

## APC Anti-Mouse H-2 Antibody

|                           |                                                 |
|---------------------------|-------------------------------------------------|
| <b>Catalog Number:</b>    | 200313, 200314                                  |
| <b>Size:</b>              | 25 tests, 100 tests                             |
| <b>Target Name:</b>       | H-2, major histocompatibility complex (MHC) H-2 |
| <b>Regulatory Status:</b> | RUO                                             |

### PRODUCT DETAILS

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| <b>Clone:</b>                 | M1/42                                                                                                                                                                                                                                                                                     |
| <b>Application:</b>           | Flow Cytometry                                                                                                                                                                                                                                                                            |
| <b>Reactivity:</b>            | Mouse                                                                                                                                                                                                                                                                                     |
| <b>Format:</b>                | APC                                                                                                                                                                                                                                                                                       |
| <b>Isotype:</b>               | Rat IgG2a                                                                                                                                                                                                                                                                                 |
| <b>Antibody Type:</b>         | Monoclonal                                                                                                                                                                                                                                                                                |
| <b>Formulation:</b>           | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA                                                                                                                                                                                                     |
| <b>Protein Concentration:</b> | Supplied at a lot-specific concentration.                                                                                                                                                                                                                                                 |
| <b>Storage&amp;Handling:</b>  | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.                                                                                                                                                      |
| <b>Recommended Usage:</b>     | For flow cytometric staining, it is recommended to use 5 µL of this reagent per 0.5-1.0 million cells in a 100 µL volume. Optimal reagent performance should be determined by titration for each specific application. APC has an excitation max at 650 nm and an emission max at 660 nm. |
| <b>Excitation Laser:</b>      | Red Laser (633 nm)                                                                                                                                                                                                                                                                        |
| <b>Isotype Control:</b>       | 300207                                                                                                                                                                                                                                                                                    |
| <b>RRID:</b>                  | AB_3738985                                                                                                                                                                                                                                                                                |

### BACKGROUND INFORMATION

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The mouse H-2 complex is the murine major histocompatibility complex (MHC), a highly polymorphic genomic region that plays a central role in adaptive immunity. Encoded on mouse chromosome 17, the H-2 complex governs antigen presentation to T lymphocytes and is essential for immune recognition of pathogens, tumors, and transplanted tissues. Through regulated expression of MHC class I and class II molecules, the H-2 complex enables the immune system to distinguish self from non-self and to mount appropriate cellular immune responses.

Structurally, the H-2 complex is divided into several regions, most notably the class I (H-2K, H-2D, and in some strains H-2L), class II (I-A and I-E), and class III regions. Class I H-2 molecules are composed of a polymorphic heavy  $\alpha$  chain non-covalently associated with  $\beta$ 2-microglobulin, forming a peptide-binding groove that presents short endogenous peptides to CD8<sup>+</sup> T cells. Class II H-2 molecules consist of polymorphic  $\alpha$  and  $\beta$  chains that together form a peptide-binding cleft for longer peptides derived from extracellular proteins, which are presented to CD4<sup>+</sup> T cells. The class III region encodes several immune-related proteins, including

complement components and cytokines, rather than antigen-presenting molecules.

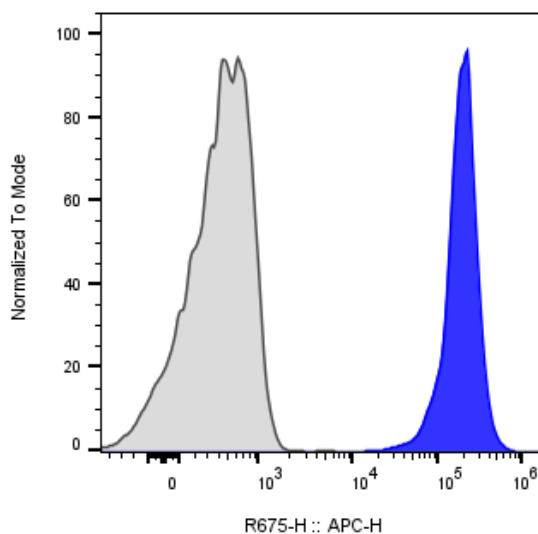
The primary ligands for H-2 class I and class II molecules are peptide antigens generated by intracellular or extracellular antigen-processing pathways, respectively. Class I molecules bind peptides typically 8-10 amino acids in length, derived from cytosolic proteins processed by the proteasome, while class II molecules present longer peptides derived from endosomal and lysosomal processing of exogenous antigens. These peptide-MHC complexes are recognized by T cell receptors, forming the basis of antigen-specific T cell activation.

Variation within the H-2 complex has profound effects on disease susceptibility and immune outcomes in mice. Specific H-2 haplotypes are associated with resistance or susceptibility to infectious agents, autoimmune diseases, and cancer in experimental models. H-2 compatibility is also a dominant determinant of graft rejection in transplantation studies, making the complex a critical factor in experimental immunology. Differences in peptide-binding preferences among H-2 alleles influence T cell repertoire selection and immune response strength.

In therapy and biomedical research, the H-2 complex is indispensable for the development and interpretation of mouse models of human disease. It shapes responses to vaccines, immunotherapies, and infectious challenges in preclinical studies. Understanding H-2-restricted antigen presentation is also essential for designing mouse tumor models, evaluating T cell-based therapies, and translating immunological findings from mice to humans, underscoring the H-2 complex's foundational role in immunology.

## PRODUCT DATA

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Mouse splenocytes were stained either APC Anti-Mouse H-2 clone M1/42 (color-filled histogram) or an isotype control (gray histogram).

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