Human Lipocalin-2/NGAL Antibody
Monoclonal Rat IgG2A Clone # 220310
Catalog Number: MAB1757

DESCRIPTION
Species Reactivity  Human
Specificity  Detects human Lipocalin-2/NGAL in direct ELISAs and Western blots. In direct ELISAs and Western blots, this antibody does not cross-react with recombinant human (rh) Lipocalin-1 or rmLipocalin-2. This antibody also recognizes human Lipocalin-2/MMP-9 complexes in Western blots under non-reducing conditions.
Source  Monoclonal Rat IgG2A Clone # 220310
Purification  Protein A or G purified from hybridoma culture supernatant
Immunogen  Mouse myeloma cell line NS0-derived recombinant human Lipocalin-2/NGAL Gln21-Gly198 Accession # P80188
Formulation  Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

APPLICATIONS
Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

Recommended Concentration  Sample
Western Blot  0.2-1 μg/mL  See Below
Immunohistochemistry  8-25 μg/mL  See Below

DATA
Western Blot  Detection of Human Lipocalin-2/NGAL by Western Blot. Western blot shows lysates of K562 human chronic myelogenous leukemia cell line. PVDF membrane was probed with 1 μg/mL of Rat Anti-Human Lipocalin-2/NGAL Monoclonal Antibody (Catalog # MAB1757) followed by HRP-conjugated Anti-Rat IgG Secondary Antibody (Catalog # HAF005). A specific band was detected for Lipocalin-2/NGAL at approximately 22 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry  Lipocalin-2/NGAL in Human Pancreas. Lipocalin-2/NGAL was detected in immersion fixed paraffin-embedded sections of human pancreas using Rat Anti-Human Lipocalin-2/NGAL Monoclonal Antibody (Catalog # MAB1757) at 15 μg/mL, overnight at 4 °C. Tissue was stained using the Anti-Rabbit HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS005) and counterstained with hematoxylin (blue). Specific staining was localized to plasma membrane of ductal cells. View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

Western Blot  Detection of Human Lipocalin-2/NGAL by Western Blot. Western blot shows lysates of Capan-1 human pancreatic adenocarcinoma cell line, HT-29 human colon adenocarcinoma cell line, and human bone marrow tissue. PVDF membrane was probed with 0.2 μg/mL of Rat Anti-Human Lipocalin-2/NGAL Monoclonal Antibody (Catalog # MAB1757) followed by HRP-conjugated Anti-Rat IgG Secondary Antibody (Catalog # HAF005). A specific band was detected for Lipocalin-2/NGAL at approximately 22 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

PREPARATION AND STORAGE
Reconstitution  Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping  The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
* Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage  Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
  - 12 months from date of receipt, -20 to -70 °C as supplied.
  - 1 month, 2 to 8 °C under sterile conditions after reconstitution.
  - 6 months, -20 to -70 °C under sterile conditions after reconstitution.
Members of Lipocalin family share a highly conserved fold with an eight-stranded antiparallel β barrel, and act as transporters, carrying small molecules to specific cells (1). Lipocalin-2, also known as Neutrophil Gelatinase-Associated Lipocalin (NGAL), was originally identified as a component of neutrophil granules (2). It is a 25 kDa protein existing in monomeric and homo- and heterodimeric forms, the latter as a dimer with human neutrophil gelatinases (MMP-9) (2). Its expression has been observed in most tissues normally exposed to microorganism, and its synthesis is induced in epithelial cells during inflammation (3). Lipocalin-2 has been implicated in a variety of processes including cell differentiation, tumorigenesis, and apoptosis (3-5). Studies indicate that Lipocalin-2 binds a bacterial catecholate sidropore bound to ferric ion such as enterobactin with a subnanomolar dissociation constant ($K_d = 0.41 \text{ nM}$) (6). The bound ferric enterobactin complex breaks down slowly in a month into dihydroxybenzoyl serine and dihydroxybenzoic acid (DHBA). It also binds to a ferric DHBA complex with much less $K_d$ values (7.9 nM) (6). Secretion of Lipocalin-2 in immune cells increases by stimulation of Toll-like receptor as an acute phase response to infection. As a result, it acts as a potent bacteriostatic reagent by sequestering iron (7). Moreover, Lipocalin-2 can alter the invasive and metastatic behavior of Ras-transformed breast cancer cells in vitro and in vivo by reversing epithelial to mesenchymal transition inducing activity of Ras, through restoration of E-cadherin expression, via effects on the Ras-MAPK signaling pathway (8).

References: