EJ, et al. (2009) The association of serum adipocyte fatty acid-binding protein with coronary artery disease in Korean adults. *Eur J Endocrinol*. 160(2):165-72.

Polyclonal Antibody against Human Fatty-acid Binding Protein 5

(Cat. No.: 11040

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

The fatty-acid-binding proteins (FABPs) are a family of carrier proteins for fatty acids and other lipophilic substances such as eicosanoids and retinoids. These proteins are thought to facilitate the transfer of fatty acids between extra- and intracellular membranes. The fatty acid binding protein 4 (FABP-4) and fatty acid binding protein 5 (FABP5) are closely related and both are expressed in adipocytes. Mice with targeted disruption of FABP-4 accompany FABP-5 almost completely protect against diet-induced obesity, insulin resistance, dyslipidemia, type 2 diabetes, and fatty liver disease. While mice over expressing FABP5 in adipose have reduced insulin sensitivity

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length human FABP5 expressed in *E. coli*.

Specificity:

The antibody detects human FABP5.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used at 0.5 - 2 $\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect human FABP5.

Immunoprecipitation, ELISA and **immunocytochemistry** are not tested.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2006) Adipocyte Fatty Acid-Binding Protein Is a Plasma Biomarker Closely Associated with Obesity and Metabolic Syndrome. *Clin Chem*. 52(3):405-13.
- [2] Xu A, et al. (2007) Circulating adipocyte-fatty acid binding protein levels predict the development of the metabolic syndrome: a 5-year prospective study. *Circulation*. 115:1537-1543.
- [3] Rhee E, et al. (2009) The association of serum adipocyte fatty acid-binding protein with coronary artery disease in Korean adults. *Eur J Endocrinol*. 160(2):165-72.

Polyclonal Antibody against Mouse Fatty-acid Binding Protein 4

(Cat. No.: 12030

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Fatty-acid binding protein 4 (FABP4), also termed adipocyte fatty-acid binding protein (A-FABP), or aP2, is a novel adipocyte-expressed factor which accounted for ~6% of total cellular proteins. Several animal experiments suggested that FABP-4 plays a key role in the link between obesity and various features of metabolic syndrome. Mice with targeted disruption of FABP-4 accompany FABP-5 almost completely protect against diet-induced obesity, insulin resistance, dyslipidemia, type 2 diabetes, and fatty liver disease. Studies in human found FABP-4 serum levels were significantly increased in overweight and obese subjects, which predicted the risk to develop a metabolic syndrome and type 2 diabetes. Additionally, serum FABP-4 levels were associated with carotid atherosclerosis and coronary artery disease.

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length mouse FABP4 expressed in *E. coli*.

Specificity:

The antibody detects mouse FABP4.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot - This antibody can be used at 0.5 - 1 µg/mL with the appropriate secondary reagents to detect mouse FABP4.

Immunoprecipitation, ELISA and immunocytochemistry are not tested.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2006) Adipocyte Fatty Acid-Binding Protein Is a Plasma Biomarker Closely Associated with Obesity and Metabolic Syndrome. *Clin Chem.* 52(3):405-13.
- [2] Xu A, et al. (2007) Circulating adipocyte-fatty acid binding protein levels predict the development of the metabolic syndrome: a 5-year prospective study. *Circulation.* 115:1537-1543.
- [3] Rhee E], et al. (2009) The association of serum adipocyte fatty acid-binding protein with coronary artery disease in Korean adults. *Eur J Endocrinol.* 160(2):165-72.

Polyclonal Antibody against Human Fatty-acid Binding Protein 4

(Cat. No.: 11030

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Fatty-acid binding protein 4 (FABP4), also termed adipocyte fatty-acid binding protein (A-FABP), or aP2, is a novel adipocyte-expressed factor which accounted for ~6% of total cellular proteins. Several animal experiments suggested that FABP-4 plays a key role in the link between obesity and various features of metabolic syndrome. Mice with targeted disruption of FABP-4 accompany FABP-5 almost completely protect against diet-induced obesity, insulin resistance, dyslipidemia, type 2 diabetes, and fatty liver disease. Studies in human found FABP-4 serum levels were significantly increased in overweight and obese subjects, which predicted the risk to develop a metabolic syndrome and type 2 diabetes. Additionally, serum FABP-4 levels were associated with carotid atherosclerosis and coronary artery disease.

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Recombinant full-length human FABP4 expressed in E. coli.

Specificity:

The antibody detects human FABP4

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot - This antibody can be used at 0.1 - 0.2 µg/mL with the appropriate secondary reagents to detect human FABP4.

Immunoprecipitation, ELISA and immunocytochemistry are not tested.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Xu A, et al. (2006) Adipocyte Fatty Acid-Binding Protein Is a Plasma Biomarker Closely Associated with Obesity and Metabolic Syndrome. *Clin Chem.* 52(3):405-13.
- [2] Xu A, et al. (2007) Circulating adipocyte-fatty acid binding protein levels predict the development of the metabolic syndrome: a 5-year prospective study. *Circulation.* 115:1537-1543.
- [3] Rhee EJ, et al. (2009) The association of serum adipocyte fatty acid-binding protein with coronary artery disease in Korean adults. *Eur J Endocrinol.* 160(2):165-72.

