

【CLAIMS】

【 Claim 1】

A method for screening personalized anticancer agents, the method comprising the steps of:

5 (a) treating cancer cells, which are single cancer cells obtained from a patient or cultured single cancer cells, with candidate anticancer agents, measuring the anticancer activity of the treated candidate anticancer agents, and selecting a group of personalized anticancer agent candidates having anticancer activity from the candidate anticancer agents; wherein the single cancer cells are obtained through the following steps:

10 (i) homogenizing cancer tissue isolated from the cancer patient, and collecting a cell fraction from the homogenized tissue; and

(ii) allowing the collected cell fraction to react with protease, and filtering and centrifuging the reaction product. and

(b) treating a xenograft animal model containing cancer cells from the patient with
15 the selected candidate group to verify the anticancer effect of the candidate group.

【 Claim 2】

The method of claim 1, wherein the candidate anticancer agents in step (a) are screened based on the genetic information of cancer.

【 Claim 3】

20 The method of claim 2, wherein the genetic information of cancer is at least one information selected from the results of analysis of a cancer-specific SNP, a cancer-specific haplotype, a cancer-specific mutation.

~~【 Claim 4】 The method of claim 1, wherein the cancer cells from the patient are obtained through the following steps:~~

(a) ~~homogenizing cancer tissue isolated from the cancer patient, and collecting a cell fraction from the homogenized tissue; and~~

(b) ~~allowing the collected cell fraction to react with protease, and filtering and centrifuging the reaction product.~~

5 ~~【 Claim 5】~~

~~The method of claim 1, wherein the cancer cells are single cancer cells obtained from cancer tissue isolated from the cancer patient.~~

~~【 Claim 6】~~

10 ~~The method of claim 1, wherein the cancer cells are cultured cancer cells obtained by culturing single cancer cells obtained from cancer tissue isolated from the cancer patient.~~

~~【 Claim 74】~~

~~The method of claim 61, wherein the culturing is performed in a culture system comprising a medium reservoir, a cell dispenser, a medium exchanger, an incubator, a stirrer, and a waste discharge unit.~~

15 ~~【 Claim 85】~~

~~The method of claim 74, wherein the culture system is a means for seed-culturing cancer cells.~~

~~【 Claim 96】~~

20 ~~The method of claim 74, wherein the culture system is a means for expansion-culturing cancer cells.~~

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【 Claim ~~107~~】

The method of claim 1, wherein step (a) is performed by treating the cancer cells from the patient with the candidate anticancer agents, examining whether each of the treated candidate anticancer agents shows anticancer activity, and selecting a group of personalized anticancer agent candidates having anticancer activity from the candidate anticancer agents.

【 Claim ~~118~~】

The method of claim 1, wherein step (b) is performed using a xenograft animal model constructed by transplanting the cancer cells from the patient into an immunodeficient animal.

【 Claim ~~129~~】

The method of claim ~~118~~, wherein the immunodeficient animal is an immunodeficient mouse.

【 Claim ~~1310~~】

The method of claim ~~129~~, wherein the immunodeficient mouse includes a nude mouse, a NOD (non-obese diabetic) mouse, a SCID (severe combined immunodeficiency) mouse, a NOD-SCID mouse, or a NOG (NOD/SCID Il2rg^{-/-}) mouse.

【 Claim ~~1411~~】

The method of claim 1, further comprising, before step (a) of treating the cancer cells with the candidate

anticancer agents, a step of cryopreserving a portion of the cancer cells.

【 Claim ~~15~~12】

The method of claim 1, wherein the cancer is solid cancer.

【 Claim ~~16~~13】

5 The method of claim ~~15~~12, wherein the cancer is selected from the group consisting of liver cancer, glioblastoma, ovarian cancer, colorectal cancer, head and neck cancer, bladder cancer, hypernephroma, stomach cancer, breast cancer, metastatic cancer, pancreatic cancer, and lung cancer.

【 Claim ~~17~~14】

10 A system for screening personalized anticancer agents comprise:

(a) a means for culturing cancer cells from a patient, comprising a medium reservoir, a cell dispenser, a medium exchanger, an incubator, a stirrer, ~~and a waste discharge unit, a~~
tissue homogenizer, a centrifuge, a protease reservoir, a cell filtration unit, an incubator, a
cancer cell culture means, a medium reservoir, and a waste discharge unit; and

15 (b) a means for treating cultured cancer cells from the patient with the candidate anticancer agents, measuring the anticancer activity of the treated candidate anticancer agents and selecting personalize anticancer agents showing an anticancer effect, the means comprising a candidate anticancer agent reservoir, a candidate anticancer agent dispenser, a cell survival rate-measuring device, a data

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storage unit and a data analysis unit.

【 Claim ~~18~~15】

The system of claim ~~17~~14, wherein the means (b) further comprises at least one selected from among a peeler, a washer, and a plate incubator.

5 【 Claim ~~19~~16】

The system of claim ~~17~~14, wherein the data analysis unit is selected from among a qPCR machine, a plate reader, a confocal microscope, and a multiplex reader.

【~~Claim 20~~】-

10 ~~The system of claim 17, further culturing a cancer cells from a patient means comprising a tissue homogenizer, a centrifuge, a protease reservoir, a cell filtration unit, an incubator, a cancer cell culture means, a medium reservoir, and a waste discharge unit.~~

【 Claim ~~21~~17】

15 The system of claim ~~17~~14, wherein the means (a) for culturing cancer cells cultures cancer cells by providing temperature, time and medium, which are suitable for the culture of cancer cells.

【 Claim ~~22~~18】

The system of claim ~~17~~14, wherein the means (a) for culturing cancer cells is a means for seed-culturing cancer cells.

20 【 Claim ~~23~~19】

The system of claim ~~17~~14, wherein the means (a) for culturing cancer cells is a means for expansion-culturing cancer cells.

【 Claim ~~24~~20】

The system of claim ~~17~~14, further comprising a cancer cryopreservation means is
5 configured to perform a process of treating the cancer cells cultured by the means (a) with a cryoprotective agent and cryopreserving the treated cancer cells.

【 Claim ~~25~~21】

The system of claim ~~24~~20, wherein the cancer cryopreservation means comprises a freezer, a quick freezer, a cryoprotective agent reservoir, a cryoprotective agent dispenser,
10 and a thawing device.