

TECHNICAL DATA SHEET

# Biotin Anti-Human CD3 (UCHT1)

Catalog Number: 30-0038

## PRODUCT INFORMATION

**Contents:** Biotin Anti-Human CD3 (UCHT1)

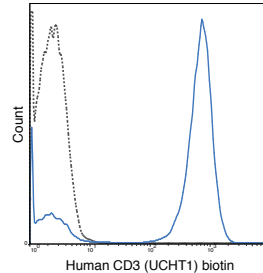
**Isotype:** Mouse IgG1, kappa

**Concentration:** 0.5 mg/mL

**Clone:** UCHT1

**Reactivity:** Human

**Formulation:** 10 mM NaH<sub>2</sub>PO<sub>4</sub>, 150 mM NaCl, 0.09% NaN<sub>3</sub>,  
0.1% gelatin, pH7.2



Human peripheral blood lymphocytes were stained with 0.25 ug Biotin Anti-Human CD3 (30-0038) (solid line) or 0.25 ug Biotin Mouse IgG1 isotype control (dashed line), followed by Streptavidin PE.

## DESCRIPTION

The UCHT1 antibody is specific for human CD3e, also known as CD3 epsilon, a 20 kDa subunit of the T cell receptor complex, along with CD3 gamma and CD3 delta. These integral membrane protein chains assemble with additional chains of the T cell receptor (TCR), as well as CD3 zeta chain, to form the T cell receptor – CD3 complex. Together with co-receptors CD4 or CD8, the complex serves to recognize antigens bound to MHC molecules on antigen-presenting cells. These interactions promote T cell receptor signaling (T cell activation), inducing cell proliferation, differentiation, production of cytokines or activation-induced cell death. CD3 is differentially expressed during thymocyte-to-T cell development and on all mature T cells. The UCHT1 antibody is a widely used phenotypic marker for human T cells. In addition, binding/cross-linking of UCHT1 antibody to CD3e can induce cell activation. A recent publication of the crystal structure of a CD3e- antibody complex provides insight as to the action of commonly used agonist antibodies, as well as specific epitope-binding data for the human CD3 antibodies UCHT1 and OKT3 (Fernandes, R.A. et al. 2012. *J. Biol. Chem.* 287: 13324-13335). UCHT1 antibody reacts with both surface-expressed and intracellular CD3e protein, in contrast to an alternative human CD3 clone, HIT3a, which will stain only the extracellular (membrane-expressed) CD3e protein. Also, the UCHT1 antibody is reported to be cross-reactive with chimpanzee and has been used for phenotypic analysis of expression by flow cytometry; however the antibody is reported to be unsuitable for induction of T cell activation in this species (Bibollet-Ruche et al. 2009. *J. Virol.* 82: 10271-10278).

## PREPARATION & STORAGE

This monoclonal antibody was purified from tissue culture supernatant via affinity chromatography. The purified antibody was conjugated under optimal conditions, with unreacted biotin removed from the preparation. It is recommended to store the product undiluted at 4°C, and protected from prolonged exposure to light. Do not freeze.

## APPLICATION NOTES

This antibody preparation has been quality-tested for flow cytometry using an appropriate cell type. The amount of antibody required for optimal staining of a cell sample should be determined empirically in your system.

## REFERENCES

Harris SJ, Parry RV, Foster JG, Blunt MD, Wang A, Marelli-Berg F, Westwick J, and Ward SG. Apr. 2011. *J. Immunol.* 186: 4936-4945. (in vitro activation) Beriou G, Bradshaw EM, Lozano E, Costantino CM, Hastings WD, Orban T, Elyaman W, Khoury SJ, Kuchroo VK, Baecher-Allan C, and Hafler DA. 2010. *J. Immunol.* 185: 46-54. (in vitro activation) Soto PC, Stein LL, Hurtado-Ziola N, Hedrick SM, and Varki A. 2010. *J. Immunol.* 184: 4185-4195. (Flow cytometry – Chimpanzee) Edelbauer M, Datta D, Vos IHC, Basu A, Stack MP, Reinders MEJ, Sho M, Calzadilla K, Ganze P, and Briscoe DM. 2010. *Blood.* 116:1980-1989. (Immunohistochemistry – acetone fixed, frozen sections; Immunofluorescence microscopy) Varghese JC and Kane KP. 2008. *J. Immunol.* 181: 6002-6009. (in vitro activation) Mack CL, Tucker RM, Sokol RJ, Darrer FM, Kotzin BL, Whittington PF and Miller SD. 2004. *Pediatr. Res.* 56(1):79-87. (Immunohistochemistry – frozen tissue) Sakkas LI, Scanzello C, Johanson N, Burkholder J, Mitra A, Salgame P, Katselos CD, and Platsoucas CD. 1998. *Clin. Diagn. Lab. Immunol.* 5:430. (Immunohistochemistry – acetone fixed, frozen sections) Salmeron A, Sanchez-Madrid F, Ursa MA, Fresno M, and Alarcon B. 1991. *J. Immunol.* 147:3047-3052. (Immunoprecipitation) Van Dongen JJ, Krissansen GW, Wolvers-Tettero IL, Comans-Bitter WM, Adriaansen HJ, Hooijkaas H, van Wering ER, and Terhorst C. 1988. *Blood.* 71: 603-612. (Western Blot)

NOTE: Please choose the appropriate format for each application. Citations are provided as a convenience to you; please consult Materials and Methods sections for additional details about the use of any product in these publications.

## For Research Use Only.

Not for use in diagnostic or therapeutic procedures. Not for resale. Not for distribution without written consent. Tonbo Biosciences will not be held responsible for patent infringement or other violations that may occur with the use of our products. Tonbo Biosciences, Tonbo Biosciences Logo and all other trademarks are the property of Tonbo Biotechnologies Corporation. © 2013 Tonbo Biosciences.