Polyclonal Antibody against Human FGF-19

(Cat. No.: 11200

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Fibroblast growth factor 19 (FGF-19) is a member of a subfamily of FGFs that includes FGF-21 and FGF-23, each member functions as an important regulator of nutrient metabolism [1]. The primary source of endocrine FGF-19 is the ileum, bile acids release into the intestine after a meal to induce expression of FGF-19 [2]. Circulating FGF-19 plays an important role in maintaining proper bile acid homeostasis [3]. Several pharmacologic studies in hyperglycaemic, obese animal models have shown that FGF-19 can improve metabolic rate and lower serum glucose and hepatic triglyceride and cholesterol levels [4]-[5]. Like insulin, FGF-19 functions as postprandial hormone to govern hepatic protein synthesis, glycogen synthesis and gluconeogenesis, but does not stimulate lipogenesis [6].

Isotype/Preparation:

Immunoaffinity chromatography on a column with immobilized recombinant human FGF-19.

Immunogen:

Recombinant full-length human FGF-19 expressed in *E. coli*.

Specificity:

The antibody detects circular human FGF-19.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

ELISA- the antibody can be used as capture and detection antibody in ELISA.

Western blot, Immunoprecipitation and immunocytochemistry are not tested.

Quality Control Test:

BCA to determine quantity of the antibody.

References:

- [1] Beenken A, et al. (2009) *Nat Rev Drug Discov*; 8: 235– 253.
- [2] Inagaki T, et al. (2005) *Cell Metab*; 2: 217– 225.
- [3] Lundasen T, et al. (2006) *J Inter Med*;260:530-536.
- [4] Tomlinston E, et al. (2002) *Endocrinology*; 143: 1741-1747.
- [5] Fu L, et al. (2004) *Endocrinology*; 145: 2594-2603.
- [6] Kir S, et al. (2011) *Science*; 331: 1621– 1624.

Polyclonal Antibody against Mouse FGF-21

(Cat. No.: 12180

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Fibroblast growth factor 21 (FGF-21) is a novel protein that has been implicated in the regulation of lipid and glucose metabolism under fasting and ketotic conditions^{1,2}. In murine models, FGF-21 is predominantly expressed in liver, but it is also expressed in adipose tissue and pancreatic β -cells^{3,4}. FGF-21 stimulates glucose uptake in adipocytes. It also protects animals from diet-induced obesity when overexpressed in transgenic mice and lowers blood glucose and triglyceride levels when administered to diabetic rodents⁵. When administered daily for 6 weeks to diabetic rhesus monkeys, FGF-21 caused a dramatic decline in fasting plasma glucose, fructosamine, triglycerides, insulin, and glucagon⁶. Furthermore, elevated plasma FGF-21 concentrations in humans appear to be related to the presence of hepatic and peripheral insulin resistance⁷.

Isotype/Preparation:

Immunoaffinity chromatography on a column with immobilized recombinant mouse FGF-21.

Immunogen:

Recombinant full-length mouse FGF-21 expressed in *E. coli*.

Specificity:

The antibody detects circular mouse FGF-21.

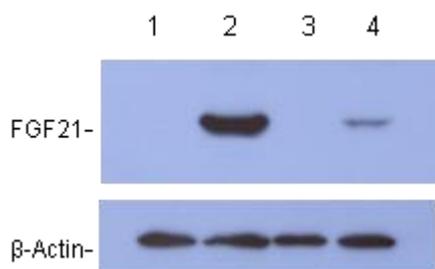
Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/defrost cycles.

Application/Usage:

ELISA - This antibody can be used at $2\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect mouse FGF-21.

Western blot - This antibody can be used at $0.2\mu\text{g}/\text{mL}\sim 0.5\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect mouse FGF-21.



Western blot analysis of FGF21 in 10ug non FGF21 expressing cell lysate (Lane 1,3) and FGF21 expressing cell lysate (Lane 2,4) using anti-FGF21 followed by goat anti-rabbit antibody. (The figure is from Prof. Cheah's lab, HKU.)

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Kharitonov A, Shiyanova TL, et al. (2005) *J Clin Invest*; 115: 1627- 1635
- [2] Badman MK, Pissios P, et al. (2007) *Cell Metab*; 5: 426- 437
- [3] Nishimura T, Nakatake Y, et al. (2000) *Biochim Biophys Acta*; 1492: 203- 206
- [4] Kurosu H, Choi M, et al. (2007) *J Biol Chem*; 282: 26687- 26695
- [5] Kharitonov A, Shiyanova TL, et al. (2005) *J. Clin. Invest.* 115: 1627-35.
- [6] Kharitonov A, Wroblewski VJ, et al. (2007) *Endocrinology*;148:774-81
- [7] Chavez AO, Molina-Carrion M, et al. (2009) *Diabetes Care*; 32:1542-6.

