for NSCLC. Establishing different tumor cell lines for cancer study can provide useful data for new drug research and development. Tumor cell lines with *EGFR* mutations are useful tools for evaluating anti-NSCLC drugs both in vitro and ex vivo. For example, a tumor cell line can be implanted subcutaneously to form an animal model for drug efficacy evaluation, which will mimic the in vivo environment of patients, reflect the patient's response and thus is more effective. Thus in the relevant technical field there is a need for NSCLC cell lines with one or more *EGFR* mutations in Exons 19, 20 and 21, as well as a wild-type NSCLC cell line of the same origin which can be used as a reference, wherein said NSCLC cell lines maintain stable genetic characteristics during proliferation and grow into tumor in an animal model. The human NSCLC cell lines of the present invention, the reagent, kit or animal model containing the same are proved to be very useful for drug research or development.

Summary

The present disclosure provides human NSCLC (hNSCLC) cell lines, i.e. LD1-0025-200636, LD1-0025-200694, LD1-0006-215676 and LD1-0025-200717.

In one aspect, disclosed herein is a human NSCLC cell line LD1-0025-200717, deposited under CCTCC No. C2020103.

In another aspect, disclosed herein is a human NSCLC cell line LD1-0025-200636, deposited under CCTCC No. C202005.

In another aspect, disclosed herein is a human NSCLC cell line LD1-0025-200694, deposited under CCTCC No. C2020102.

In another aspect, disclosed herein is a human NSCLC cell line LD1-0006-215676, deposited under CCTCC No. C2020104.

In another aspect, disclosed herein are progeny cell lines derived from human NSCLC cell line disclosed herein.

In another aspect, disclosed herein is a reagent comprising the human NSCLC cell line disclosed herein or the progeny cell lines disclosed herein.

In another aspect, disclosed herein is a kit comprising the human NSCLC cell line disclosed herein or the progeny cell lines disclosed herein or the reagent disclosed herein.

In another aspect, disclosed herein is a use of the cell line disclosed herein or the progeny cell lines disclosed herein or the reagent disclosed herein or the kit disclosed herein for generating NSCLC in an immune compromised mammal for evaluating the efficacy of anti-NSCLC drugs, preferably said immune compromised mammal is an immune compromised mouse.

In another aspect, disclosed herein is a method for producing an animal model, comprising injecting or implanting the human NSCLC cell line disclosed herein or the progeny cell lines disclosed herein, or the reagent disclosed herein into an animal, preferably said animal is an immune compromised mammal, more preferably an immune compromised mouse.

In another aspect, disclosed herein is a method for evaluating efficacy of anti-NSCLC drugs, comprising (i) contacting one or more candidate drugs with the human NSCLC cell line disclosed herein or the progeny cell lines disclosed herein, or the reagent disclosed herein, or the kit disclosed herein, (ii) determining the inhibition of cell growth.

In particular, the human NSCLC (hNSCLC) cell line LD1-0025-200636 is directly established from EGFR WT NSCLC patient; LD1-0025-200694 is directly established from EGFR L858R NSCLC patient; LD1-0006-215676 is directly established from EGFR double-mutant (L858R/T790M) patient; and LD1-0025-200717 is directly established from

EGFR triple-mutant (19del/T790M/C797S) patient.

The human NSCLC cell lines of the present disclosure can proliferate in vitro and grow into tumors in animal models while maintaining their genetic characteristics.

The present disclosure also comprises the progeny cell lines of LD1-0025-200636, LD1-0025-200694, LD1-0006-215676 and LD1-0025-200717.

In examples, the present disclosure relates to a method for generating hNSCLC cell lines of the present disclosure from a NSCLC sample of a patient by serial passaging. In examples, the hNSCLC cell lines of the present disclosure have been passed for over 10 generations, more particularly over 20 generations, more particularly over 30 generations, more particularly over 50 generations, more particularly over 70 generations, more particularly over 100 generations. Preferably the hNSCLC cell lines of the present disclosure have been passed for 10 generations, 30 generations, 35 generations, 40 generations, 45 generations, 50 generations, 55 generations, 60 generations, 65 generations, 70 generations, 75 generations, 80 generations, 85 generations, 90 generations, 95 generations and 100 generations.

The present disclosure also relates to a sample of tissue or organ comprising the hNSCLC cell lines of the present disclosure. In particular, said sample of tissue or organ are derived from animal models implanted or injected with the hNSCLC cell lines of the present disclosure. In examples, said tissue or organ is derived from the lung of animal models, preferably immune compromised mice. In examples, said sample of tissue or organ comprises metastatic hNSCLC cell lines of the present disclosure, in particular said sample of tissue or organ comprises metastatic hNSCLC cell lines of the present disclosure in the brain or bone of a mammal.

In one example the present disclosure relates to a reagent comprising the hNSCLC cell lines of the present disclosure. Said reagent can be used to evaluating anti-hNSCLC drugs.

In another example, the present disclosure also relates to a kit comprising the hNSCLC cell lines of the present disclosure or a sample of tissue or organ comprising the hNSCLC cell lines of the present disclosure. In examples the kit can be used to evaluate the efficacy anti-NSCLC drugs or used in drug research and development to obtain pharmacological data or other relevant data. In examples, the kit of the present disclosure further comprises means or reagent for detecting the presence of the hNSCLC cell lines of the present

disclosure.

In another example, the present disclosure discloses an animal model comprising the hNSCLC cell lines of the present disclosure. In examples, the animal model is obtained by implanting or injecting the hNSCLC cell lines of the present disclosure subcutaneously into the animal. In examples, said animal model is an immune compromised mammal, preferably an immune compromised mouse.

The present disclosure also discloses methods for evaluating drug efficacy using the hNSCLC cell lines of the present disclosure, the reagent or kit comprising the hNSCLC cell lines of the present disclosure. In examples, the hNSCLC cell lines of the present disclosure, the reagent comprising the hNSCLC cell lines of the present disclosure or the kit of the present disclosure are used to obtain data for drug research and development. In examples, the data obtained from the hNSCLC cell lines of the present disclosure, the reagent comprising the hNSCLC cell lines of the present disclosure or the kit of the present disclosure are used to set up a computer model for drug efficacy evaluation, in particular said data is processed by a computer software to obtain a computer model for evaluating the efficacy of anti-NSCLC drugs.

Deposit information of biological material

The present invention provides a human NSCLC cell line, LD1-0025-200636, deposited with China Center for Type Culture Collection (CCTCC) under CCTCC No. C202005 on June 3, 2020. Address: Wuhan University, Wuhan, China, 430072.

The present invention provides a human NSCLC cell line, LD1-0025-200694, deposited with China Center for Type Culture Collection (CCTCC) under CCTCC No. C2020102 on June 3, 2020. Address: Wuhan University, Wuhan, China, 430072.

Human NSCLC cell line of the present invention, LD1-0006-215676, deposited with China