



**NHS Blood & Transplant**  
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**Antigen** HLA-A\*02:01 MHC class I  
**Clone** OP67  
**Product Code** 9467  
**Immunoglobulin Class** Mouse IgG1 kappa light chain

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### Antigen Description and Distribution

The major histocompatibility complex (MHC) is the most polygenic and polymorphic region in the human genome. Human leukocyte antigens (HLA) Class I include HLA-A, -B and -C loci. HLA-A are encoded by the HLA-A locus on human chromosome 6p. The HLA genes constitute a large subset of the MHC of humans. HLA-A is a component of certain MHC class I cell surface receptor glycoproteins that resides on the surface of all nucleated cells and platelets. Class I MHC molecules bind peptides generated mainly from degradation of cytosolic proteins by the proteasome and display intracellular proteins to cytotoxic T cells. However, class I MHC can also present peptides generated from exogenous proteins, in a process known as cross-presentation. Alternatively, class I MHC itself can serve as an inhibitory ligand for natural killer cells (NKs). Reduction in the normal levels of surface class I MHC, a mechanism employed by some viruses during immune evasion or in certain tumors, will activate NK cell killing. MHC class I molecules consist of two polypeptide chains,  $\alpha$  and  $\beta$ 2-microglobulin (b2m). The two chains are linked noncovalently via interaction of b2m and the  $\alpha$ 3 domain. Only the  $\alpha$  chain is polymorphic and encoded by a HLA gene, while the b2m subunit is not polymorphic and encoded by the Beta-2 microglobulin gene. The  $\alpha$ 3 domain is plasma membrane-spanning and interacts with the CD8 co-receptor of T-cells. The  $\alpha$ 1 and  $\alpha$ 2 domains fold to make up a groove for peptides to bind. MHC class I molecules bind peptides that are 8-10 amino acid in length. HLA-A2 is a serotype within HLA-A "A" serotype group<sup>[1]</sup>. A2 and A\*02 are almost synonymous in meaning. The serotype identifies the gene products of many HLA-A\*02 alleles, including the HLA-A\*02:01, gene product. A\*02 is globally common and one of the most diverse antigens, A\*02:01 is present in several ethnic groups and at high frequencies in these populations.

### Clone

OP67 is produced from a mouse hybridoma derived from fusion of Balb/c spleen cells with X63Ag8.653 myeloma cells. OP67 was made in response to immunisation with Chymotrypsinised platelets (HLA not known).

### References

1. Marsh SG, Albert ED, Bodmer WF, *et al.* (2005). "Nomenclature for factors of the HLA system, 2004". *Tissue Antigens* **65** (4): 301–69.