

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Thymidine Kinase 1 in direct ELISAs.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2627A
Purification	Protein A or G purified from cell culture supernatant
Immunogen	<i>E. coli</i> -derived human Thymidine Kinase 1 Ser2-Asn234 Accession # P04183
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.

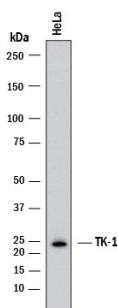
APPLICATIONS

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	1 µg/mL	HeLa human cervical epithelial carcinoma cell line
Simple Western	10 µg/mL	A431 human epithelial carcinoma cell line, HeLa human cervical epithelial carcinoma cell line and SK-BR-3 human breast cancer cell line

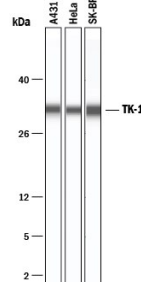
DATA

Western Blot



Detection of Human Thymidine Kinase 1 by Western Blot. Western blot shows lysates of HeLa human cervical epithelial carcinoma cell line. PVDF membrane was probed with 1 µg/mL of Rabbit Anti-Human Thymidine Kinase 1 Monoclonal Antibody (Catalog # MAB81801) followed by HRP-conjugated Anti-Rabbit IgG Secondary Antibody (HAF008). A specific band was detected for Thymidine Kinase 1 at approximately 25 kDa (as indicated). This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

Simple Western



Detection of Human Thymidine Kinase 1 by Simple Western™. Simple Western lane view shows lysates of A431 human epithelial carcinoma cell line, HeLa human cervical epithelial carcinoma cell line and SK-BR-3 human breast cancer cell line, loaded at 0.2 mg/mL. A specific band was detected for Thymidine Kinase 1 at approximately 32 kDa (as indicated) using 10 µg/mL of Rabbit Anti-Human Thymidine Kinase 1 Monoclonal Antibody (Catalog # MAB81801). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



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.

BACKGROUND

Thymidine kinases are 2'-deoxythymidine kinases that phosphorylate deoxythymidine and generate deoxythymidine 5'-phosphate (1). Thymidine kinases have a key function in the synthesis of DNA and thereby in cell division, as they are part of the unique reaction chain to introduce deoxythymidine into the DNA. Two forms of thymidine kinase are present in mammalian cells, TK1 and TK2. TK1 is cell cycle-dependent and is present in the cytoplasm only in anticipation of cell division (2, 3); whereas TK2 is located in mitochondria and is cell cycle-independent (4). TK1 is synthesized by the cell during the S phase of cell division and is degraded after cell division is completed (5). TK1 normally occurs in tissue as a dimer and can be converted to more active tetrameric form by ATP binding (6). TK1 is feedback inhibited by thymidine triphosphate, the product of the further phosphorylation of thymidine (7). Because tumor cells replicate much more frequently than normal cells and requires faster DNA synthesis and higher TK1 activity, TK1 is a cancer marker especially for hematologic malignancies (8, 9). In clinical chemistry TK1 is used as a proliferation marker in the diagnosis, control of treatment and follow-up of malignant disease (10). In addition, thymidine kinase is required for the action of many antiviral drugs (11). The enzymatic activity of recombinant human TK1 is measured using a phosphatase-coupled method (12).

References:

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