

#### DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human                                                                                                                                                                                                                                                                       |
| <b>Specificity</b>        | Detects human Transcobalamin II in direct ELISAs and Western blots.                                                                                                                                                                                                         |
| <b>Source</b>             | Monoclonal Mouse IgG <sub>2B</sub> Clone # 874420                                                                                                                                                                                                                           |
| <b>Purification</b>       | Protein A or G purified from hybridoma culture supernatant                                                                                                                                                                                                                  |
| <b>Immunogen</b>          | Chinese hamster ovary cell line CHO-derived recombinant human Transcobalamin II<br>Glu19-Trp427<br>Accession # P20062                                                                                                                                                       |
| <b>Conjugate</b>          | Alexa Fluor 594<br>Excitation Wavelength: 590 nm<br>Emission Wavelength: 617 nm                                                                                                                                                                                             |
| <b>Formulation</b>        | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*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.

**Western Blot** 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

Transcobalamin II, also known as TCN2, TC-2 or TC, is a 42-44 kDa, monomeric, secreted member of the eukaryotic cobalamin transport family of molecules. It is a key player in the transport and absorption of VitB12. TCN1 is a salivary gland protein that binds oral/dietary B12. Once in the stomach, B12 is transferred to IF/Intrinsic Factor, and this complex remains intact during passage through the small intestine. In the distal ileum, the IF:VitB12 complex is internalized following binding to cubam on enterocyte membranes. Once internalized, VitB12 is processed and re-expressed on MRP1 on the enterocyte's basal surface. Here it is transferred to TCN-2, a binding protein secreted by endothelial cells that accounts for the transport of anywhere from 10-30% of circulating VitB12/cobalamin. The TCN2:VitB12 complex is ultimately internalized by cells expressing a membrane-bound, 58 kDa TCN2 receptor termed TCbIR. Once internalized, VitB12 is released and converted into cofactors that are involved in methionine biosynthesis. Human TCN2 is synthesized as a 427 amino acid (aa) precursor that contains an 18 aa signal sequence, plus a 409 aa mature region that binds one VitB12 molecule. There are three potential splice variants of TCN2. One contains a Trp substitution for aa 116-143, a second possesses an Ile substitution for aa 336-427, and a third shows a deletion of aa 143-193. An Arg-to-Pro polymorphism at position 259 correlates with statistically elevated circulating levels of TCN2. Over aa 19-427, human TCN2 shares 72% aa sequence identity with mouse TCN2.

#### PRODUCT SPECIFIC NOTICES

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