

A Preclinical Model for Mutant Human EGFR-driven Lung Adenocarcinoma

Summary (1024-character limit)

The National Cancer Institute (NCI) has a human epidermal growth factor receptor- (EGFR) driven tumor mouse model of lung adenocarcinoma available for licensing.

NIH Reference Number

E-041-2014

Product Type

- Research Tools

Keywords

- Lung cancer, Lung Adenocarcinoma, Epidermal Growth Factor Receptor, EGFR, Respiratory, Mouse Model, Genetically Engineered Mouse, GEM, Ohler Weaver

Collaboration Opportunity

This invention is available for licensing.

Contact

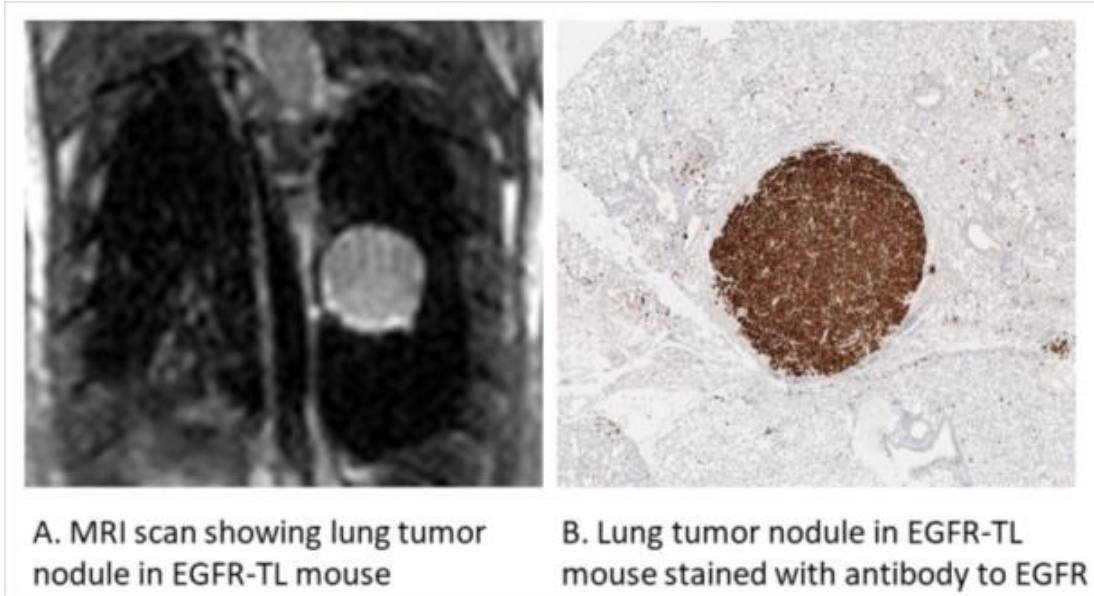
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Description of Technology

Previously described epidermal growth factor receptor- (EGFR) driven tumor mouse models develop diffuse tumors, which are dissimilar to human lung tumor morphology and difficult to measure by CT and MRI scans. Scientists at the National Cancer Institute (NCI) have developed and characterized a genetically engineered mouse (GEM) model of human EGFR-driven tumor model (hEGFR-TL) that recapitulates the discrete lung tumor nodules similar to those found in human lung tumor morphology. Individual tumor nodules can be easily measured by live animal imaging and the nodules can be harvested and isolated from surrounding lung tissue post-treatment, making this a more tractable model for human non-small cell lung adenocarcinoma. The lungs express an EGFR transgene that harbors two mutations ('L858R' and 'T790M') which render the lung tumors resistant to first generation EGFR inhibitors and are useful for evaluating drugs targeting resistant tumors.



Potential Commercial Applications

- Preclinical in vivo screen of therapeutics targeting tumor kinase inhibitors such as EGFR-mediated lung tumors, and identification of new biomarkers in this pathway
- Evaluation of novel therapeutics in inducible models of EGFR-driven drug resistant lung adenocarcinoma
- Dermatology Research
- Immunology, Inflammation and Autoimmunity Research

Competitive Advantages

- Lung tumor development and response to drugs can be monitored by MRI or CT scanning
- Contain a human EGFR transgene (either TRE-EGFR-L858R or TRE-EGFR-L858R-T790M models are available) and an activating transgene (CCSP-rtTA) to direct expression of mutant EGFR to the Clara cells

Inventor(s)

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Development Stage

- Prototype

Publications

Nakamura Y, et al., Near infrared photoimmunotherapy in a transgenic mouse model of spontaneous epidermal growth factor receptor (EGFR)-expressing lung cancer. [[PMC 5335921](#)]

Patent Status

- **Research Material:** NIH will not pursue patent prosecution for this technology

Therapeutic Area

- Cancer/Neoplasm