

a nucleotide sequence that encodes the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

(14) A recombinant vector, comprising:
the nucleic acid according to (13).

5 (15) A transformant, comprising:
the recombinant vector according to (14).

(16) A method for producing the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12), comprising:

10 culturing the transformant according to (15) in a medium and collecting the bispecific antibody or the antibody fragment thereof from a culture supernatant.

(17) A reagent for detecting or measuring at least one of TRAILR2 and PSMA, comprising:
the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

15 (18) A diagnostic agent for a disease related to a TRAILR2- and PSMA-expressing cell, comprising:
the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

(19) The diagnostic agent according to (18),
20 wherein the disease related to a TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

(20) A therapeutic agent for a disease related to a TRAILR2- and PSMA-expressing cell, comprising:

25 the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12) as an active ingredient.

(21) The therapeutic agent according to (20),
wherein the disease related to a TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

(22) Also described herein is a method for detecting or measuring at least one of TRAILR2
30 and PSMA,

by using the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

(23) Also described herein is a diagnostic method for a disease related to a TRAILR2- and PSMA-expressing cell, comprising:

detecting or measuring at least one of TRAILR2 and PSMA by using the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

(24) The diagnostic method according to (23),

wherein the disease related to a TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

(25) Also described herein is a therapeutic method for a disease related to a TRAILR2- and PSMA-expressing cell,

by using the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12).

(26) The therapeutic method according to (25),

wherein the disease related to TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

(27) Also described herein is the use of the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12), for the manufacture of a diagnostic agent for a

disease related to a TRAILR2- and PSMA-expressing cell.

(28) The use according to (27),

wherein the disease related to a TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

(29) Also described herein is the use of the bispecific antibody or the antibody fragment thereof according to any one of (1) to (12), for the manufacture of a therapeutic agent for a

disease related to a TRAILR2- and PSMA-expressing cell.

(30) The use according to (29), wherein the disease related to a TRAILR2- and PSMA-expressing cell is a malignant tumor and a cancer.

Effects of the Invention

[0020]

Only when binding to TRAILR2 and PSMA, a bispecific antibody or an antibody fragment thereof of the present invention induces various reactions in accordance with the activation of TRAILR2. Therefore, the bispecific antibody or the antibody fragment thereof of the present invention can be used as a therapeutic agent and a diagnostic agent which are for a disease related to TRAILR2- and PSMA-expressing cell.

Brief Description of Drawings

[0021]