Claims

1. A method for detecting cancer, which comprises detecting cancer using, as an indicator, the reaction of a nematode to the smell of a subject-derived bio-related substance or a processed product thereof, wherein

when the nematode shows a positive response to the smell of the subject-derived bio-related substance or a processed product thereof, the response result becomes an indicator for determining that the subject has cancer or cancer risk, and

the bio-related substance or a processed product thereof is a body fluid, cells, tissues, a culture of the cells or tissues, or a preservative solution of the cells or tissues.

2. The method according to claim 1, wherein the nematode is *Caenorhabditis elegans*.

3. The method according to claim 1 or 2, wherein the nematode is a wild-type nematode, a mutant nematode, or a transgenic nematode.

4. A method for detecting cancer, which comprises detecting cancer using, as an indicator, a change in the calcium concentration of a transgenic nematode to the smell of a subject-derived bio-related substance or a processed product thereof, wherein

in the transgenic nematode, an indicator gene encoding a calcium-binding protein and a fluorescent protein has been allowed to express,

when the subject-derived bio-related substance or a processed product thereof is given as a stimulus to the transgenic nematode, if a change in the fluorescence intensity ratio of fluorescence emitted from the indicator protein encoded by the indicator gene or a change in the fluorescence intensity is large, in comparison to a change in the fluorescence intensity ratio or a change in the fluorescence intensity in the case of using a control bio-related substance or a processed product thereof, the response result becomes an indicator for determining that the subject has cancer or cancer risk, and

the bio-related substance or a processed product thereof is a body fluid, cells, tissues, a culture of the cells or tissues, or a preservative solution of the cells or tissues.

5. The method according to any one of claims 1 to 4, wherein the body fluid is urine.

6. The method according to any one of claims 1 to 5, wherein the preservative solution is a normal saline.

7. A method for identifying cancer species using, as an indicator, the reaction of a nematode to the smell of a subject-derived bio-related substance or a processed product thereof, wherein the method comprises the following steps:

(a) detecting cancer by the method according to any one of claims 1 to 6,

(b) testing the reaction of a modified nematode with a modified receptor, which has been identified by testing the reaction of a nematode to a smell, in which the expression or function of a gene encoding a smell receptor has been inhibited, to the smell of a sample, which has been detected to have cancer in the step (a), and

(c) when the reaction to the smell is different between the modified nematode and the nematode used in the step (a), using the reaction result as an indicator for determining that the cancer species corresponding to the identified receptor is cancer species as a target of the identification.

8. The method according to claim 7, wherein the modification of the receptor is at least one selected from the group consisting of deletion of the receptor, inhibition of the expression or function of the receptor, and overexpression or over-function of the receptor.

9. A kit for detecting or identifying cancer for use in the method according to any one of claims 1 to 8, wherein the kit comprises a nematode and a petri dish, or a chip having a nematode and a flow channel.

10. The kit according to claim 9, wherein the nematode is *Caenorhabditis elegans*.

11. The kit according to claim 9 or 10, wherein the nematode is a wild-type nematode, a mutant nematode, or a transgenic nematode.

12. A cancer detection system, which comprises:

a nematode,

a storage part for storing a body fluid, cells, tissues, a culture or a preservative solution of the cells or tissues, and the nematode, and

a detection part for detecting the reaction of the nematode in the storage part to a smell.