Polyclonal Antibody against Human FGF-21

(Cat. No.: 11180

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Fibroblast growth factor 21 (FGF-21) is a novel protein that has been implicated in the regulation of lipid and glucose metabolism under fasting and ketotic conditions^{1,2}. In murine models, FGF-21 is predominantly expressed in liver, but it also expressed in adipose tissue and pancreatic β -cells^{3,4}. FGF-21 stimulates glucose uptake in adipocytes. It also protects animals from diet-induced obesity when overexpressed in transgenic mice and lowers blood glucose and triglyceride levels when administered to diabetic rodents⁵. When administered daily for 6 weeks to diabetic rhesus monkeys, FGF-21 caused a dramatic decline in fasting plasma glucose, fructosamine, triglycerides, insulin, and glucagon⁶. Furthermore, elevated plasma FGF-21 concentrations in humans appear to be related to the presence of hepatic and peripheral insulin resistance⁷.

Isotype/Preparation:

Immunoaffinity chromatography on a column with immobilized recombinant human FGF-21.

Immunogen:

Recombinant full-length human FGF-21 expressed in *E. coli*.

Specificity:

The antibody detects circular human FGF-21.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

ELISA- The antibody can be used at 2 μg /ml with the appropriate secondary reagents to detect human FGF21.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Kharitonov A, Shiyanova TL, et al. (2005) *J Clin Invest*; 115: 1627– 1635
- [2] Badman MK, Pissios P, et al. (2007) *Cell Metab*; 5: 426– 437
- [3] Nishimura T, Nakatake Y, et al. (2000) *Biochim Biophys Acta*; 1492: 203– 206
- [4] Kurosu H, Choi M, et al. (2007) *J Biol Chem*; 282: 26687– 26695
- [5] Kharitonov A, Shiyanova TL, et al. (2005) *J. Clin. Invest.* 115: 1627–35.
- [6] Kharitonov A, Wroblewski VJ, et al. (2007) *Endocrinology*; 148:774-81
- [7] Chavez AO, Molina-Carrion M, et al. (2009) *Diabetes Care*; 32:1542-6.

Polyclonal Antibody against Human Galectin-3

(Cat. No.: 11690

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Galectin-3 is expressed by a wide range of cell types including activated T cells, tumor cells, macrophages, osteoclasts, fibroblasts, and epithelial cells.

Galectin-3 has specific binding affinity for beta-galactoside sugar moieties and has functional roles during development, innate immunity, cell apoptosis, and tumor metastasis. Galectin-3 is associated with cancer, heart failure, stroke, and inflammation.

Isotype/Preparation:

Rabbit specific IgG was purified by Galectin-3 affinity chromatography

Immunogen:

Recombinant human galectin-3 in *E. coli*. (Cat. No.: 41690)

Specificity:

The antibody detects human galectin-3

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot: This antibody can be used as primary antibody in western blot assay to detect human galectin-3.

ELISA - This antibody can be used as capture antibody in Human galectin-3 Elisa (Cat. No.: 31690).

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Mouse Interleukin-33
(Cat. No.: 12750 Size: 100 ug Host: Rabbit)

Introduction to the Molecule:

IL-33 was identified based on sequence and structural homology with IL-1 family cytokines. The N-terminal portion of full-length IL-33 contains a predicted bipartite nuclear localization sequence and a homeodomain-like helix-turn-helix DNA binding domain. The C-terminal fragment, corresponding to mature IL-33, binds and triggers signaling through mast cell IL-1 R4/ST2L, a longtime orphan receptor involved in the augmentation of Th2 cell responses. A ternary signaling complex is formed by the subsequent association of IL-33 and ST2L with IL-1R AcP. Stimulation of Th2 polarized lymphocytes with mature IL-33 *in vitro* induces IL-5 and IL-13 secretion. *In vivo* administration of mature IL-33 promotes increased production of IL-5, IL-13, IgE, and IgA, as well as splenomegaly and inflammatory infiltration of mucosal tissues.

Isotype/Preparation:

Rabbit specific IgG was purified by IL-33 affinity chromatography

Immunogen:

Recombinant mouse IL-33 in *E. coli*. (Cat. No.: 41750)

Specificity:

The antibody detects mouse IL-33.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

ELISA - This antibody can be used as capture antibody in Mouse IL-33 Elisa (Cat. No.: 31750).

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Human Lipocalin 2 (LCN2)

(Cat. No.: 11050

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Lipocalin-2(LCN2), also known as neutrophil gelatinase-associated lipocalin (NGAL), 24p3, or neutrophil lipocalin (NL), is a 25-kDa secretory glycoprotein¹. LCN2 has been implicated in a variety of cellular processes including the innate immune response, differentiation, tumorigenesis, and cell survival²⁻³. It appears to be upregulated in various inflammation and infection conditions. Several reports suggest that LCN2 may represent a sensitive biomarker for various renal injuries⁴ and is associated with several types of cancers, including breast cancer⁵, ovarian, colorectal, and pancreatic cancers⁶⁻⁷. Furthermore, a growing body of evidence suggests that serum levels of lipocalin-2 are correlated with obesity, insulin resistance, coronary heart disease and fatty liver disease in humans⁸⁻¹⁰.

Isotype/Preparation:

Rabbit specific IgG was purified by antigen affinity chromatography.

Immunogen:

Recombinant full-length human LCN2 expressed in *E. coli*.

