Leinco Technologies, Inc.
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Anti-Mouse Nonclassical (MHC Class I molecule Qa-1b) [Clone 4C2.4A7.5H11] — Purified *in vivo* GOLD™ Functional Grade

Hybridoma Monoclonal Antibody

Product Information

Product No.:	H235
Clone:	4C2.4A7.5H11
Isotype:	Mouse Mouse IgG1 κ

Product Description

Specificity:
Activity is directed against the mouse non-classical MHC Class I molecule, Qa-1b. Clone 4C2.4A7.5H11 recognizes a specific epitope on the extracellular domain of the Qa-1b molecule, which is characterized by its limited polymorphism and unique peptide-binding repertoire, primarily involving the leader sequence peptide Qdm[1].

Antigen Distribution:
Qa-1b is expressed at low levels on the surface of most nucleated cells but is significantly upregulated on activated T and B lymphocytes, as well as dendritic cells and certain tumor cell lines[2].

Background:
Qa-1b (H2-T23) is a non-classical (Class Ib) MHC molecule that serves as the functional murine homolog to human HLA-E. It plays a vital role in immune surveillance by presenting the highly conserved leader peptide Qdm (Qa-1 determinant modifier) to the CD94/NKG2A/C/E family of receptors on Natural Killer (NK) cells and CD8+ T cells[3].

Upon binding the inhibitory receptor CD94/NKG2A, the Qa-1b complex delivers a signal that prevents NK cell-mediated lysis, thereby protecting "self" cells from autoimmune attack[3,4]. Conversely, under conditions of cellular stress or viral infection where Qdm presentation is disrupted, the lack of this inhibitory signal allows NK cells to engage and destroy the compromised cell[5]. Clone 4C2.4A7.5H11 is historically significant for its role in defining the molecular mechanisms of non-classical MHC recognition and is a standard reagent for studying NK cell tolerance and "missing-self" recognition[1,6]. Because it specifically targets the Qa-1b molecule without interfering with classical MHC Class I (H-2K/D/L) pathways, it is used extensively to investigate the regulatory CD8+ T cell populations that recognize Qa-1/peptide complexes[6]. Beyond its use as a phenotypic marker, 4C2.4A7.5H11 is a valuable tool for dissecting the interactions between inhibitory receptors and their ligands in tumor immunology and transplantation research[1,3]. Clone 4C2.4A7.5H11 is highly suitable for flow cytometry, Western blotting, and functional bioassays where preservation of the native MHC I framework is required[1,6]. Unlike antibodies that target polymorphic regions of classical MHC,

4C2.4A7.5H11 provides the specificity required for tracking non-classical antigen presentation in diverse genetic backgrounds[4].

Known Reactivity Species:
Mouse

Format:
in vivo GOLD™, Purified in vivo Functional Grade

Immunogen:
Transfected cells expressing Qa-1b

Formulation
This monoclonal antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Purity
≥95% monomer by analytical SEC, >95% by SDS Page

Endotoxin
< 1.0 EU/mg as determined by the LAL method

Storage and Stability
Functional grade preclinical antibodies may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at ≤ -70°C. **Avoid Repeated Freeze Thaw Cycles.**

Product Preparation
Functional grade preclinical antibodies are manufactured in an animal free facility using only *in vitro* protein free cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

Applications
Applications and Recommended Usage (Quality Tested By Leinco):

Blockade *in vitro*,
FC,
IHC-F,
WB

Country of Origin
USA

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References

1. Vance RE, Kraft JR, Altman JD, Jensen PE, Raulet DH. Recognition of the MHC class I molecule Qa-1b by the mouse NK cell receptor CD94/NKG2. J Exp Med. 190(12):1801-1812. 1999.
2. Hu J, Kraft JR, Vance RE, Jensen PE. Qa-1b expression and function on activated lymphocytes. J Immunol. 168(3):1273-1281. 2002.
3. Braud VM, Allan DS, O'Callaghan CA, et al. HLA-E binds to natural killer cell receptors CD94/NKG2A, B and C. Nature. 391(6669):795-799. 1998.
4. Vance RE, Jamieson AM, Raulet DH. Discrimination of the MHC class I molecule Qa-1b by a non-allelic determinant. J Immunol. 163(1):310-317. 1999.
5. Kraft JR, Vance RE, Jensen PE, Raulet DH, Altman JD. Analysis of the Qa-1b-associated leader peptide (Qdm) binding. J Immunol. 165(3):1364-1372. 2000.
6. Lu L, Ikizawa K, Neumann D, et al. Regulation of CD8+ regulatory T cells: Interruption of the Qa-1-CD94/NKG2A pathway. Immunity. 14(5):583-594. 2001.

Products are for research use only. Not for use in diagnostic or therapeutic procedures.

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