

CLAIMS

WHAT IS CLAIMED IS:

1. An antibody or antibody fragment that binds to adenosine 2A receptor, comprising a heavy chain CDR1 comprising an amino acid sequence selected from SEQ ID NOs: 6-94, a heavy chain CDR2 comprising an amino acid sequence selected from SEQ ID NOs: 95-183, and a heavy chain CDR3 comprising an amino acid sequence selected from SEQ ID NOs: 184-272, a light chain CDR1 comprising an amino acid sequence selected from SEQ ID NOs: 273-361, a light chain CDR2 comprising an amino acid sequence selected from SEQ ID NOs: 362-450, and a light chain CDR3 comprising an amino acid sequence selected from SEQ ID NOs: 451-539.
2. The antibody or antibody fragment of claim 1, wherein the antibody is a monoclonal antibody, a bi-specific antibody, a multispecific antibody, a grafted antibody, a humanized antibody, a synthetic antibody, a chimeric antibody, a Fab fragment, a F(ab')₂ fragment, a Fv fragment, a diabody, disulfide-linked Fvs (sdFv), an intrabody, or an antigen-binding fragments thereof.
3. The antibody or antibody fragment of any one of claims 1-2, comprising a variable heavy chain comprising a sequence at least 90% identical to an amino acid sequence selected from SEQ ID NOs: 540-628, and a variable light chain comprising a sequence at least 90% identical to an amino acid sequence selected from SEQ ID NOs: 629-717.
4. The antibody or antibody fragment of any one of claims 1-3, comprising a variable heavy chain comprising an amino acid sequence selected from SEQ ID NOs: 540-628, and a variable light chain comprising an amino acid sequence selected from SEQ ID NOs: 629-717.
5. The antibody or antibody fragment of any one of claims 1-4, wherein the antibody or antibody fragment binds to adenosine 2A receptor with a K_D of less than about 75 nM.
6. The antibody or antibody fragment of any one of claims 1-4, wherein the antibody or antibody fragment binds to adenosine 2A receptor with a K_D of less than about 50 nM.
7. The antibody or antibody fragment of any one of claims 1-4, wherein the antibody or antibody fragment binds to adenosine 2A receptor with a K_D of less than about 25 nM.
8. The antibody or antibody fragment of any one of claims 1-4, wherein the antibody or antibody fragment binds to adenosine 2A receptor with a K_D of less than about 10 nM.
9. The antibody or antibody fragment of any one of claims 1-8, wherein the antibody or antibody fragment comprises an IC_{50} of less than about 20 nM in a T cell activation assay.
10. The antibody or antibody fragment of any one of claims 1-8, wherein the antibody or antibody fragment comprises an IC_{50} of less than about 10 nM in a T cell activation assay.

11. The antibody or antibody fragment of any one of claims 1-8, wherein the antibody or antibody fragment comprises an IC_{50} of less than about 7.5 nM in a T cell activation assay.
12. The antibody or antibody fragment of any one of claims 1-8, wherein the antibody or antibody fragment comprises an IC_{50} of less than about 5 nM in a T cell activation assay.
13. Use of the antibody or antibody fragment of any one of claims 1-12 in the manufacture of a medicament for activating T cells.
14. A nucleic acid that encodes the antibody or antibody fragment of any one of claims 1-12.
15. An antibody or antibody fragment of any one of claims 1-12 for use in therapy.