Specificity:

The antibody detects circular human LCN2.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot and **ELISA**.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Kjeldsen, L. et al. (1993) *J. Biol. Chem.* 268:10425-32
- [2] Yang, J. et al. (2002) *Mol. Cell.* 10:1045-56.
- [3] Flo, T.H. et al. (2004) *Nature* 432:917-21.
- [4] Mishra, J. et al. (2005) *Lancet* 365:1231-6.
- [5] Yang, J. et al. (2009) *Proc Natl Acad Sci U S A* 106(10):3913-8.
- [6] Hanai, J. et al. (2005) *J. Biol. Chem.* 280:13641-7.
- [7] Lee, H.J. et al. (2005) *Int. J. Cancer.* 118:2490-7.
- [8] Wang Y, et al. (2007) *Clin Chem.* 53(1):34-41.
- [9] Yan QW, et al. (2007) *Diabetes.* 56(10):2533-40.
- [10] Milner KL, et al. (2009) *Hepatology.* 49(6): 1926-34.

Polyclonal Antibody against Mouse Lipocalin 2 (LCN2)

(Cat. No.: 12050

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Lipocalin-2(LCN2), also known as neutrophil gelatinase-associated lipocalin (NGAL), 24p3, or neutrophil lipocalin (NL), is a 25-kDa secretory glycoprotein¹. LCN2 has been implicated in a variety of cellular processes including the innate immune response, differentiation, tumorigenesis, and cell survival²⁻³. It appears to be upregulated in various inflammation and infection conditions. Several reports suggest that LCN2 may represent a sensitive biomarker for various renal injuries⁴ and is associated with several types of cancers, including breast cancer⁵, ovarian, colorectal, and pancreatic cancers⁶⁻⁷. Furthermore, a growing body of evidence suggests that serum levels of lipocalin-2 are correlated with obesity, insulin resistance, coronary heart disease and fatty liver disease in humans⁸⁻¹⁰.

Isotype/Preparation:

Rabbit specific IgG was purified by antigen affinity chromatography.

Immunogen:

Recombinant full-length mouse LCN2 expressed in *E. coli*.

Specificity:

The antibody detects circular mouse LCN2.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot, ELISA and immunostaining.

Quality Control Test:

BCA to determine quantity of the antibody

References:

- [1] Kjeldsen, L. et al. (1993) *J. Biol. Chem.* 268:10425-32
- [2] Yang, J. et al. (2002) *Mol. Cell.* 10:1045-56.
- [3] Flo, T.H. et al. (2004) *Nature* 432:917-21.
- [4] Mishra, J. et al. (2005) *Lancet* 365:1231-6.
- [5] Yang, J. et al. (2009) *Proc Natl Acad Sci U S A* 106(10):3913-8.
- [6] Hanai, J. et al. (2005) *J. Biol. Chem.* 280:13641-7.
- [7] Lee, H.J. et al. (2005) *Int. J. Cancer.* 118:2490-7.
- [8] Wang Y, et al. (2007) *Clin Chem.* 53(1):34-41.
- [9] Yan QW, et al. (2007) *Diabetes.* 56(10):2533-40.
- [10] Milner KL, et al. (2009) *Hepatology.* 49(6): 1926-34.

Polyclonal Antibody against Mouse MUP1

(Cat. No.: 12150

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Major urinary protein 1 (Mup1), also known as Mup7, Up-1, Ltn-1, Mup-1, Mup-a, Mup10 and Lvtm-1, is a low molecular weight secreted protein produced predominantly from the liver [1]. Structurally it belongs to the lipocalin family, which carries small hydrophobic ligands such as pheromones. Mup1 is an important player in regulating energy expenditure and metabolism in mice, and its deficiency might contribute to the metabolic dysregulation in obese/diabetic mice [2].

Isotype/Preparation:

Rabbit specific IgG was purified by mouse Mup1 affinity chromatography.

Immunogen:

Recombinant full-length mouse Mup1 expressed in *E. coli*.

Specificity:

The antibody detects circular/URINARY mouse Mup1.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

ELISA - This antibody can be used at 1 - 2 µg/mL with the appropriate secondary reagents to detect mouse Mup1.

Western blot.

Quality Control Test:

BCA to determine quantity of the antibody

References:

1. McIntosh, I., and Bishop, J. O. (1989) *Mol. Cell. Biol.* 9, 2202-2207.
2. Zhou Y, Jiang L, Rui L. (2009) *J Biol Chem.* 284(17):11152-9.

Polyclonal Antibody against Human PAI-1

(Cat. No.: 11070

Size: 100 ug

Host: Rabbit)

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G chromatography

Immunogen:

Recombinant full-length human PAI-1 expressed in *E. coli*.

Specificity:

The antibody detects circular human PAI-1.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

ELISA

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Phospho-Akt (Ser473)

(Cat. No.: 11092

Size: 100 ug

Host: Rabbit)

Isotype/Preparation:

Rabbit crude IgG was purified by protein-G column

Immunogen:

Synthetic Phospho-Akt (Ser 473) peptide.

Specifies reactivity:

Human, mouse and rat.

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot – Suggested working concentration is 0.5 to 1 ug/ml.

