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# LAG-3/CD223

Catalog # PVGS1599

## Product Information

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| **Primary Accession** | P18627 |
| **Species** | Human |
| **Sequence** | Leu23-Leu450 |
| **Purity** | > 95% as analyzed by SDS-PAGE |
| **Endotoxin Level** | |
| **Biological Activity** | Immobilized FGL-1-His (LC13SE1012) at 2.0 μg/ml (100 μl/well) can bind LAG-3/CD223, hFc, Human with $EC_{50}$ = 0.306 μg/ml when detected by Mouse Anti–Human IgG FC-HRP. |
| **Expression System** | HEK 293 |
| **Formulation** | Lyophilized from a 0.2 μm filtered solution in PBS. |
| **Reconstitution** | It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in dd$H_2O$ or PBS up to 100 μg/ml. |
| **Storage & Stability** | Upon receiving, this product remains stable for up to 6 months at lower than -70°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. For long term storage it is recommended that a carrier protein (example 0.1% BSA) be added. Avoid repeated freeze-thaw cycles. |

## Additional Information

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| **Gene ID** | 3902 |
| **Other Names** | Lymphocyte activation gene 3 protein, LAG-3, CD223, Secreted lymphocyte activation gene 3 protein, sLAG-3, LAG3 (HGNC:6476), FDC |
| **Target Background** | Lymphocyte activation gene-3 (LAG-3), also known as CD223, is a cell-surface 70kDa molecule belong to Ig superfamily with diverse biologic effects on T cell function. LAG-3 is a CD4 homolog originally cloned in 1990. The gene for LAG-3 lies adjacent to the gene for CD4 on human chromosome 12 (12p13) and is approximately 20% identical to the CD4 gene. human LAG-3 shares 70%, 67%, 76%, and 73% aa sequence identity with mouse, rat, porcine, and bovine LAG-3, respectively. LAG-3 is expressed on B cells, NK cells, tumor-infiltrating lymphocytes, and a subset of T cells. LAG-3 was relatively overexpressed on transgenic T cells rendered anergic in vivo by encounter with cognate self-antigen. LAG-3 negatively regulates murine T cell activation and homeostasis. LAG-3 activates antigen-presenting cells through MHC class II signaling, leading to increased antigen-specific T-cell responses in vivo. |

Blocking or knocking out LAG-3 in neuronal cultures or in animals mitigated the transmission of α-synuclein between neurons, and dampened accumulation as well as toxic effects of the fibrils on motor function. Anti-LAG3 antibodies are already being tested as cancer treatments, it could also make a useful therapeutic target to treat Parkinson's and other synucleinopathies.

## Protein Information

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| **Name** | LAG3 {ECO:0000303\|PubMed:35761082, ECO:0000312\|HGNC:HGNC:6476} |
| **Function** | [Lymphocyte activation gene 3 protein]: Inhibitory receptor on antigen activated T-cells (PubMed:20421648, PubMed:35761082, PubMed:7805750, PubMed:8647185). Delivers inhibitory signals upon binding to ligands, such as MHC class II, its main ligand present at the surface of antigen-presenting cells (APCs), and FGL1, which is secreted by hepatocytes and certain types of tumor cells (PubMed:30580966, PubMed:32920841, PubMed:35761082, PubMed:39671469, PubMed:7589152, PubMed:8647185, PubMed:9159144). Ligand-binding initiates a signaling that inhibits the T-cell receptor (TCR) in the immunological synapse, preventing T-cell activation (PubMed:40101708). Mechanistically, ligand-binding promotes (1) ubiquitination of the KIEELE motif, unleashing the RRFSALE motif from the membrane and (2) leading to the formation of condensates with the TCR component CD3E, thereby disrupting the association between CD3E and LCK and preventing TCR activation (PubMed:40101708, PubMed:40592325). May inhibit antigen-specific T-cell activation in synergy with PDCD1/PD-1 (By similarity). Negatively regulates the proliferation, activation, effector function and homeostasis of both CD8(+) and CD4(+) T-cells (PubMed:20421648, PubMed:7805750, PubMed:8647185). Also mediates immune tolerance: constitutively expressed on a subset of regulatory T-cells (Tregs) and contributes to their suppressive function (By similarity). Also acts as a negative regulator of plasmacytoid dendritic cell (pDCs) activation (By similarity). |
| **Cellular Location** | [Lymphocyte activation gene 3 protein]: Cell membrane; Single-pass type I membrane protein. Note=Clusters on the T-cell surface following ligand-binding |
| **Tissue Location** | Primarily expressed in activated T-cells and a subset of natural killer (NK) cells. |

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