

#### DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b>                                                                                                                                                                               | Human                                                                                         |
| <b>Specificity</b>                                                                                                                                                                                      | Detects human Thymidine Kinase 1 Protein in direct ELISAs.                                    |
| <b>Source</b>                                                                                                                                                                                           | Polyclonal Sheep IgG                                                                          |
| <b>Purification</b>                                                                                                                                                                                     | Antigen Affinity-purified                                                                     |
| <b>Immunogen</b>                                                                                                                                                                                        | <i>E. coli</i> -derived human Thymidine Kinase 1 protein<br>Ser2-Asn234<br>Accession # P04183 |
| <b>Conjugate</b>                                                                                                                                                                                        | Alexa Fluor 647<br>Excitation Wavelength: 650 nm<br>Emission Wavelength: 668 nm               |
| <b>Formulation</b>                                                                                                                                                                                      | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide                                  |
| *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |                                                                                               |

#### 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.

**Immunohistochemistry** Optimal dilution of this antibody should be experimentally determined.

#### PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

#### 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).

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