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Mouse Retinol Binding Protein 4 (RBP4)

(Cat. No.: 12060

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Retinol binding protein 4 (RBP4), originally known as a specific transport of retinol in blood, is also a novel inflammatory and insulin resistance marker. Serum RBP4 levels are elevated in insulin resistant mice and humans with obesity and type 2 diabetes. Animal experiments found that increased secretion of RBP4 might reduce insulin-dependent glucose uptake by muscle tissue by reducing the activity of PI(3)K (phosphoinositide 3-kinase), and increased hepatic glucose output by increasing the expression of the enzyme PEPCK2. Studies suggested that elevated serum RBP4 was associated with components of the metabolic syndrome, including increased body-mass index, waist-to-hip ratio, serum triglyceride levels, and systolic blood pressure and decreased high-density lipoprotein cholesterol levels. Furthermore, circulating RBP4 concentrations were associated with subclinical cardiovascular disease, which imply that RBP4 could be involved in the development of atherosclerosis.

Isotype/Preparation:

Rabbit specific IgG was purified by Mouse RBP4 affinity chromatography

Immunogen:

Recombinant full-length mouse RBP4 expressed in E.coli.

Specificity:

The antibody detects mouse RBP4.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used as primary antibody in western blot assay to detect mouse RBP4

ELISA - This antibody can be used in ELISA with the appropriate secondary reagents to detect mouse RBP4

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Human Retinol Binding Protein 4 (RBP4)

(Cat. No.: 11060

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

Retinol binding protein 4 (RBP4), originally known as a specific transport of retinol in blood, is also a novel inflammatory and insulin resistance marker. Serum RBP4 levels are elevated in insulin resistant mice and humans with obesity and type 2 diabetes. Animal experiments found that increased secretion of RBP4 might reduce insulin-dependent glucose uptake by muscle tissue by reducing the activity of PI(3)K (phosphoinositide 3-kinase), and increased hepatic glucose output by increasing the expression of the enzyme PEPCK2. Studies suggested that elevated serum RBP4 was associated with components of the metabolic syndrome, including increased body-mass index, waist-to-hip ratio, serum triglyceride levels, and systolic blood pressure and decreased high-density lipoprotein cholesterol levels. Furthermore, circulating RBP4 concentrations were associated with subclinical cardiovascular disease, which imply that RBP4 could be involved in the development of atherosclerosis.

Isotype/Preparation:

Rabbit specific IgG was purified by human RBP4 affinity chromatography

Immunogen:

Recombinant full-length human RBP4 expressed in E.coli.

Specificity:

The antibody detects human RBP4.

Formulation:

Solution in PBS. Store at -20°C . For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used as primary antibody in western blot assay to detect human RBP4

ELISA - This antibody can be used in ELISA with the appropriate secondary reagents to detect human RBP4

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Mouse PM20D1

(Cat. No.: 12700

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

PM20D1 is a bidirectional N-fatty-acyl amino acid synthase/hydrolase that regulates the production of N-fatty-acyl amino acids. These metabolites are endogenous chemical uncouplers of mitochondrial respiration. In a UCP1-independent manner, maybe through interaction with mitochondrial transporters, they promote proton leakage into the mitochondrial matrix. PM20D1 may indirectly regulate the bodily dissipation of chemical energy as heat through thermogenic respiration.

Isotype/Preparation:

Antigen affinity-purified

Immunogen:

Recombinant mouse PM20D1 protein expressed in mammalian cells.

Specificity:

The antibody detects mouse PM20D1 in western blot and sandwich ELISA. In sandwich ELISA, no cross reactivity with recombinant human PM20D1 is observed.

Formulation:

Liquid in phosphate-buffered saline (PBS). Store at -20°C for less than one week. For long-term storage, aliquot and freeze at -80°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used in western blot analysis with appropriate secondary antibody to detect mouse PM20D1

ELISA - This antibody can be used as capture antibody in Mouse PM20D1 ELISA

Quality Control Test:

BCA to determine quantity of the antibody

Polyclonal Antibody against Human PM20D1

(Cat. No.: 11700

Size: 100 ug

Host: Rabbit)

Introduction to the Molecule:

PM20D1 is a bidirectional N-fatty-acyl amino acid synthase/hydrolase that regulates the production of N-fatty-acyl amino acids. These metabolites are endogenous chemical uncouplers of mitochondrial respiration. In a UCP1-independent manner, maybe through interaction with mitochondrial transporters, they promote proton leakage into the mitochondrial matrix. PM20D1 may indirectly regulate the bodily dissipation of chemical energy as heat through thermogenic respiration.

Isotype/Preparation:

Antigen affinity-purified

Immunogen:

Recombinant human PM20D1 protein expressed in mammalian cells.

Specificity:

The antibody detects human PM20D1 in western blot and sandwich ELISA. In sandwich ELISA, no cross reactivity with recombinant mouse PM20D1 is observed.

Formulation:

Liquid in phosphate-buffered saline (PBS). Store at -20°C for less than one week. For long-term storage, aliquot and freeze at -80°C . Avoid repeated freeze/thaw cycles.

