

TECHNICAL DATA SHEET

Purified Anti-Human CD3 (UCHT1)

Catalog Number: 70-0038

PRODUCT INFORMATION

Contents: Purified Anti-Human CD3 (UCHT1)

Isotype: Mouse IgG1, kappa

Concentration: 0.5 mg/mL

Clone: UCHT1

Reactivity: Human

Formulation: 10 mM NaH₂PO₄, 150 mM NaCl, 0.09% NaN₃, pH7.2

DESCRIPTION

The UCHT1 antibody is specific for human CD3ε, 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 CD3ε can induce cell activation. A recent publication of the crystal structure of a CD3ε- 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 CD3ε protein, in contrast to an alternative human CD3 clone, HIT3a, which will stain only the extracellular (membrane-expressed) CD3ε 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 preparation was purified from tissue culture supernatant via affinity chromatography. For In Vivo Ready™ (IVR) products, each preparation is also evaluated for endotoxin levels using the LAL assay. It is recommended to store the product undiluted at 4°C. Do not freeze.

APPLICATION NOTES

This purified format is guaranteed to be >90% pure as determined by SDS-PAGE analysis. 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.

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 Wiering 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.

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