

## Humanized Anti-Human CD16 mAb

Catalog Number: TL-201

### Product name

Generic names Humanized Anti-Human CD16 mAb

### Product information

Species Reactivity	Human
Specificity	Detects mouse Fc $\gamma$ RIIIA/B (CD16) in direct ELISAs. In direct ELISAs, no crossreactivity with recombinant mouse Fc $\gamma$ 1/CD162, rmFc $\gamma$ RIA or rhFc $\gamma$ RIIA is observed
Source	CHO cells
QC Testing Purity	> 95 % as determined by SDS-PAGE
Purification	Protein A purified from cell culture supernatant
Immunogen	Recombinant human CD16A
Endotoxin Level	<0.1 EU/ $\mu$ g
Formulation	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with HSA
Stability & Storage	Samples are stable for up to 24 months from date of receipt at 4 °C. Avoid repeated freeze-thaw cycles.
Applications	<ol style="list-style-type: none"> <li>ELISA (recommended concentration 1:2000-1:5000)</li> <li>T Cell Stimulation: This antibody can be used to activate T cells when immobilized at 1-10 <math>\mu</math>g/mL (100 <math>\mu</math>L/well)</li> </ol>

### Background

Receptors for the Fc region of IgG (Fc  $\gamma$  Rs) are members of the Ig superfamily that function in the activation or inhibition of immune responses such as degranulation, phagocytosis, ADCC (antibody-dependent cellular toxicity), cytokine release, and B cell proliferation (1-3). The Fc  $\gamma$  Rs have been divided into three classes based on close relationships in their extracellular domains; these groups are designated Fc  $\gamma$  RI (also known as CD64), Fc  $\gamma$  RII (CD32), and Fc  $\gamma$  RIII (CD16). Each group may be encoded by multiple genes and exist in different isoforms depending on species and cell type. The CD64 proteins are high affinity receptors ( $\sim 10^{-8}$ - $10^{-9}$ M) capable of binding monomeric IgG, whereas the CD16 and CD32 proteins bind IgG with lower affinities ( $\sim 10^{-6}$ - $10^{-7}$ M) only recognizing IgG aggregates surrounding multivalent antigens (1, 4). Fc  $\gamma$  Rs that deliver an activating signal either have an intrinsic immunoreceptor tyrosine-based activation motif (ITAM) within their cytoplasmic domains or associate with one of the ITAM-bearing adapter subunits, Fc  $\gamma$  R $\gamma$  or  $\zeta$  (3, 5). The only inhibitory member in human and mouse, Fc  $\gamma$  RIIb, has an intrinsic cytoplasmic immunoreceptor tyrosine-based inhibitory motif (ITIM). The coordinated functioning of activating and inhibitory receptors is necessary for successful initiation, amplification, and termination of immune responses (5). Mouse CD16 is encoded by a single gene. The protein product is a type I transmembrane protein having two extracellular Ig-like domains. It is expressed on a variety of myeloid and lymphoid cells (4) and associates with Fc  $\gamma$  R $\gamma$  to deliver an activating signal upon ligand binding (5). Mouse CD32 is closely related to mouse CD16 throughout its extracellular domain (95%

amino acid sequence identity), but has a divergent cytoplasmic domain and functions as an inhibitory receptor. Together these proteins constitute an activating/inhibiting receptor pair to regulate immune responses (5).

## References

1. van de Winkel, J. and P. Capes (1993) *Immunol. Today* 14:215.
2. Raghaven, M. and P. Bjorkman (1996) *Annu. Rev. Cell Dev. Biol.* 12:181.
3. Ravetch, J. and S. Bolland (2001) *Annu. Rev. Immunol.* 19:275.
4. Takai, T. (2002) *Nature Rev. Immunol.* 2:580.
5. Ravetch, J. and L. Lanier (2000) *Science* 290:84.