Application/Usage:

Western blot - This antibody can be used in western blot analysis with appropriate secondary antibody to detect human PM20D1

ELISA - This antibody can be used as capture antibody in Human PM20D1 ELISA

Quality Control Test:

BCA to determine quantity of the antibody

Monoclonal Antibody against Human Retinol Binding Protein 4 (RBP4) (1A2)

(Cat. No.: 21061 Size: 100 ug Host: Mouse)

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

E. coli derived recombinant human RBP4 (Cat. No. 41060)

Specificity:

The antibody detects human RBP4.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

This antibody can be used as a detection antibody in a human retinol binding protein 4 ELISA in combination with monoclonal anti-human retinol binding protein 4 antibody (Cat. No.: 21060)

Monoclonal Antibody against Human Retinol Binding Protein 4 (RBP4) (5H9)

(Cat. No.: 21060 Size: 100 ug Host: Mouse)

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

E. coli derived recombinant human RBP4 (Cat. No. 41060)

Specificity:

The antibody detects human RBP4.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human retinol binding protein 4 ELISA in combination with monoclonal anti-human retinol binding protein 4 antibody (Cat. No.: 21061)

Monoclonal Antibody against Human Plasminogen Activator Inhibitor type-1 (PAI-1) (3H3)

(Cat. No.: 21070 Size: 100 ug Host: Mouse)

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

E. coli derived recombinant human PAI-1

Specificity:

The antibody detects human PAI-1.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human PAI-1 ELISA in combination with polyclonal anti-human PAI-1 antibody.

Monoclonal Antibody against Human Lipocalin-2 (2C3)

(Cat. No.: 21051

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

Lipocalin-2(LCN2), also known as neutrophil gelatinase-associated lipocalin (NGAL), 24p3, or neutrophil lipocalin (NL), is a 25-kDa secretory glycoprotein. ¹ LCN2 has been implicated in a variety of cellular processes including the innate immune response, differentiation, tumorigenesis, and cell survival ²⁻³. It appears to be upregulated in various inflammation and infection conditions. Several reports suggest that LCN2 may represent a sensitive biomarker for various renal injuries⁴ and is associated with several types of cancers, including breast cancer,⁵ ovarian, colorectal, and pancreatic cancers. ⁶⁻⁷ Furthermore, a growing body of evidence suggests that serum levels of lipocalin-2 are correlated with obesity, insulin resistance, hyperglycemia, coronary heart disease and fatty liver disease in humans.⁸

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

Recombinant full-length human lipocalin-2 in *E. coli*. (Cat. No: 41050).

Specificity:

The antibody detects human LCN2.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

This antibody can be used as a detection antibody in a human Lipocalin-2 ELISA in combination with monoclonal anti-human Lipocalin-2 antibody clone 2G1 (Cat. No.: 21050)

References:

- [1] Kjeldsen, L. et al. (1993) *J. Biol. Chem.* 268:10425-32
- [2] Yang, J. et al. (2002) *Mol. Cell.* 10:1045-56.
- [3] Flo, T.H. et al. (2004) *Nature* 432:917-21.
- [4] Mishra, J. et al. (2005) *Lancet* 365:1231-6.
- [5] Yang, J. et al. (2009) *Proc Natl Acad Sci U S A* 106(10):3913-8.
- [6] Hanai, J. et al. (2005) *J. Biol. Chem.* 280:13641-7.
- [7] Lee, H.J. et al. (2005) *Int. J. Cancer* 118:2490-7.
- [8] Wang Y, et al. (2007) *Clin Chem* 53(1):34-41.
- [9] Yan QW, et al. (2007) *Diabetes* 56(10):2533-40.
- [10] Ruby LC Hoo, et al. (2008) *Expert Rev. Endocrinol Metal* 3(1):29-41. [11] Milner KL, et al. *Hepatology* [Epub ahead of print]

Monoclonal Antibody against Human Lipocalin-2 (2G1)

(Cat. No.: 21050

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

Lipocalin-2(LCN2), also known as neutrophil gelatinase-associated lipocalin (NGAL), 24p3, or neutrophil lipocalin (NL), is a 25-kDa secretory glycoprotein. ¹ LCN2 has been implicated in a variety of cellular processes including the innate immune response, differentiation, tumorigenesis, and cell survival ²⁻³. It appears to be upregulated in various inflammation and infection conditions. Several reports suggest that LCN2 may represent a sensitive biomarker for various renal injuries⁴ and is associated with several types of cancers, including breast cancer,⁵ ovarian, colorectal, and pancreatic cancers. ⁶⁻⁷ Furthermore, a growing body of evidence suggests that serum levels of lipocalin-2 are correlated with obesity, insulin resistance, hyperglycemia, coronary heart disease and fatty liver disease in humans.⁸⁻¹¹

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

Recombinant full-length human lipocalin-2 in *E. coli*. (Cat. No: 41050).

Specificity:

The antibody detects human LCN2.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human Lipocalin-2 ELISA in combination with monoclonal anti-human Lipocalin-2 antibody clone 2C3 (Cat. No.: 21051)

References:

- [1] Kjeldsen, L. et al. (1993) J. Biol. Chem. 268:10425-32
- [2] Yang, J. et al. (2002) Mol. Cell. 10:1045-56.
- [3] Flo, T.H. et al. (2004) Nature 432:917-21.
- [4] Mishra, J. et al. (2005) Lancet 365:1231-6.
- [5] Yang, J. et al. (2009) Proc Natl Acad Sci U S A 106(10):3913-8.
- [6] Hanai, J. et al. (2005) J. Biol. Chem. 280:13641-7.
- [7] Lee, H.J. et al. (2005) Int. J. Cancer 118:2490-7.
- [8] Wang Y, et al. (2007) Clin Chem 53(1):34-41.
- [9] Yan QW, et al. (2007) Diabetes 56(10):2533-40.
- [10] Ruby LC Hoo, et al. (2008) Expert Rev. Endocrinol Metal 3(1):29-41. [11] Milner KL, et al. Hepatology [Epub ahead of print]

