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# AM08118PU-N Monoclonal Antibody to T Cell Receptor (TCR) V beta-1 - Purified

**Alternate names:** T Cell Receptor alpha/beta, TCR-VB1, TCR-Vbeta1, TCRA, TCRB, VB1, Vbeta-1

**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

**Recommended Isotype Controls:** AM03095PU-N

**Clone:** TCR2

**Format:** **State:** Liquid purified Ig fraction.
**Buffer System:** 100 mM Borate Buffered Saline, pH 8.2.
No preservatives or amine-containing buffer salts added.

**Applications:** **Flow Cytometry.** (Ref.1)
**Immunohistochemistry** (Acetone-Fixed, Frozen Tissue Sections). (Ref.7)
**Immunoprecipitation.** (Ref.1)
***In ovo* suppression of the development of TCR-Vbeta 1.** (Ref.5,6)
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

**Specificity:**

This antibody recognizes TCR alpha/beta (Vß1).
It precipitates a CD3-associated heterodimer of Mr 90-kDa (two bands of Mr 40-kDa and 50-kDa upon reduction) on chicken peripheral blood T cells. (Ref.1)
Deglycosylation of the heterodimer yields two polypeptides of Mr 34-kDa and 29-kDa from TCR2 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. These subpopulations, originally denoted as TCR2 and TCR3 (Ref.1-3) arise sequentially in the thymus during ontogeny and are now known to represent two distinct Vbeta families, Vbeta1 and Vbeta2, respectively. (Ref.4)
This antibody reacts with approximately 40% of thymocytes, 40-50% of blood mononuclear cells and 40% of splenocytes in the chicken. Two-color immunofluorescence has revealed that most of the TCR2+ thymocytes express both CD4 and CD8 antigens. The TCR2+ cells in blood were found to express either CD4 (74±2%) or CD8 (26±4%). TCR2+ cells in the spleen also express either CD4 (37±1%) or CD8 (64±4%). Surprisingly, a relatively large subpopulation of CD8+ cells in the spleen are negative for TCR2. (Ref.1-3)
This observation led to the demonstration that 71±6% of the TCR1(gamma/delta)+ cells in the spleen express the CD8 marker. (Ref.1-4)
**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.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

**General Readings:**

1. Chen, C.H., J. Cihak, U. Lösch, and M.D. Cooper. 1988. Eur. J. Immunol. 18:539.
2. 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
3. Char, D., P. Sanchez, C.H. Chen, R.P. Bucy, and M.D. Cooper. 1990. J. Immunol. 145:3547.
4. Chen, C.H., T.W.F. Göbel, T. Kubota, and M.D. Cooper. 1993. 1994. Poultry Science 73:1012.
5. Sowder, J.T., C.H. Chen, L.L. Ager, J. Cihak, U. Lösch, and M.D. Cooper. 1988b. Fed. Proc. 2:874.
6. 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.
7. Chen, C.H. 1996. Personal communication.