(2) implanting the primary tumor cell obtained from step (1) into an animal. In embodiments, the composition in step (1) of the method of the present invention comprises:

a) 0.3-0.5 mg/L, preferably 0.4 mg/L Hydrocortisone;

b) 4-6 mg/L, preferably 5 mg/L insulin;

c) 7-9μg/L, preferably 8.3 μg/L Cholera toxin;

d) 20-30 mg/L, preferably 24.2 mg/L Adenine;

e) 8-12μg/L, preferably 10 μg/L EGF;

f) 8-12μmol/L, preferably 10 μmol/L Y- 27632;

g) Pen/Strep;

h) 8-12%, preferably 10% FBS;

i) F12 medium

j) DMEM with high glucose, and optionally

k) Non-Essential Amino Acids Solution;

l) GlutaMAX Supplement.

One aspect of the present invention provides a method for obtaining an animal model for screening anti-tumor drugs, comprising

(1) cultivating a primary tumor cell obtained from a tumor sample of a patient in a composition comprising:

a) 0.4 mg/L Hydrocortisone;

b) 5 mg/L Insulin;

c) 8.3 μg/L Cholera toxin;

d) 24.2 mg/L Adenine;

e) 10 μg/L EGF;

f) 10 μmol/L Y- 27632;

g) Pen/Strep;

h) 10% FBS;

i) F12 medium

j) DMEM with high glucose

k) Non-Essential Amino Acids Solution;

l) GlutaMAX Supplement; and

m) a mouse embryonic fibroblast cell that has been treated with mitomycin C; and

(2) implanting the primary tumor cell obtained from step (1) into an animal, wherein the animal is a mouse.

In embodiments, the tumor biopsy sample is a needle biopsy sample. In embodiments, the concentration of the primary tumor cells in the sample obtained from a needle biopsy is less than about $2*10^6$/mL, less than about $1.9*10^6$/mL, less than about $1.8*10^6$/mL, less than about $1.7*10^6$/mL, less than about $1.6*10^6$/mL, less than about $1.5*10^6$/mL, less than about $1.4*10^6$/mL, less than about $1.3*10^6$/mL, less than about $1.2*10^6$/mL, less than about $1.1*10^6$/mL, less than about $1.0*10^6$/mL, less than about $0.9*10^6$/mL, less than about $0.8*10^6$/mL, less than about 0,7 $*10^6$/mL, less than about $0.6*10^6$/mL, less than about $0.5*10^6$/mL, less than about $0.4*10^6$/mL, less than about $0.3*10^6$/mL, less than about $0.2*10^6$/mL, less than about $0.1*10^6$/mL or less, such as less than about $2*10^6$/mL, less than about $1.7*10^6$/mL, less than about $0.8*10^6$/mL, less than about $0.64*10^6$/mL, less than about $0.59*10^6$/mL. In embodiments, the primary tumor cell is cultivated with a feeder cell in the composition of step (1), in particular the feeder cell is a mouse embryonic fibroblast (MEF) cell. In embodiments, the MEF cells have been treated with mitomycin C.

In embodiments, the animal in the present invention is a mouse or a rat, in particular an immunodeficient mouse, such as a nude mouse. In embodiments, the primary tumor cell obtained in step (1) was implanted in to the animal in a hollow fiber. In embodiments, the

hollow fiber is made of modified polyvinylidene fluoride, more particularly the hollow fiber is made of modified polyvinylidene fluoride and has a cut-off value of 500,000 Dalton.

Another aspect of the present invention provides an animal model for screening anti-tumor drugs obtained by the method of the present invention. In embodiments, the animal in the present invention is a mouse or a rat, in particular an immunodeficient mouse, such as a nude mouse.

Another aspect of the present invention provides a method for screening anti-tumor drugs using the animal model of the present invention, comprising administering a candidate drug to the animal model of the present invention. In embodiments, the above method further comprises measuring tumor cell growth in the animal model of the present invention.

Drawing

Figure 1 shows the morphology of conditionally reprogrammed cells in growing colonies from various tumor samples. **A**, P0, P4 and P6 passages of conditionally reprogrammed primary cells originated from surgical sample of a lung cancer patient; **B**, P3 conditionally reprogrammed cells originated from biopsy sample of a lung cancer patient; **C**, P4 conditionally reprogrammed cells originated from a needle biopsy sample of an adenoid cystic carcinoma patient; D, P12 cell originated from a needle biopsy sample of a peritoneal mesothelioma patient; E, P7 cell originated from a surgical sample of a glioblastoma patient; F, P6 cell originated from a biopsy sample of a colonrectal cancer patient; G, P3 cell originated from a surgical sample of a gallbladder carcinoma patient.

Figure 2 A, The results of anti-tumor efficacy of test drug in MDX079 Mini-PDX models; B, The results of anti-tumor efficacy of test drug in MDX083 Mini-PDX models; C, The results of anti-tumor efficacy of test drug in MDX095 Mini-PDX models; D, The results of anti-tumor efficacy of test drug in MDX107 Mini-PDX models; E, The results of anti-tumor efficacy of test drug in MDX123 Mini-PDX models.

Claims

1. A method for obtaining an animal model for screening anti-tumor drugs, comprising

(1) cultivating a primary tumor cell obtained from a tumor sample of a patient in a composition comprising:

a) 0.4 mg/L Hydrocortisone;
b) 5 mg/L Insulin;
c) 8.3 μg/L Cholera toxin;
d) 24.2 mg/L Adenine;
e) 10 μg/L EGF;
f) 10 μmol/L Y- 27632;
g) Pen/Strep;
h) 10% FBS;
i) F12 medium
j) DMEM with high glucose
k) Non-Essential Amino Acids Solution;
l) GlutaMAX Supplement; and
m) a mouse embryonic fibroblast cell that has been treated with mitomycin C; and

(2) implanting the primary tumor cell obtained from step (1) into an animal, wherein the animal is a mouse.

2. The method of claim 1, wherein the tumor sample is a surgical sample or a biopsy sample.

3. The method of claim 1, wherein the concentration of the primary tumor cells in the tumor sample obtained from a needle biopsy is less than about $2*10^6$/mL, less than about $1.9*10^6$/mL, less than about $1.8*10^6$/mL, less than about $1.7*10^6$/mL, less than about $1.6*10^6$/mL, less than about $1.5*10^6$/mL, less than about $1.4*10^6$/mL, less than about $1.3*10^6$/mL, less than about $1.2*10^6$/mL, less than about $1.1*10^6$/mL, less than about $1.0*10^6$/mL, less than about $0.9*10^6$/mL, less than about $0.8*10^6$/mL, less than about $0.7*10^6$/mL, less than about $0.6*10^6$/mL, less than about $0.5*10^6$/mL, less than about $0.4*10^6$/mL, less than about $0.3*10^6$/mL, less than about $0.2*10^6$/mL, less than about $0.1*10^6$/mL, such as less than about $2*10^6$/mL, less than about $1.7*10^6$/mL, less than about $0.8*10^6$/mL, less than about $0.64*10^6$/mL, less than about $0.59*10^6$/mL.

4. The method of claim 1, wherein the mouse is an immunodeficient mouse.

5. The method of claim 1, wherein the primary tumor cell obtained in step (1) is implanted in to the animal in a hollow fiber, in particular the hollow fiber is made of modified polyvinylidene fluoride, more particularly the hollow fiber is made of modified polyvinylidene fluoride and has a cut-off value of 500,000 Dalton.
6. The method of claim 5, wherein the hollow fiber is implanted subcutaneously into the mouse.