

DESCRIPTION

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|---------------------------|---|
| Species Reactivity | Human |
| Specificity | Detects human DPP3 in direct ELISAs. |
| Source | Monoclonal Rat IgG _{2B} Clone # 986603 |
| Purification | Protein A or G purified from hybridoma culture supernatant |
| Immunogen | <i>E. coli</i> -derived recombinant human DPP3 Ala2-Ala737 Accession # Q9NY33 |
| 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. |

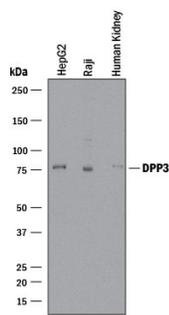
APPLICATIONS

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.

| | Recommended Concentration | Sample |
|-----------------------------|----------------------------------|---------------|
| Western Blot | 2 µg/mL | See Below |
| Immunocytochemistry | 8-25 µg/mL | See Below |
| Immunohistochemistry | 5-25 µg/mL | See Below |

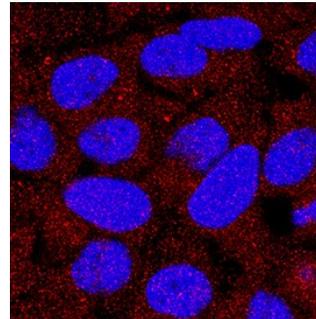
DATA

Western Blot



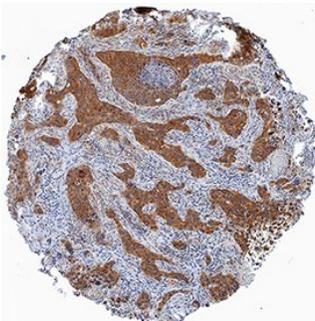
Detection of Human DPP3 by Western Blot. Western blot shows lysates of HepG2 human hepatocellular carcinoma cell line, Raji human Burkitt's lymphoma cell line, and human kidney tissue. PVDF membrane was probed with 2 µg/mL of Rat Anti-Human DPP3 Monoclonal Antibody (Catalog # MAB80872) followed by HRP-conjugated Anti-Rat IgG Secondary Antibody (Catalog # HAF005). A specific band was detected for DPP3 at approximately 75 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunocytochemistry



DPP3 in HeLa Human Cell Line. DPP3 was detected in immersion fixed HeLa human cervical epithelial carcinoma cell line using Rat Anti-Human DPP3 Monoclonal Antibody (Catalog # MAB80872) at 8 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (red; Catalog # NL013) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

Immunohistochemistry



DPP3 in Human Squamous Cell Carcinoma. DPP3 was detected in immersion fixed paraffin-embedded sections of human squamous cell carcinoma using Rat Anti-Human DPP3 Monoclonal Antibody (Catalog # MAB80872) at 5 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Rat IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC005). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm. View our protocol for [IHC Staining with VisUCyte HRP Polymer Detection Reagents](#).

PREPARATION AND STORAGE

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|--------------------------------|---|
| 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

DPP3 (DiPeptidyl Peptidase III; also known as Dipeptidyl arylamidase III and Enkephalinase B) is a cytosolic member of the metallopeptidase family of proteins (1, 2). More specifically, it is classified as the singular member of the M49/Clan M- family of enzymes that possesses an unusual six-amino acid, zinc-binding motif (HExxGH) (1, 3). Notably, DPP # 3 is the only DPP that qualifies as a metallopeptidase, as all other DPPs belong to either the cysteine or serine class of peptidases. DPP3 is widely expressed, being found in numerous hematopoietic cells (RBCs, neutrophils, monocytes) and epithelium-dominated tissues (1, 4, 5). Although DPP3 was initially reported to be an Arg-Arg dipeptidase for non-N-terminally substituted peptides, it is now known to be active on a wide range of amino acid combinations, and thus qualifies as a non-specific peptidase. DPP3 does show restriction when it comes to peptide length, however; peptides shorter than three and longer than ten amino acids are very poor substrates for DPP3. Consistent with its broad range of substrates, DPP3 likely has multiple functions. It has been suggested to be a general mediator of peptidome degradation (i.e. the three-to-24 amino acid cytoplasmic fragments that result from initial proteasome degradation), and is considered particularly important in the degradation of proline-containing peptides (1, 6). Conversely, elevated levels of DDP3 activity will reduce the availability of eight-to-ten amino acid length peptides that are used for MHC presentation, adversely affect this crucial immune surveillance activity. DPP3 is also found extracellularly, and has documented activity against angiotensin II-IV and opioids, suggesting a role for DPP3 in both blood pressure regulation and pain modulation (1, 6-8). Finally, DPP3 appears to play a protective role in oxidative stress. Nrf2 is a Zn-finger transcription factor that stimulates antioxidant enzyme production. Normally, it is sequestered in the cytosol through complex formation with Keap I. Though the details are somewhat unclear, under oxidative stress, DPP3 appears to promote the dissociation of Nrf2 and Keap I, directing Nrf2 into the nucleus with subsequent antioxidant enzyme transcription (1). Human DPP3 is 737 amino acids in length, contains a peptidase region over aa 143-705, and is reported to run as a 93-94 kDa protein on SDS-PAGE (2). Although there is no canonical signal sequence, as noted, it is found extracellularly. Potential sites for myristoylation are known and, if utilized, may account for reports of a DPP3 presence in membranes (1). There are potential isoform variants. One shows a deletion of aa 182-601, while another shows a deletion of aa 91-120. Mouse and rat DPP3 share 93% aa sequence identity with human DPP3.

References:

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