

## CLAIMS

What is claimed is:

1. An antibody, or antigen binding fragment thereof, comprising:
  - (a) a heavy chain variable (VH) domain comprising complementarity-determining regions (CDRs) CDR-H1, CDR-H2, and CDR-H3 comprising the amino acid sequences of SEQ ID NOs: 13, 14, and 15, respectively; and
  - (b) a light chain variable (VL) domain comprising CDR-L2, and CDR-L3 comprising the amino acid sequences of SEQ ID NO: 17 and SEQ ID NO:18, respectively; and a CDR-L1 comprising the amino acid sequence of SEQ ID NO: 16 or the amino acid sequence of SEQ ID NO: 16 with the NG motif replaced by NA, QG, or KG;  
wherein said antibody, or antigen-binding fragment thereof, specifically binds to the extracellular domain of human killer cell lectin-like receptor subfamily G member 1 (KLRG1) and the extracellular domain of cynomolgus monkey KLRG1.
2. The antibody, or antigen binding fragment thereof, of claim 1, wherein CDR-L1 (SEQ ID NO: 16) has the NG motif substituted with NA.
3. The antibody, or antigen binding fragment thereof, of claim 1 or 2 comprising
  - (i) the VH domain sequence of SEQ ID NO: 3 and the VL domain sequence of SEQ ID NO: 4 or the VL domain sequence of SEQ ID NO:4, wherein the NG motif is substituted with NA in the CDR-L1; or
  - (ii) the VH domain sequence of SEQ ID NO: 27 and the VL domain sequence of SEQ ID NO: 28 or the VL domain sequence of SEQ ID NO:28, wherein the NG motif is substituted with NA in the CDR-L1.
4. The antibody, or antigen binding fragment thereof, of any one of claims 1-3, wherein the antibody specifically binds to an amino acid sequence that is at least 95% identical to any sequence of at least 100 contiguous amino acids of at least

one sequence selected from group consisting of SEQ ID NO:89 and SEQ ID NO:90.

5. The antibody, or antigen binding fragment thereof, of claim 4, wherein the antibody specifically binds to the extracellular domain of KLRG1 with an affinity, as expressed in  $K_D$ , of at least about 2 nM, about 1nM, about 100 pM, about 10 pM, or about 5 pM.
6. The antibody, or antigen binding fragment thereof, of any one of claims 1-5, wherein the antibody is humanized.
7. The antibody, or antigen binding fragment thereof, of any one of claims 1-6, wherein the antibody is IgG<sub>1</sub> or IgG<sub>4</sub>.
8. A pharmaceutical composition comprising the antibody of any one of claims 1-7 and a pharmaceutically acceptable carrier.
9. Use of the pharmaceutical composition of claim 8 for the manufacture of a medicament for treatment or prevention of cancer or an infectious disease.
10. An isolated nucleic acid encoding the antibody of any one of claims 1-7.
11. An expression vector comprising the nucleic acid of claim 10.
12. A host cell comprising the expression vector of claim 11.
13. The host cell of claim 12, wherein the host cell is selected from the group consisting of an *E. Coli* bacterium, a Chinese hamster ovary cell, a HeLa cell, and a NS0 cell.

14. The nucleic acid of claim 10, wherein the nucleic acid encodes the amino acid sequence set out in SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:27, or SEQ ID NO:28.
15. A method of making an antibody, or fragment thereof, that specifically binds with the extracellular domain of human and cynomolgus monkey KLRG1, wherein the method comprises:
  - (a) providing a starting repertoire of nucleic acids encoding a heavy chain variable (VH) domain or a light chain variable (VL) domain that either includes a CDR3 to be replaced or lacks a CDR3 encoding region;
  - (b) combining the starting repertoire with a donor nucleic acid encoding an amino acid sequence substantially as set out in SEQ ID NO:15 or SEQ ID NO: 18, such that the donor nucleic acid is inserted into the CDR3 region in the starting repertoire, so as to provide a product repertoire of nucleic acids encoding a variable domain;
  - (c) expressing the nucleic acids of the product repertoire;
  - (d) selecting nucleic acid from step (c) encoding a VH or VL domain, or fragment thereof, which specifically binds said extracellular domain of human and cynomolgus monkey KLRG1; and
  - (e) recovering the VH or VL domain, or fragment thereof, or nucleic acid encoding said VH or VL domain or fragment thereof of (d).
16. An antibody produced by the method of claim 15.
17. Use of an anti-KLRG1 antibody, or fragment thereof, for modulating CD8<sup>+</sup> T and NK cell activation comprising contacting a lymphocyte with the anti-KLRG1 antibody, or fragment thereof.
18. The use of claim 17, wherein the lymphocyte is a CD8<sup>+</sup> T cell or a NK cell.
19. The use of claim 17, wherein the antibody is as in any one of claims 1-7.

20. The use of claim 17, wherein the anti-KLRG1 antibody modulates CD8<sup>+</sup> T cell and NK cell activation and inhibits the binding of E-cadherin to human and cynomolgus monkey KLRG1.