Monoclonal Antibody against Human FABP4 (2C10)

(Cat. No.: 21030

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

Fatty-acid binding protein 4 (FABP4), also termed adipocyte fatty-acid binding protein (A-FABP), or aP2, is a novel adipocyte-expressed factor which accounted for ~6% of total cellular proteins. Several animal experiments suggested that FABP-4 plays a key role in the link between obesity and various features of metabolic syndrome.¹ Mice with targeted disruption of FABP-4 accompany FABP-5 almost completely protect against diet-induced obesity, insulin resistance, dyslipidemia, type 2 diabetes, and fatty liver disease.² Studies in human found FABP-4 serum levels were significantly increased in overweight and obese subjects, which predicted the risk to develop a metabolic syndrome and type 2 diabetes.³⁻⁴ Additionally, serum FABP-4 levels were associated with nonalcoholic fatty liver disease, carotid atherosclerosis and coronary artery disease.⁵⁻⁷

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

Recombinant full-length human FABP4 in *E. coli*.

Specificity:

The antibody detects human FABP4. Not yet tested in other species.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human FABP4 ELISA.

References:

- [1] Makowski L, et al. (2004) *J Nutr.* 134: 2464S-2468S.
- [2] Makowski L, et al. (2001) *Nat Med.* 7: 699-705.
- [3] Xu A, et al. (2006). *Clin Chem.* 52(3):405-13.
- [4] Xu A, et al. (2007). *Circulation.* 115:1537-1543.
- [5] Rhee EJ, et al. (2009) *Eur J Endocrinol.* 160(2):165-72.
- [6] Tso AW, et al. (2007) *Diabetes Care.* 30(10):2667-72
- [7] J. Hyun Koh, et al. (2009) *Diabetes Care.* 32(1): 147 - 152.

Monoclonal Antibody against Human CRP (7E12)

(Cat. No.: 21121

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

C-reactive protein (CRP) is a circulating protein mainly secreted from the liver. This acute phase protein consists of five identical non-glycosylated subunits of 23 kDa, that give rise to a symmetrically arranged globular protein with molecular weight of approximately 120 kDa.¹ It has long been recognized that CRP is closely related to immunology, inflammation and host defense; as a result it has been used as an inflammatory marker. However, the development of high-sensitivity CRP (hsCRP) ELISA had addressed its role in other clinical issues. There is accumulating evidence suggesting the important role that CRP plays in mediating cardiovascular diseases (CVD) and type 2 diabetes.²⁻⁴ Normally CRP is present only in a trace amount in circulation (<1 µg/ml)⁵⁻⁶ but can increase over 1,000-fold under acute inflammatory state. Individual with blood CRP levels <1 µg/ml, 1-3 µg/ml and >3 µg/ml is considered to have low, moderate and high risk, respectively, of CVD and myocardial infarction.⁷ Therefore, blood CRP level has become a promising measure of CVD risk.⁸⁻⁹

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

Recombinant full-length human CRP in *E. coli*.

Specificity:

The antibody detects human CRP.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

This antibody can be used as a detection antibody in a human CRP ELISA in combination with monoclonal anti-human CRP antibody (Cat. No.: 21120)

References:

1. Thompson D., Pepys M.B. and Wood S.P. (1999) *Structure*, 7, 169-177.
2. Festa A, D'Agostino R. Jr., Tracy R.P. and Haffner S.M. (2002) *Diabetes*, 51, 1131-1137.
3. Verma S. and Yeh E.T. (2003) *Am J Physiol*, 285, R1253-R1258.
4. Jialal I., Devaraj S. and Venugopal S.K. (2004) *Hypertension*, 44, 6-11.
5. Kindmark C.O. (1972) *Scand J Clin Lab Invest*, 29, 407-411.

Monoclonal Antibody against Human CRP (8G1)

(Cat. No.: 21120

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

C-reactive protein (CRP) is a circulating protein mainly secreted from the liver. This acute phase protein consists of five identical non-glycosylated subunits of 23 kDa, that give rise to a symmetrically arranged globular protein with molecular weight of approximately 120 kDa.¹ It has long been recognized that CRP is closely related to immunology, inflammation and host defense; as a result it has been used as an inflammatory marker. However, the development of high-sensitivity CRP (hsCRP) ELISA had addressed its role in other clinical issues. There is accumulating evidence suggesting the important role that CRP plays in mediating cardiovascular diseases (CVD) and type 2 diabetes.²⁻⁴ Normally CRP is presenting only in a trace amount in circulation (<1 µg/ml)⁵⁻⁶ but can increase over 1,000-fold under acute inflammatory state. Individual with blood CRP levels <1 µg/ml, 1-3 µg/ml and >3 µg/ml is considered to have low, moderate and high risk, respectively, of CVD and myocardial infraction.⁷ Therefore, blood CRP level has become a promising measure of CVD risk.⁸⁻⁹

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

Recombinant full-length human CRP in *E. coli*.

Specificity:

The antibody detects human CRP.

