

## iF700 Anti-human HLA-G Antibody

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Catalog Number:</b>    | 112707, 112708                   |
| <b>Size:</b>              | 25 tests, 100 tests              |
| <b>Target Name:</b>       | HLA-G, Human Leukocyte Antigen-G |
| <b>Regulatory Status:</b> | RUO                              |

### PRODUCT DETAILS

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|-------------------------------|---|
| <b>Clone:</b>                 | HLAGAR1   |
| <b>Application:</b>           | Flow Cytometry  |
| <b>Reactivity:</b>            | Human   |
| <b>Format:</b>                | iF700   |
| <b>Isotype:</b>               | Rat IgG1  |
| <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. iF700 has an excitation max at 690 nm and an emission max at 710 nm. |
| <b>Excitation Laser:</b>      | Red Laser (633 nm)  |
| <b>Isotype Control:</b>       | 303413  |

### BACKGROUND INFORMATION

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HLA-G is a non-classical major histocompatibility complex (MHC) class I molecule encoded within the human leukocyte antigen (HLA) region. Unlike classical MHC class I proteins, HLA-G has limited polymorphism and a restricted tissue distribution, primarily expressed at the maternal-fetal interface, where it plays a critical role in immune tolerance during pregnancy.

Structurally, HLA-G consists of a heavy chain associated with  $\beta$ 2-microglobulin and presents peptides similarly to other MHC class I molecules. However, alternative splicing generates multiple isoforms, including both membrane-bound (e.g., HLA-G1) and soluble forms (e.g., HLA-G5). These structural variants contribute to its diverse immunomodulatory functions.

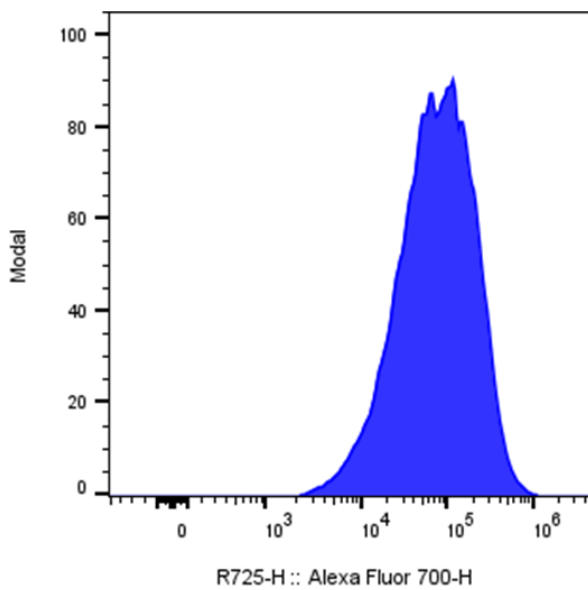
HLA-G interacts with inhibitory receptors such as ILT2 (LILRB1), ILT4 (LILRB2), and KIR2DL4 expressed on immune cells including natural killer (NK) cells, T cells, and antigen-presenting cells. Through these ligand-receptor interactions, HLA-G suppresses immune responses by inhibiting cytotoxic activity, reducing cytokine production, and promoting regulatory cell phenotypes.

In disease contexts, aberrant expression of HLA-G has been associated with cancer, viral infections, and autoimmune disorders. Many tumors exploit HLA-G expression to evade immune surveillance, leading to poorer clinical outcomes. Conversely, reduced HLA-G expression may contribute to pregnancy complications such as preeclampsia or recurrent miscarriage.

Therapeutically, HLA-G represents a promising target in both immunosuppression and immuno-oncology. Enhancing HLA-G activity could be beneficial in transplantation and autoimmune diseases by promoting immune tolerance. In contrast, blocking HLA-G or its receptors is being explored as a strategy to restore anti-tumor immunity. Ongoing research aims to better understand its mechanisms and develop targeted therapies that modulate HLA-G pathways.

## PRODUCT DATA

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JEG-3 cells were stained with iF700 Anti-Human HLA-G clone HLAGAR.

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