

**AM08119FC-N****Monoclonal Antibody to T Cell Receptor (TCR) V beta-2 - FITC****Alternate names:**

T Cell Receptor alpha/beta, TCR-VB2, TCR-Vbeta2

**Quantity:**

0.5 mg

**Concentration:**

0.5 mg/ml

**Background:**

The receptors on T cells consist of immunoglobulin like integral membrane glycoproteins containing 2 polypeptide subunits, alpha and beta, of similar molecular weight, 40 to 55 kD in the human. Like the immunoglobulins of the B cells, each T cell receptor subunit has, external to the cell membrane, an N terminal variable domain and a C terminal constant domain.

T cell receptors recognise foreign antigens which have been processed as small peptides and bound to major histocompatibility complex molecules at the surface of antigen presenting cells. Each T cell receptor is a dimer consisting of one alpha and one beta chain or one delta and one gamma chain. In a single cell, the T cell receptor loci are rearranged and expressed in the order delta, gamma, beta, and alpha. If both delta and gamma rearrangements produce functional chains, the cell expresses delta and gamma. If not, the cell proceeds to rearrange the beta and alpha loci.

**Host / Isotype:**

Mouse / IgG1

**Clone:**

TCR3

**Format:****State:** Liquid purified Ig fraction.**Buffer System:** PBS containing 0.09% Sodium Azide as preservative.**Label:** FITC – Fluorescein Isothiocyanate Isomer 1**Applications:****Flow Cytometry:**  $< / = 1 \mu\text{g}/10\text{e}6$  cells. (Ref.1)

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

**Specificity:**

This antibody recognizes Chicken TCR Valpha/beta (Vbeta2). TCR3 precipitates a CD3-associated heterodimer of Mr 88-kDa (two bands of Mr 48-kDa and 40-kDa upon reduction) on chicken peripheral blood T cells. (Ref.1,2) Deglycosylation of the heterodimer yields two polypeptides of Mr 34-kDa and 31-kDa from TCR3 precipitates. In the chicken, two distinct subpopulations of alpha beta T cells appear in the thymus subsequent to the appearance of gamma delta T cells. In the Chicken, two distinct subpopulations of alpha beta T cells appear in the thymus subsequent to the appearance of gamma delta T cells. These subpopulations, originally denoted as TCR2 and TCR3 (Ref.1,2) arise sequentially in the thymus during ontogeny and are now known to represent two distinct Vbeta families, Vbeta1 and Vbeta2, respectively. (Ref.3)

This antibody reacts with approximately 9% of thymocytes, 15-25% of blood mononuclear cells and 13% of splenocytes young adult chickens. Two-color immunofluorescence has revealed that the TCR3+ thymocytes include CD4+CD8-, CD4-CD8+, CD4+CD8+ and CD4-CD8- subpopulations. The TCR3+ thymocytes can be separated into two subsets. One subset is characterized by relatively low levels of expression of the TCR3/CD3 complex and most of the cells in this subset are CD4+CD8+. Cells in the other subset express TCR3/CD3 in higher density and are either CD4+CD8- or CD4-CD8+, corresponding to the more mature medullary subset of thymocytes. The TCR3+ cells in the blood and spleen express relatively high levels of the TCR3/CD3 receptor complex and are "single positive, with CD4+CD8- cells being four times more frequent than the CD4-CD8+ cells (ca. 80% CD4+ vs ca. 20%CD8+). (Ref.1,2)

**Species:** Chicken.

Other species not tested.

**Storage:**

Store the antibody undiluted at 2-8°C for one month or in (aliquots) at -20°C for longer.

This product is photosensitive and should be protected from light.

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.

**General Readings:**

1. Chen, C.H., J.T. Sowder, J.M. Lahti, J. Cihak, U. Lösch, and M.D. Cooper. 1989. Proc. Natl. Acad. Sci. (USA):86:2351
2. Char, D., P. Sanchez, C.H. Chen, R.P. Bucy, and M.D. Cooper. 1990. J. Immunol. 145:3547.
3. Chen, C.H., T.W.F. Göbel, T. Kubota, and M.D. Cooper. 1993. Poultry Science 73:1012
4. Chen, C.H. 1996. Personal communication.
5. Cihak, J., U. Lösch, G. Hoffman-Hezer, C.H. CHen, M.D. Cooper, and H.W.L. Ziegler-Heitbrock. 1993. Scand. J. Immunol. 38:123

## Pictures:

**Immunofluorescent Staining:** Chicken PBMC were double stained with Mouse anti-Chicken TCR alpha/beta-FITC and Mouse anti-Chicken CD3-PE. Small lymphocytes were then gated and analyzed on a FACScan(TM) flow cytometer (BDIS, San Jose, CA). Amount Used: 1 µg/10e6 cells.