Formulation:

Supplied in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/thaw cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human CRP ELISA in combination with monoclonal anti-human CRP antibody (Cat. No.: 21121)

References:

1. Thompson D., Pepys M.B. and Wood S.P. (1999) *Structure*, 7, 169-177.
2. Festa A, D'Agostino R. Jr., Tracy R.P. and Haffner S.M. (2002) *Diabetes*, 51, 1131-1137.
3. Verma S. and Yeh E.T. (2003) *Am J Physiol*, 285, R1253-R1258.
4. Jialal I., Devaraj S. and Venugopal S.K. (2004) *Hypertension*, 44, 6-11.
5. Kindmark C.O. (1972) *Scand J Clin Lab Invest*, 29, 407-411.

Monoclonal Antibody against Human Adiponectin (Ha7)

(Cat. No.: 21011

Size: 100 ug

Host: Mouse)

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

HEK-293 derived recombinant human adiponectin (Cat. No. 41013)

Species reactivity:

Human

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

This antibody can be used as a detection antibody in a human adiponectin ELISA in combination with monoclonal anti-human adiponectin antibody (Cat. No.: 21010)

Monoclonal Antibody against Human Adiponectin (Ha6)

(Cat. No.: 21010

Size: 100 ug

Host : Mouse)

Isotype/Preparation:

Mouse IgG; Affinity chromatography on a column with immobilized protein G.

Immunogen:

HEK-293 derived recombinant human adiponectin (Cat. No. 41013)

Species reactivity:

Human

Formulation:

Solution in PBS. Store at -20°C. For long-term storage, aliquot and freeze at -70°C. Avoid repeated freeze/defrost cycles.

Application/Usage:

This antibody can be used as a capture antibody in a human adiponectin ELISA in combination with monoclonal anti-human adiponectin antibody (Cat. No.: 21011)

Monoclonal Antibody against Human Autotaxin (1G7)

(Cat. No.: 21770

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

Autotaxin (ATX, ENPP2) is a secreted glycoprotein with phosphodiesterase (PDE) activity. It is one of the members in the nucleotide pyrophosphatase/ phosphodiesterase family (NPPs) family. ATX has lysophospholipase D activity that converts lysophosphatidylcholine into LPA, and it was originally identified as a tumor cell-motility-stimulating factor. LPA, which specifically binds to G protein-coupled receptors (GPCR), has a wide range of biological activities, including cell hyperproliferation, which may contribute to oncogenesis and metastasis. ATX has been shown to be overexpressed in many tumor cells, and thus plays an important role in tumor development and metastasis. In addition, ATX also plays an important role in nervous and immune systems.

Isotype/Preparation:

Protein G affinity purification

Immunogen:

Recombinant human autotaxin expressed in mammalian cells.

Specificity:

The antibody can detect human autotaxin in western blot and ELISA.

Formulation:

Liquid in phosphate-buffered saline (PBS). Store at -20°C for less than one week. For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/defrost cycles.

Application/Usage:

Western blot - This antibody can be used at 3-5 $\mu\text{g}/\text{mL}$ with the appropriate secondary reagents to detect human autotaxin

ELISA - This antibody can be used as a capture antibody in a human autotaxin ELISA in combination with polyclonal anti-human autotaxin antibody as detection antibody

Quality Control Test:

BCA to determine quantity of the antibody

Monoclonal Antibody against Human Autotaxin (4F7)

(Cat. No.: 21771

Size: 100 ug

Host: Mouse)

Introduction to the Molecule:

Autotaxin (ATX, ENPP2) is a secreted glycoprotein with phosphodiesterase (PDE) activity. It is one of the members in the nucleotide pyrophosphatase/ phosphodiesterase family (NPPs) family. ATX has lysophospholipase D activity that converts lysophosphatidylcholine into LPA, and it was originally identified as a tumor cell-motility-stimulating factor. LPA, which specifically binds to G protein-coupled receptors (GPCR), has a wide range of biological activities, including cell hyperproliferation, which may contribute to oncogenesis and metastasis. ATX has been shown to be overexpressed in many tumor cells, and thus plays an important role in tumor development and metastasis. In addition, ATX also plays an important role in nervous and immune systems.

Isotype/Preparation:

Protein G affinity purification

Immunogen:

Recombinant human autotaxin expressed in mammalian cells.

Specificity:

The antibody can detect human autotaxin in ELISA.

Formulation:

Liquid in phosphate-buffered saline (PBS). Store at -20°C for less than one week. For long-term storage, aliquot and freeze at -70°C . Avoid repeated freeze/defrost cycles.

Application/Usage:

ELISA - This antibody can be used as a capture antibody in a human autotaxin ELISA in combination with polyclonal anti-human autotaxin antibody as detection antibody

Quality Control Test:

BCA to determine quantity of the antibody

ImmunoDiagnostics Limited

Hong Kong

Unit 513, 5/F, Biotech Centre 2
No.11 Science Park West Avenue,
Hong Kong Science Park, Sha Tin, Hong Kong

Email: sales@immunodiagnostics.com.hk

Phone: +852 3502 2780

Canada

3330 Bayview Avenue
Block #6, Toronto, M2M 3R8
Ontario, Canada

Email: info@immunodiagnostics.ca

Phone: +1-437-886-5136

www.immunodiagnostics.com.hk