CLAIMS

1. A monoclonal antibody or a fragment including an antigen-binding region thereof that binds, as confirmed by flow cytometry, to an extracellular domain of human receptor-type protein tyrosine phosphatase σ (human PTPRS) on a human plasmacytoid dendritic cell, which is a recombinant antibody or antibody fragment including an antigen-binding region.

2. A monoclonal antibody or a fragment including an antigen-binding region thereof according to claim 1, which suppresses production of interferon (IFN) by the cell and/or survival of the cell, and which is a recombinant antibody or antibody fragment including an antigen-binding region.

3. The antibody or the fragment according to claim 1 or 2 which is a chimeric antibody, a humanized antibody, a single chain Fv, a diabody, a linear antibody, or a multispecific antibody formed from antibody fragments.

4. The antibody or the fragment according to claim 1 or 2, which is a humanized antibody.

5. The antibody fragment according to claim 1 or 2, which is a Fab or $F(ab')_2$.

6. The antibody or the fragment according to claim 3 or 4, which is a chimeric antibody or a humanized antibody comprising a constant region derived from IgG or IgM.

7. The antibody or the fragment according to any one of the preceding claims, which comprises an antigen-binding region of a monoclonal antibody produced by hybridoma 9H5-4 that was deposited as Accession No. FERM BP-11356, hybridoma 10F7-38 that was deposited as Accession No. FERM BP-11357, hybridoma 13G5-52 that was deposited as Accession No. FERM BP-11358, hybridoma 13G5-57 that was deposited as Accession No. FERM BP-11359, hybridoma 14A8-85 that was deposited as Accession No. FERM BP-11360, hybridoma 22H8-84 that was deposited as Accession No. FERM BP-11361, hybridoma 49F2-30 that was deposited as Accession No. FERM BP-11362 or hybridoma 55E7-79 that was deposited as Accession No. FERM BP-11363.

8. A polynucleotide that codes for the chimeric antibody of claim 3 or 6, or the humanized antibody of claim 4 or 6.

9. An expression vector comprising cDNA that codes for an antigen-binding region of the antibody from hybridoma 9H5-4 that was deposited as Accession No. FERM BP-11356, hybridoma 10F7-38 that was deposited as Accession No. FERM BP-11357, hybridoma 13G5-52 that was deposited as Accession No. FERM BP-11358, hybridoma 13G5-57 that was deposited as Accession No. FERM BP-11359, hybridoma 14A8-85 that

was deposited as Accession No. FERM BP-11360, hybridoma 22H8-84 that was deposited as Accession No. FERM BP-11361, hybridoma 49F2-30 that was deposited as Accession No. FERM BP-11362 or hybridoma 55E7-79 that was deposited as Accession No. FERM BP-11363.

10. A method for the production of the antibody or the fragment according to any one of claims 1 to 7.

11. A method according to claim 10, which:

(a) comprises gene recombination;

(b) comprises a method of gene engineering using a polynucleotide of claim 8; or

(c) comprises expressing the vector of claim 9 in a host cell.

12. A method for the detection of a human plasmacytoid dendritic cell, which comprises contacting the antibody or the fragment according to any one of claims 1 to 7 with a subject cell, and detecting the antibody or the fragment that has bound to the cell.

13. Use of the antibody according to any one of claims 1 to 7 in the *in vitro* diagnosis of diseases in which human plasmacytoid dendritic cells are involved.

14. The antibody or the fragment according to any one of claims 2 to 7 for use in the treatment of the human or animal body by therapy, wherein the antibody suppresses production of IFN by a human plasmacytoid dendritic cell and/or survival of the cell.

15. The antibody or the fragment according to any one of claims 2 to 7 for use in the treatment of an autoimmune disease in which the expression of IFNalpha is enhanced, wherein the antibody suppresses production of IFN by a human plasmacytoid dendritic cell and/or survival of the cell.

16. The antibody or the fragment according to any one of claims 2 to 7 for use in therapy.

17. Use of the antibody or the fragment according to any one of claims 2 to 7 in the manufacture of a medicament for the treatment of an autoimmune disease in which the expression of IFNα is enhanced, wherein the antibody suppresses production of IFN by a human plasmacytoid dendritic cell and/or survival of the cell.

18. A pharmaceutical composition, comprising the antibody or the fragment according to any one of claims 2 to 7 as an active ingredient.