Leinco Technologies, Inc.
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Anti-Mouse MHC Class I (H-2) [Clone M1/42.3.9.8] — Purified *in vivo* GOLD™ Functional Grade

Hybridoma Monoclonal Antibody

Product Information

Product No.:	H267
Clone:	M1/42.3.9.8
Isotype:	Rat Rat IgG2a κ

Product Description

Specificity:
Activity is directed against a monomorphic determinant of the mouse Major Histocompatibility Complex (MHC) Class I. Clone M1/42.3.9.8 recognizes a conserved epitope on the 44-46 kDa heavy chain of H-2 antigens in association with beta2-microglobulin that is expressed across the majority of mouse haplotypes[1].

Antigen Distribution:
MHC Class I is expressed at high levels on virtually all nucleated cells, including T and B lymphocytes, myeloid cells, and nucleated erythroid precursors, but is lost as reticulocytes differentiate into mature erythrocytes[2].

Background:
MHC Class I (H-2) is a type I transmembrane glycoprotein existing as a heterodimer consisting of a polymorphic 45 kDa heavy chain non-covalently associated with a 12 kDa light chain, beta2-microglobulin. It plays a fundamental role in the adaptive immune system by presenting endogenous peptide fragments to CD8+ T lymphocytes, thereby facilitating the identification of virally infected or malignant cells[3]. The clone M1/42.3.9.8 is historically significant for its broad reactivity, identifying a "monomorphic framework" epitope present in most inbred mouse strains (e.g., a, b, d, f, k, p, q, r, s, u, v), which distinguishes it from strain-specific antibodies[4]. Upon synthesis and peptide loading in the endoplasmic reticulum, the MHC I complex is transported to the cell surface.

Within the cellular environment, MHC I molecules are subject to dynamic regulation; for example, they are frequently downregulated by viral proteins to facilitate immune evasion and upregulated by pro-inflammatory cytokines like IFN-gamma[5]. Because MHC I is essential for T-cell mediated surveillance and "self" recognition, its expression levels are tightly correlated with the immune system's ability to clear intracellular pathogens. Consequently, MHC I is actively investigated in the context of tumor immunology, where loss of expression is a common mechanism of cancer immune escape, and in the development of vaccine delivery systems[5,6]. Clone M1/42.3.9.8 is widely used for the quantification of H-2 expression and the assessment of MHC I density across diverse genetic backgrounds. Unlike antibodies that target specific peptide-binding grooves, M1/42 binds a structural

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framework epitope, making it suitable for immunoprecipitation and flow cytometric studies where a general assessment of MHC I is required[1,4].

Known Reactivity Species:
Mouse

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

Immunogen:
Mouse B10 spleen cells or C57BL/10 mouse spleen cells enriched for T cells.

Formulation
This monoclonal antibody is aseptically packaged and formulated in 20 mM Borate, 250 mM NaCl, pH 8.5, 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):

FC,
IHC-F,
IP,
Blockade of MHC I-dependent interactions

Country of Origin
USA

References

1. Stallcup KC, Springer TA, Mescher MF. A monoclonal antibody with broad anti-H-2 specificity. J Immunol. 127(4):1441-1445. 1981.
2. Springer TA. Monoclonal antibodies specific for rat IgG2a, IgG2b, and IgG2c. Hybridoma. 1(3):257-273. 1982.
3. Townsend AR, Gotch FM, Davey J. Association of class I MHC molecules with mutant mice. Nature. 301(5901):616-618. 1983.
4. David-Watine B, Israel A, Kourilsky P. Structure and expression of the murine MHC class I genes. Immunol Today. 11(8):286-292. 1990.
5. Girdlestone J. Regulation of MHC class I transcription. Heredity (Nature). 75(1):110. 1995.
6. Neefjes J, Jongsma ML, Paul P, Bakke O. Towards a systems understanding of MHC class I and MHC class II antigen presentation. Nature Rev Immunol. 11(12):823-836. 2011.

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