

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Lipocalin-2/NGAL in direct ELISAs.
Source	Recombinant Monoclonal Rat IgG _{2B} Clone # 220322R
Purification	Protein A or G purified from cell 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. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

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.

Human Lipocalin-2/NGAL Sandwich Immunoassay		Reagent
ELISA Capture	2-8 µg/mL	Human Lipocalin-2/NGAL Antibody (Catalog # MAB17571R)
ELISA Detection	0.1-0.4 µg/mL	Human Lipocalin-2/NGAL Biotinylated Antibody (Catalog # BAF1757)
Standard		Recombinant Human Lipocalin-2/NGAL (Catalog # 1757-LC)

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. <ul style="list-style-type: none"> • 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.

BACKGROUND

Members of Lipocalin family share a highly conserved fold with an eight-stranded antiparallel β barrel, and act as a 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 sidopore bound to ferric ion such as enterobactin with a subnanomolar dissociation constant ($K_d = 0.41$ 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:

1. Flower, D.R. *et al.* (1994) FEBS Lett. **354**:7.
2. Kjeldsen, L. *et al.* (1993) J. Biol. Chem. **268**:10426.
3. Kjeldsen L, *et al.* (2000) Biochim Biophys Acta. **1482**:272.
4. Devireddy, L.R. *et al.* (2001) Science **293**: 829.
5. Yang, M.B. *et al.* (2002) Mol. Cell. **10**:1045.
6. Goetz, D.H. *et al.* (2002) Mol. Cell **10**:1033.
7. Flo, T.H. *et al.* (2004) Nature **432**:917.
8. Hanai, J. *et al.* (2005) J. Biol. Chem. **280**:13641.